



10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

March 29, 2019

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

Notice of Exempt Modification
607 Hunting Hill Place, Orange, CT 06477 (also known as 263 Bittersweet Road, Orange, CT)
Latitude- 41.294478333
Longitude- -72.99095000

Dear Ms. Bachman,

T-Mobile currently maintains (3) existing antennas at the 157' level of the existing 160' transmission tower at 607 Hunting Hill Place in Orange, Connecticut (also known as 263 Bittersweet Road). The tower is owned by Eversource. The property is owned by Jimmy Wang. T-Mobile now intends to add (3) new 600/700/1900/2100 MHz antennas on a new platform mount. The antennas and platform would be installed at the same 157' level of the tower. T-Mobile also intends to add (3) remote radio heads and add (6) coax cables.

The facility was originally approved by the Connecticut Siting Council through Petition No. 486 on December 19, 2002. The proposed modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to James Zeoli, First Selectmen of the Town of Orange, Paul Dinice, Zoning Enforcement Officer for the Town of Orange, as well as the tower and property owner.

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

1. The proposed modification will not result in an increase in the height of the existing structure
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

Sincerely,

Kyle Richers

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
908-447-4716
krichers@transcendwireless.com

cc: James Zeoli - as elected official
Paul Dinice- as zoning official
Eversource Energy- as tower owner
Jimmy Wang- as property owner

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Friday, March 29, 2019 9:03 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CTNH025A CSC PO



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Scheduled Delivery Date: Monday, 04/01/2019

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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424296136022
Ship To:	Jimmy Wang 48-21 189 Street FRESH MEADOWS, NY 113651205 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	04/01/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CTNH025A CSC PO



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Kyle Richers

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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	<u>1ZV257424298206032</u>
Ship To:	Chris Gelinas Eversource Energy 107 Selden Street BERLIN, CT 060371616 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	04/01/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CTNH025A CSC TO



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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	<u>1ZV257424295296049</u>
Ship To:	Paul Dinice Town of Orange Planning and Zoning 617 Orange Center Road ORANGE, CT 064772432 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	04/01/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CTNH025A CSC ZO



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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
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Scheduled Delivery Date: Monday, 04/01/2019

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Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	<u>1ZV257424297406050</u>
Ship To:	James Zeoli Town of Orange 617 Orange Center Road ORANGE, CT 064772432 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	04/01/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CTNH025A CSC EO



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607 HUNTING HILL PL

Location 607 HUNTING HILL PL

Mblu 84/ 2/ 9/ A/

Acct# 245201

Owner WANG JIMMY

Assessment \$58,300

Appraisal \$83,300

PID 5821

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$0	\$83,300	\$83,300
Assessment			
Valuation Year	Improvements	Land	Total
2017	\$0	\$58,300	\$58,300

Owner of Record

Owner	WANG JIMMY	Sale Price	\$0
Co-Owner		Certificate	
Address	48-21 189TH ST	Book & Page	615/ 313
	FRESHMEADOWS, NY 11365	Sale Date	03/22/2012
		Instrument	V

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WANG JIMMY	\$0		615/ 313	V	03/22/2012
WANG JIMMY & WANG CHIN CHU LIN	\$0		577/ 448	00	09/03/2008

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost	
Less Depreciation:	\$0

Building Attributes	
Field	Description
Style	Vacant Land

Model	
Stories	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Floor 1	
Interior Floor 2	
Heat Fuel	
Heat Type	
AC Type	
Bedrooms	
Full Baths	
Half Baths	
Extra Fixtures	
Total Rooms	
Stacks	
Fireplace(s)	
Gas Fireplace(s)	
Attic	
Frame	
Traffic	
Bsmt Gar(s)	
SF FBM	
Basement	
Bsmt Floor	

Building Photo



(<http://images.vgsi.com/photos/OrangeCTPhotos//\00\00\52\27>.

Building Layout

(<http://images.vgsi.com/photos/OrangeCTPhotos//Sketches/5821>

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	520
Description	Comm Vacant
Zone	RES
Neighborhood	010

Land Line Valuation

Size (Acres)	0.23
Frontage	
Depth	
Assessed Value	\$58,300

Outbuildings

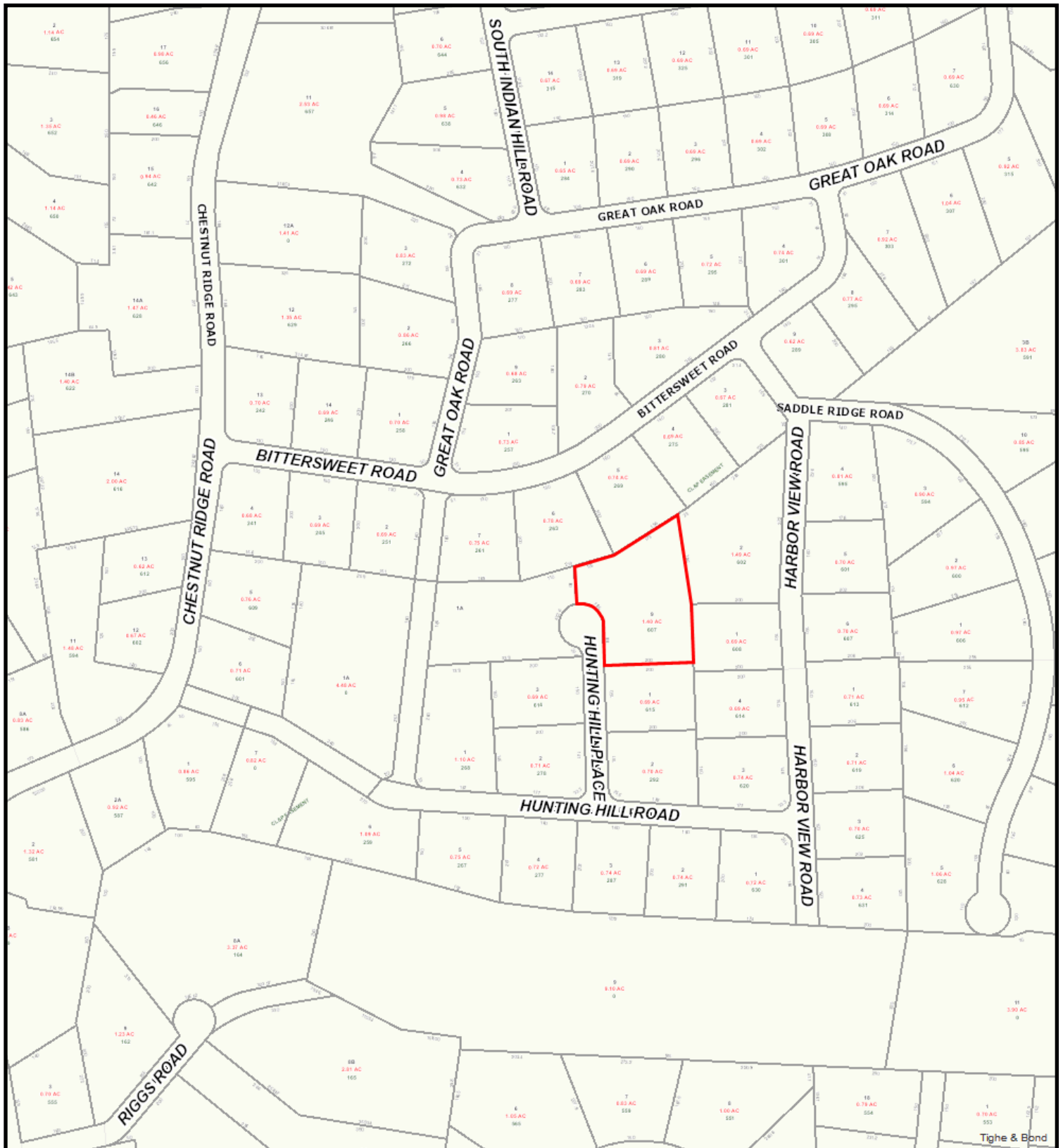
Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$0	\$93,400	\$93,400
2015	\$0	\$93,400	\$93,400
2014	\$0	\$93,400	\$93,400

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$0	\$65,400	\$65,400
2015	\$0	\$65,400	\$65,400
2014	\$0	\$65,400	\$65,400

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3/27/2019 8:59:38 AM

Scale: 1"=300'

Scale is approximate

The information depicted on this map is for planning purposes only.
It is not adequate for legal boundary definition, regulatory
interpretation, or parcel-level analyses.





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

T-Mobile Existing Facility

Site ID: CTNH025A

CT11218Replace-Orange
263 Bittersweet Road
Orange, CT 06477

November 20, 2018

EBI Project Number: 6218007209

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	1.60 %



November 20, 2018

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

Emissions Analysis for Site: **CTNH025A – CT11218Replace-Orange**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **263 Bittersweet Road, Orange, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **263 Bittersweet Road, Orange, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel, 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 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.
- 2) 1 UMTS channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.



- 7) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 8) Cable losses were factored in the calculations for this site. Since all proposed radios are ground mounted the following cable loss values were used. For each ground mounted 600 MHz radio there was 1.29 dB of cable loss calculated into the system gains / losses for this site. For each ground mounted 700 MHz radio there was 1.40 dB of cable loss calculated into the system gains / losses for this site. For each ground mounted 1900 MHz (PCS) radio there was 2.58 dB of cable loss calculated into the system gains / losses for this site. For each ground mounted 2100 MHz (AWS) radio there was 2.65 dB of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for 250 feet of 1-5/8" coax
- 9) 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.
- 10) 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 for directional panel antennas, 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.
- 11) The antennas used in this modeling are the **Commscope TMZXXX-6516-R2M** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 12) The antenna mounting height centerline of the proposed antennas is **157 feet** above ground level (AGL).
- 13) 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.



EBI Consulting

environmental | engineering | due diligence

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



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope TMZXXX-6516	Make / Model:	Commscope TMZXXX-6516	Make / Model:	Commscope TMZXXX-6516
Gain:	15.55 / 15.65 dBd	Gain:	15.55 / 15.65 dBd	Gain:	15.55 / 15.65 dBd
Height (AGL):	157 feet	Height (AGL):	157 feet	Height (AGL):	157 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	7	Channel Count	7	Channel Count	7
Total TX Power(W):	295	Total TX Power(W):	295	Total TX Power(W):	295
ERP (W):	5,845.50	ERP (W):	5,845.50	ERP (W):	5,845.50
Antenna A1 MPE%	0.92	Antenna B1 MPE%	0.92	Antenna C1 MPE%	0.92
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	157 feet	Height (AGL):	157 feet	Height (AGL):	157 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	1,799.14	ERP (W):	1,799.14	ERP (W):	1,799.14
Antenna A2 MPE%	0.68	Antenna B2 MPE%	0.68	Antenna C2 MPE%	0.68

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	1.60 %
No Additional Carriers Located at This Facility	NA
Site Total MPE %:	1.60 %

T-Mobile Sector A Total:	1.60 %
T-Mobile Sector B Total:	1.60 %
T-Mobile Sector C Total:	1.60 %
Site Total:	1.60 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz GSM	1	297.23	157	0.47	PCS - 1900 MHz	1000.00	0.05%
T-Mobile PCS - 1900 MHz UMTS	1	792.61	157	1.25	PCS - 1900 MHz	1000.00	0.12%
T-Mobile PCS - 1900 MHz LTE	2	792.61	157	2.50	PCS - 1900 MHz	1000.00	0.25%
T-Mobile AWS - 2100 MHz UMTS	1	792.61	157	1.25	AWS - 2100 MHz	1000.00	0.12%
T-Mobile AWS - 2100 MHz LTE	2	1,188.92	157	3.75	AWS - 2100 MHz	1000.00	0.37%
T-Mobile 600 MHz LTE	2	586.22	157	1.86	600 MHz	400.00	0.47%
T-Mobile 700 MHz LTE	2	313.35	157	1.01	700 MHz	467.00	0.22%
						Total:	1.60 %



Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	1.60 %
Sector B:	1.60 %
Sector C:	1.60 %
T-Mobile Maximum MPE % (Per Sector):	1.60 %
Site Total:	1.60 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **1.60%** 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.

S t r u c t u r a l A n a l y s i s o f P o l e

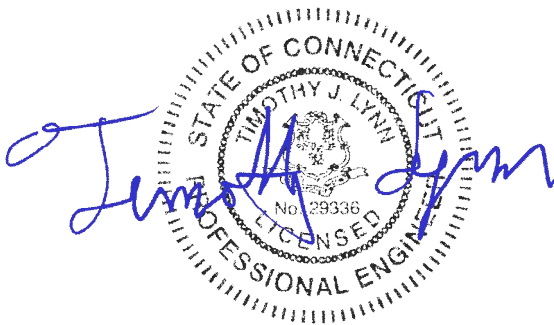
T-Mobile Site Ref: CTNH025A

*Eversource Structure No. 24069
160.5' Electric Transmission Pole*

*607 Hunting Hill Place
Orange, CT*

CENTEK Project No. 18058.96

~~*Date: September 5, 2018*~~
Rev 1: September 27, 2018



Prepared for:
T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

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Introduction

The purpose of this report is to analyze the existing 160.5' pole located at 607 Hunting Hill Place in Orange, CT for the proposed antenna and equipment upgrade by T-Mobile.

The pole was analyzed for the following antenna configuration:

- **T-MOBILE (Existing to Remain):**
Coax Cables: Eighteen (18) 1-5/8" Ø coax cables mounted to the outside of the pole as indicated in Section 4 of this report.
- **T-MOBILE (EXISTING TO RELOCATE):**
Antennas: Three (3) Andrew TMZXXX-6516-R2M panel antennas and six (6) TMAs flush mounted to the existing utility pole to be relocated to proposed mount with a RAD center elevation of 157-ft above grade.
- **T-MOBILE (Proposed):**
Antennas: Three (3) RFS APXVAARR24_43 panel antennas mounted on a proposed SitePro 12-ft Low Profile Platform p/n RMQP-384 with handrail kit p/n HRK12 to the existing utility pole with a RAD center elevation of 157-ft above grade.
Coax Cables: Six (6) 1-5/8" Ø coax cables mounted to the outside of the pole as indicated in Section 4 of this report.

Primary assumptions used in the analysis

- ASCE Manual No. 48-11, "Design of Steel Transmission Pole Structures", defines allowable steel stresses for evaluation of the utility pole.
- All utility pole members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- No residual stresses exist due to incorrect pole erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- All utility pole members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

A n a l y s i s

Structural analysis of the utility pole was completed using the current version of PLS-Pole computer program licensed to CENTEK Engineering. Loading was developed per the requirements of the NESC standard and Northeast Utilities Design Criteria. These loads are developed in Section 5 of this report.

D e s i g n B a s i s

Our analysis was performed in accordance with ASCE Manual No. 48-11 – “Design of Steel Transmission Pole Structures”, NESC C2-2012 and Northeast Utilities Design Criteria.

The CL&P pole structure, considering existing and future conductor and shield wire loading, with the proposed T-Mobile equipment was analyzed as follows:

- UTILITY POLE ANALYSIS

The purpose of this analysis is to determine the adequacy of the existing utility pole to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the NU Design Criteria Table, NESC C2-2012 ~ Construction Grade B, and ASCE Manual No. 48-11.

Load cases considered:

Load Case 1: NESC Heavy Wind

Wind Pressure.....	4.0 psf
Radial Ice Thickness.....	0.5"
Vertical Overload Capacity Factor.....	1.50
Wind Overload Capacity Factor.....	2.50
Wire Tension Overload Capacity Factor.....	1.65

Load Case 2: NESC Extreme Wind

Wind Speed.....	110 mph ⁽¹⁾
Radial Ice Thickness.....	0"

Load Case 3: NESC Extreme Ice w/ Wind

Wind Pressure.....	6.4 psf
Radial Ice Thickness.....	0.75"
Vertical Overload Capacity Factor.....	1.0
Wind Overload Capacity Factor.....	1.0

Note 1: NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading,
1.25 x Gust Response Factor (wind speed: 3-second gust)

Results

■ UTILITY POLE

This analysis finds that the subject utility pole is adequate to support the proposed antenna mast and related appurtenances. The pole stresses meet the requirements set forth by the ASCE Manual No. 48-11, "Design of Steel Transmission Pole Structures", for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 6 of this report. The analysis results are summarized as follows:

A maximum usage of **57.79%** occurs in the utility pole under the **NESC Extreme Wind** loading condition.

POLE SECTION:

The utility pole was found to be within allowable limits.

Tower Section	Elevation	Stress Ratio (% of capacity)	Result
Tube Number 7	0.00' -15.42' (AGL)	57.79%	PASS

BASE PLATE:

The base plate was found to be within allowable limits from the PLS output based on 24 bend lines.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Base Plate	Bending	43.66%	PASS

■ FOUNDATION AND ANCHORS

The existing foundation consists of a 9-ft Ø x 33.0-ft long reinforced concrete caisson. The base of the tower is connected to the foundation by means of (32) 2.25"Ø, ASTM A615-75 anchor bolts embedded into the concrete foundation structure.

BASE REACTIONS:

From PLS-Pole analysis of pole based on NESC/NU prescribed loads.

Load Case	Shear	Axial	Moment
NESC Heavy Wind	31.96 kips	138.86 kips	3292.57 ft-kips
NESC Extreme Wind	72.12 kips	80.42 kips	7376.12 ft-kips
NESC Extreme Ice w/ Wind	24.37 kips	108.94 kips	2581.40 ft-kips

Note 1 – 10% increase will be applied to above tower base reactions per OTRM 051 for foundation analysis.

ANCHOR BOLTS:

The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	55.01%	PASS

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Proposed Loading	Result
Reinforced Concrete Caisson	Moment Capacity	52.6%	PASS

C o n c l u s i o n

This analysis shows that the subject utility tower **is adequate** to support the proposed T-Mobile equipment upgrade.

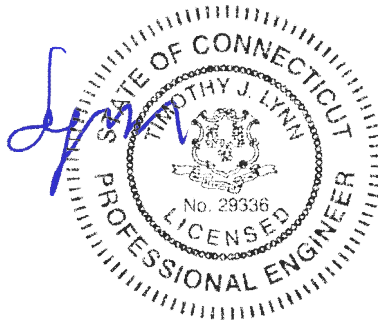
The analysis is based, in part on the information provided to this office by Eversource and T-Mobile. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer



STANDARD CONDITIONS FOR FURNISHING OF
PROFESSIONAL ENGINEERING SERVICES ON
EXISTING STRUCTURES

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

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

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS - POLE

PLS-POLE provides all of the capabilities a structural engineer requires to design transmission, substation or communications structures. It does so using a simple easy to use graphical interface that rests upon our time tested finite element engine. Regardless of whether you want to model a simple wood pole or a guyed steel X-Frame; PLS-POLE can handle the job simply, reliably and efficiently.

Modeling Features:

- Structures are made of standard reusable components that are available in libraries. You can easily create your own libraries or get them from a manufacturer
- Structure models are built interactively using interactive menus and graphical commands
- Automatic generation of underlying finite element model of structure
- Steel poles can have circular, 4, 6, 8, 12, 16, or 18-sided, regular, elliptical or user input cross sections (flat-to-flat or tip-to-tip orientations)
- Steel and concrete poles can be selected from standard sizes available from manufacturers
- Automatic pole class selection
- Cross brace position optimizer
- Capability to specify pole ground line rotations
- Capability to model foundation displacements
- Can optionally model foundation stiffness
- Guys are easily handled (modeled as exact cable elements in nonlinear analysis)
- Powerful graphics module (members color-coded by stress usage)
- Graphical selection of joints and components allows graphical editing and checking
- Poles can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces

Analysis Features:

- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Design checks for ASCE, ANSI/TIA/EIA 222 (Revisions F and G) or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
 - ASCE 74-1991
 - NESC 2002
 - NESC 2007
 - IEC 60826:2003
 - EN50341-1:2001 (CENELEC)
 - EN50341-3-9:2001 (UK NNA)
 - EN50341-3-17:2001 (Portugal NNA)
 - ESAA C(b)1-2003 (Australia)
 - TPNZ (New Zealand)
 - REE (Spain)
 - EIA/TIA 222-F
 - ANSI/TIA 222-G
 - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Detects buckling by nonlinear analysis

Results Features:

- Detects buckling by nonlinear analysis
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Automatic tracking of part numbers and costs

Criteria for Design of PCS Facilities On or
Extending Above Metal Electric Transmission
Towers & Analysis of Transmission Towers
Supporting PCS Masts ⁽¹⁾

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as “masts”), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222 covering the design of telecommunications structures specifies a working strength/allowable stress design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed some defined percentage of failure strength (allowable stress).

ANSI Standard C2-2012 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the NU effort in “unifying” both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 50-year recurrence (2% annual probability). The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

| Note 1: Prepared from documentation provide from Northeast Utilities.

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “NU Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Eversource Overhead Transmission Standards

Attachment A Eversource Design Criteria

		Attachment A NU Design Criteria	Basic Wind Speed	Pressure	Height factor	Gust Factor	Load or Stress Factor	Force Coef. - Shape Factor	
			V (MPH)	Q (PSF)	Kz	Gh			
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA	
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	—	4	1	1	2.50	1.6 Flat Surfaces 1.3 Round Surfaces	
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	—	4	1	1	2.50	1.6 Flat Surfaces 1.3 Round Surfaces	
	Conductors:		Conductor Loads Provided by NU						
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA	
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces	
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces	
	Conductors:		Conductor Loads Provided by NU						
NESC Extreme Ice with Wind Condition *		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 X Gust Response Factor Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces	
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces	
	Conductors:		Conductor Loads Provided by NU						
	* Only for structures installed after 2007								

Communication Antennas on Transmission Structures

Eversource Overhead Transmission Standards

mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition

With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

- a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.
- b) Conductors and related devices and hardware (wire loads will be provided by Eversource).
- c) Electric Transmission Structure
 - i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower.
 - ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2
Pole with Coaxial Cable	1.6

- iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.6

- d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

Note: The NESC does not require ice load be included in the supporting structure. (Ice on conductors and shield wire only, and Eversource will provide these loads).

- e) Mast reaction loads shall be evaluated for local effects on the transmission structure members at the attachment points.

Communication Antennas on Transmission Structures

Criteria notes:
NESC Heavy per Rule 250B, Page 161
Extreme Wind Loading per Rule 250C, Page 161, Coefficients and Gust Response Factors per Equations in Tables 250-2, 250-3
90 MPH Basic Wind Speed, 3 second Gust Wind Speed, Figure 250-2 Beginning on Page 166
Grade B Construction "Method A" per Table 253-1, Page 173 and Table 261-1A, Page 182
Tension Limits per Rule 261H1, Page 179
Insulator Strength Reduction per Rule 277, Page 188 Should be applied to Insulator Strengths when Modeling Insulators
2002 NESC C2-2002 Criteria File for PLS-CADD Created December 21, 2001
Structure 24277 (just North of Durham Rd) moved 50` south per homeowner request. Structure height increased 5 ft. to maintain ground clearance.
1-27-06 Moved structure 24257 100` NE to accomodate homeowner request.
Homeowner request - Structures 24102 & 3915 were moved 100 ft. North for aesthetic purposes.
Homeowner request - Structure 3910 moved 90 ft. South out of line of sight.
Homeowner requests - Neighborhoods of Salem Rd, Country Ct., & Brookwood Ct. requested 135` typ. split phase.
do not change these areas structure heights.
Homeowner request - Structures 24098 & 3911 moved South to property line.
Structure 3808 raised 10 ft. to meet road clearance requirements
12-5-06: Structure 3807 moved 15 ft. South to avoid existing 3808 guy wires.
3848: Moved 5 ft. South towards 3847 per field request, too close to rock wall and distribution lines.
3848: Moved 5 ft. North back to original spot per email from Jason Cabral. Rock wall will be moved, PAR said there should be no impact to adjacent distribution lines.
3807: (1-24-07) Moved approx. 20 ft. southwest to get structure away from existing 1640 guy locations to accomodate construction.
3849: (1-24-07) Moved approx. 14 ft. southwest to get structure away from existing 1640 guy locations to accomodate construction.
3888: (1-24-07) Moved approx. 20 ft. north to get structure away from existing 1640 guy locations to accomodate construction.
5-22-07 : Moved structure 24043 20 ft. northeast per homeowner request. This was a field call from Tim Arvin.
6-11-07: Moved structure 3911 5 ft. South to avoid underground utilities to two residences.
10-17-07: Moved structure 24002 46.5 ft. north per field request.
10-24-07: Moved structure 24045 11.75 ft. east per field request.
1-4-08: Moved structure 24091 17 ft. south to avoid underground storm water drainage pipe.

Weather Cases

WC #	Description	Air Density Factor (psf/mph^2)	Wind Vel. (mph)	Wind Pres. (psf)	Wire Ice Thick (in)	Wire Ice Density (lbs/ft^3)	Wire Ice Load (lbs/ft)	Wire Temp (deg F)	Ambient Temp (deg F)	Weather Load Factor	NESC Constant (lbs/ft)	Wire Wind Height Adjust Model	Wire Gust Response Factor
1	NESC Heavy	0.00256	40	4.0	0.50	57.000	0.00	0	0	1.00	0.30	None	1
2	0F 4psf w/ ice	0.00256	40	4.0	0.50	57.000	0.00	0	0	1.00	0.00	None	1
3	0F 4psf w/o ice	0.00256	40	4.0	0.00	0.000	0.00	0	0	1.00	0.00	None	1
4	NESC Ext Wind	0.00256	112	32.1	0.00	0.000	0.00	60	60	1.00	0.00	None	1
5	ASCE Ice/Wind	0.00256	50	6.4	0.75	57.000	0.00	32	32	1.00	0.00	None	1
6	Maximum Operating	0.00256	0	0.0	0.00	0.000	0.00	285	285	1.00	0.00	None	1
7	NESC Blowout 6PSF	0.00256	48	6.0	0.00	0.000	0.00	60	60	1.00	0.00	None	1
8	3# Wind (SWING 1)	0.00256	34	3.0	0.00	0.000	0.00	60	60	1.00	0.00	None	1
9	6# Wind (SWING 2)	0.00256	48	6.0	0.00	0.000	0.00	60	60	1.00	0.00	None	1
10	60 mph Wind (SWING 3)	0.00256	60	9.2	0.00	0.000	0.00	60	60	1.00	0.00	None	1
11	GALLOPING (SWING)	0.00256	28	2.0	0.50	57.000	0.00	32	32	1.00	0.00	None	1
12	GALLOPING (SAG)	0.00256	0	0.0	0.50	57.000	0.00	32	32	1.00	0.00	None	1
13	-20 Deg F	0.00256	0	0.0	0.00	0.000	0.00	-20	-20	1.00	0.00	None	1
14	0 Deg F	0.00256	0	0.0	0.00	0.000	0.00	0	0	1.00	0.00	None	1
15	50 Deg F	0.00256	0	0.0	0.00	0.000	0.00	50	50	1.00	0.00	None	1
16	60 Deg F	0.00256	0	0.0	0.00	0.000	0.00	60	60	1.00	0.00	None	1
17	120 Deg F	0.00256	0	0.0	0.00	0.000	0.00	120	120	1.00	0.00	None	1
18	NU Ice	0.00256	0	0.0	1.00	57.000	0.00	0	0	1.00	0.00	None	1
19	NU Blowout	0.00256	60	9.2	0.00	0.000	0.00	60	60	1.00	0.00	None	1
20	Construction	0.00256	30	2.3	0.00	0.000	0.00	30	30	1.00	0.00	None	1
21	UI Ice	0.00256	56	8.0	0.50	57.000	0.00	0	0	1.00	0.00	None	1
22	NU Extreme Wind 90mph	0.00256	90	20.7	0.00	0.000	0.00	60	60	1.00	0.00	None	1
23	9psf Wind 60 deg F	0.00256	59	9.0	0.00	0.000	0.00	60	60	1.00	0.00	None	1
24	Tower High Wind	0.00256	80	16.4	0.00	0.000	0.00	60	60	1.00	0.00	None	1
25	UI Heavy Ice (Tower)	0.00256	0	0.0	1.50	57.000	0.00	32	32	1.00	0.00	None	1
26	ADSS Survey Temp	0.00256	0	0.0	0.00	0.000	0.00	85	85	1.00	0.00	None	1
27	ADSS 90 Deg Case	0.00256	0	0.0	0.00	0.000	0.00	90	90	1.00	0.00	None	1

Structure Loads Criteria

LC #	WC #	Load Case Description	Cable Condition	Wind Dir.	Bisect Wind Angle	Wire Vert. Load Factor	Wire + Struct. Wind Load Factor	Wire Tension Load Factor	Struct Weight Load Factor	Struct Wind Area Factor		Struct. Wind Load Model	Struct. Ice Thick (in)	Struct. Ice Density (lbs/ft^3)	Pole Tip Deflection Check	Pole Tip Deflect Limit % or (ft)
1	1	NESC Heavy NA+	Load RS	NA+		1.50	2.50	1.65	1.50	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
2	1	NESC Heavy NA-	Load RS	NA-		1.50	2.50	1.65	1.50	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
3	1	NESC Uplift NA+	Load RS	NA+		1.00	2.50	1.65	1.00	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
4	1	NESC Uplift NA-	Load RS	NA-		1.00	2.50	1.65	1.00	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
5	4	NESC Ext Wind NA	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
6	4	NESC Ext Wind NA	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
7	1	NESC Ins NA+	Load RS	NA+		1.00	1.00	1.00	1.00	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
8	1	NESC Ins NA-	Load RS	NA-		1.00	1.00	1.00	1.00	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
9	5	ASCE Ice/Wind NA	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
10	5	ASCE Ice/Wind NA	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
11	18	NU Ice	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
12	24	Tower High Wind	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
13	24	Tower High Wind	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
14	1	Broken SW NA+	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
15	1	Broken SW NA-	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
16	1	Cond SW NA+	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
17	1	Cond SW NA-	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
18	1	Deadend Tower NA	Load RS	NA+		1.00	1.00	1.00	1.00	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
19	1	Deadend Tower NA	Load RS	NA-		1.00	1.00	1.00	1.00	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
20	25	UI Havey Ice Tow	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
21	25	UI Havey Ice Tow	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
22	1	Broken SW & Cond	Load RS	NA-		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00
23	1	Broken SW & Cond	Load RS	NA+		1.10	1.10	1.10	1.10	1.00	Pre V7	Standard	0.00	0.000	No Limit	0.00

Cable Load Adjustments for each Load Case

LC #	WC #	Load Case Description	Struct Types On Which To Apply	Command 1 Wire(s) Set: Phase: Side:	Command 1	Command 1 Value (lbs) or %	Command 2 Wire(s) Set: Phase: Side:	Command 2	Command 2 Value (lbs) or %
1	1	NESC Heavy NA+	All						
2	1	NESC Heavy NA-	All						
3	1	NESC Uplift NA+	All						
4	1	NESC Uplift NA-	All						
5	4	NESC Ext Wind NA	All						
6	4	NESC Ext Wind NA	All						
7	1	NESC Ins NA+	All						
8	1	NESC Ins NA-	All						
9	5	ASCE Ice/Wind NA	All						
10	5	ASCE Ice/Wind NA	All						
11	18	NU Ice	All						
12	24	Tower High Wind	All						
13	24	Tower High Wind	All						
14	1	Broken SW NA+	No DeadEnd Sets	1:1:Ahead # Broken Subconductors		1			
15	1	Broken SW NA-	No DeadEnd Sets	1:1:Ahead # Broken Subconductors		1			
16	1	Cond SW NA+	No DeadEnd Sets	2:1:Ahead # Broken Subconductors		1			
17	1	Cond SW NA-	No DeadEnd Sets	2:1:Ahead # Broken Subconductors		1			
18	1	Deadend Tower NA	All Sets DeadEnd	Ahead Spans # Broken Subconductors		1			
19	1	Deadend Tower NA	All Sets DeadEnd	Ahead Spans # Broken Subconductors		1			
20	25	UI Havey Ice Tow	All						
21	25	UI Havey Ice Tow	All						
22	1	Broken SW & Cond	No DeadEnd Sets	1:1:Ahead # Broken Subconductors		1	2:1:Ahead # Broken Subconductors		1
23	1	Broken SW & Cond	No DeadEnd Sets	1:1:Ahead # Broken Subconductors		1	2:1:Ahead # Broken Subconductors		1

Span and Wire Summary For Structure Range

Span azimuth is measured clockwise from structure transverse axis (0=transverse, 90=back, 270=ahead)
Azimuth of structure transverse axis is 142.3456 (deg) measured clockwise from North.

Northeast Utilities System Page 4/11

24069	33-cdcsp-02-uwc.160	20	25	4	1	Z1	lapwing_tight.wir	718	90	0.00	8.13	45327	lapwing_tight.wir	503	270	0.00	8.13	45327	
24069	33-cdcsp-02-uwc.160	20	25	5	1	TR:SW	19#10_alumoweld_tight.wir	718	90	0.00	4.62	11565	19#10_alumoweld_tight.wir	503	270	0.00	4.62	11565	
24069	33-cdcsp-02-uwc.160	20	25	6	1	X2	lapwing_tight.wir	718	90	0.00	8.13	45429	lapwing_tight.wir	503	270	0.00	8.13	45429	
24069	33-cdcsp-02-uwc.160	20	25	7	1	Y2	lapwing_tight.wir	718	90	0.00	8.13	45429	lapwing_tight.wir	503	270	0.00	8.13	45429	
24069	33-cdcsp-02-uwc.160	20	25	8	1	Z2	lapwing_tight.wir	718	90	0.00	8.13	45429	lapwing_tight.wir	503	270	0.00	8.13	45429	
24069	33-cdcsp-02-uwc.160	21	25	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	718	90	0.00	4.83	11347	brugg_86ay62acs-2c_345_tight.wir	503	270	0.00	4.83	11347	
24069	33-cdcsp-02-uwc.160	21	25	2	1	X1	lapwing_tight.wir	718	90	0.00	8.13	45327	lapwing_tight.wir	503	270	0.00	8.13	45327	
24069	33-cdcsp-02-uwc.160	21	25	3	1	Y1	lapwing_tight.wir	718	90	0.00	8.13	45327	lapwing_tight.wir	503	270	0.00	8.13	45327	
24069	33-cdcsp-02-uwc.160	21	25	4	1	Z1	lapwing_tight.wir	718	90	0.00	8.13	45327	lapwing_tight.wir	503	270	0.00	8.13	45327	
24069	33-cdcsp-02-uwc.160	21	25	5	1	TR:SW	19#10_alumoweld_tight.wir	718	90	0.00	4.62	11565	19#10_alumoweld_tight.wir	503	270	0.00	4.62	11565	
24069	33-cdcsp-02-uwc.160	21	25	6	1	X2	lapwing_tight.wir	718	90	0.00	8.13	45429	lapwing_tight.wir	503	270	0.00	8.13	45429	
24069	33-cdcsp-02-uwc.160	21	25	7	1	Y2	lapwing_tight.wir	718	90	0.00	8.13	45429	lapwing_tight.wir	503	270	0.00	8.13	45429	
24069	33-cdcsp-02-uwc.160	21	25	8	1	Z2	lapwing_tight.wir	718	90	0.00	8.13	45429	lapwing_tight.wir	503	270	0.00	8.13	45429	
24069	33-cdcsp-02-uwc.160	22	1	Broken SW & Cond	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	718	90	0.59	1.25	6770	brugg_86ay62acs-2c_345_tight.wir	503	270	0.59	1.25	0
24069	33-cdcsp-02-uwc.160	22	1		2	1	X1	lapwing_tight.wir	718	90	0.92	3.34	30104	lapwing_tight.wir	503	270	0.92	3.34	15052
24069	33-cdcsp-02-uwc.160	22	1		3	1	Y1	lapwing_tight.wir	718	90	0.92	3.34	30104	lapwing_tight.wir	503	270	0.92	3.34	30105
24069	33-cdcsp-02-uwc.160	22	1		4	1	Z1	lapwing_tight.wir	718	90	0.92	3.34	30104	lapwing_tight.wir	503	270	0.92	3.34	30105
24069	33-cdcsp-02-uwc.160	22	1		5	1	TR:SW	19#10_alumoweld_tight.wir	718	90	0.55	1.18	6515	19#10_alumoweld_tight.wir	503	270	0.55	1.18	6515
24069	33-cdcsp-02-uwc.160	22	1		6	1	X2	lapwing_tight.wir	718	90	0.92	3.34	30111	lapwing_tight.wir	503	270	0.92	3.34	30111
24069	33-cdcsp-02-uwc.160	22	1		7	1	Y2	lapwing_tight.wir	718	90	0.92	3.34	30111	lapwing_tight.wir	503	270	0.92	3.34	30111
24069	33-cdcsp-02-uwc.160	22	1		8	1	Z2	lapwing_tight.wir	718	90	0.92	3.34	30111	lapwing_tight.wir	503	270	0.92	3.34	30111
24069	33-cdcsp-02-uwc.160	23	1	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	718	90	0.59	1.25	6770	brugg_86ay62acs-2c_345_tight.wir	503	270	0.59	1.25	0	
24069	33-cdcsp-02-uwc.160	23	1	2	1	X1	lapwing_tight.wir	718	90	0.92	3.34	30104	lapwing_tight.wir	503	270	0.92	3.34	15052	
24069	33-cdcsp-02-uwc.160	23	1	3	1	Y1	lapwing_tight.wir	718	90	0.92	3.34	30104	lapwing_tight.wir	503	270	0.92	3.34	30105	
24069	33-cdcsp-02-uwc.160	23	1	4	1	Z1	lapwing_tight.wir	718	90	0.92	3.34	30104	lapwing_tight.wir	503	270	0.92	3.34	30105	
24069	33-cdcsp-02-uwc.160	23	1	5	1	TR:SW	19#10_alumoweld_tight.wir	718	90	0.55	1.18	6515	19#10_alumoweld_tight.wir	503	270	0.55	1.18	6515	
24069	33-cdcsp-02-uwc.160	23	1	6	1	X2	lapwing_tight.wir	718	90	0.92	3.34	30111	lapwing_tight.wir	503	270	0.92	3.34	30111	
24069	33-cdcsp-02-uwc.160	23	1	7	1	Y2	lapwing_tight.wir	718	90	0.92	3.34	30111	lapwing_tight.wir	503	270	0.92	3.34	30111	
24069	33-cdcsp-02-uwc.160	23	1	8	1	Z2	lapwing_tight.wir	718	90	0.92	3.34	30111	lapwing_tight.wir	503	270	0.92	3.34	30111	

Wire Loads In Span Coordinate System For Structure Range

Wire loads expressed in span coordinate system (Longitudinal axis is line connecting attach. points)

Note: Loads in this report do not include load from counter weights, insulator weight or insulator wind area.

Str. No.	Str. Name	LC #	WC #	Load Case Description	Set No.	Phase No.	Attach. Joint Labels	--Loads from back span--			-Loads from ahead span-			Warnings
								Vert.	Trans.	Long.	Vert.	Trans.	Long.	
								----- (lbs) -----			----- (lbs) -----			
24069	33-cdcsp-02-uwc.160	1	1	NESC Heavy NA+	1	1	TL:SW	943	487	10155	126	340	10155	
24069	33-cdcsp-02-uwc.160	1	1		2	1	X1	4951	1504	45157	775	1050	45157	
24069	33-cdcsp-02-uwc.160	1	1		3	1	Y1	4951	1504	45157	775	1050	45157	
24069	33-cdcsp-02-uwc.160	1	1		4	1	Z1	4951	1504	45157	775	1050	45157	
24069	33-cdcsp-02-uwc.160	1	1		5	1	TR:SW	897	453	9772	119	316	9772	
24069	33-cdcsp-02-uwc.160	1	1		6	1	X2	4951	1504	45166	775	1050	45167	
24069	33-cdcsp-02-uwc.160	1	1		7	1	Y2	4951	1504	45166	775	1050	45167	
24069	33-cdcsp-02-uwc.160	1	1		8	1	Z2	4951	1504	45166	775	1050	45167	
24069	33-cdcsp-02-uwc.160	2	1	NESC Heavy NA-	1	1	TL:SW	943	-487	10155	126	-340	10155	
24069	33-cdcsp-02-uwc.160	2	1		2	1	X1	4951	-1504	45157	775	-1050	45157	
24069	33-cdcsp-02-uwc.160	2	1		3	1	Y1	4951	-1504	45157	775	-1050	45157	
24069	33-cdcsp-02-uwc.160	2	1		4	1	Z1	4951	-1504	45157	775	-1050	45157	
24069	33-cdcsp-02-uwc.160	2	1		5	1	TR:SW	897	-453	9772	119	-316	9772	
24069	33-cdcsp-02-uwc.160	2	1		6	1	X2	4951	-1504	45166	775	-1050	45167	
24069	33-cdcsp-02-uwc.160	2	1		7	1	Y2	4951	-1504	45166	775	-1050	45167	
24069	33-cdcsp-02-uwc.160	2	1		8	1	Z2	4951	-1504	45166	775	-1050	45167	
24069	33-cdcsp-02-uwc.160	3	1	NESC Uplift NA+	1	1	TL:SW	629	487	10155	84	340	10155	
24069	33-cdcsp-02-uwc.160	3	1		2	1	X1	3300	1504	45157	517	1050	45157	
24069	33-cdcsp-02-uwc.160	3	1		3	1	Y1	3300	1504	45157	517	1050	45157	
24069	33-cdcsp-02-uwc.160	3	1		4	1	Z1	3300	1504	45157	517	1050	45157	
24069	33-cdcsp-02-uwc.160	3	1		5	1	TR:SW	598	453	9772	79	316	9772	
24069	33-cdcsp-02-uwc.160	3	1		6	1	X2	3301	1504	45166	516	1050	45167	
24069	33-cdcsp-02-uwc.160	3	1		7	1	Y2	3301	1504	45166	516	1050	45167	
24069	33-cdcsp-02-uwc.160	3	1		8	1	Z2	3301	1504	45166	516	1050	45167	
24069	33-cdcsp-02-uwc.160	4	1	NESC Uplift NA-	1	1	TL:SW	629	-487	10155	84	-340	10155	
24069	33-cdcsp-02-uwc.160	4	1		2	1	X1	3300	-1504	45157	517	-1050	45157	
24069	33-cdcsp-02-uwc.160	4	1		3	1	Y1	3300	-1504	45157	517	-1050	45157	
24069	33-cdcsp-02-uwc.160	4	1		4	1	Z1	3300	-1504	45157	517	-1050	45157	
24069	33-cdcsp-02-uwc.160	4	1		5	1	TR:SW	598	-453	9772	79	-316	9772	
24069	33-cdcsp-02-uwc.160	4	1		6	1	X2	3301	-1504	45166	516	-1050	45167	
24069	33-cdcsp-02-uwc.160	4	1		7	1	Y2	3301	-1504	45166	516	-1050	45167	
24069	33-cdcsp-02-uwc.160	4	1		8	1	Z2	3301	-1504	45166	516	-1050	45167	

24069	33-cdcsp-02-uw.160	5	4	NESC Ext Wind NA	1	1	TL:SW	454	658	6340	-136	460	6341
24069	33-cdcsp-02-uw.160	5	4		2	1	X1	2754	3193	29999	-223	2230	30003
24069	33-cdcsp-02-uw.160	5	4		3	1	Y1	2754	3193	29999	-223	2230	30003
24069	33-cdcsp-02-uw.160	5	4		4	1	Z1	2754	3193	29999	-223	2230	30003
24069	33-cdcsp-02-uw.160	5	4		5	1	TR:SW	432	540	5712	-107	377	5713
24069	33-cdcsp-02-uw.160	5	4		6	1	X2	2757	3193	30048	-225	2230	30052
24069	33-cdcsp-02-uw.160	5	4		7	1	Y2	2757	3193	30048	-225	2230	30052
24069	33-cdcsp-02-uw.160	5	4		8	1	Z2	2757	3193	30048	-225	2230	30052
24069	33-cdcsp-02-uw.160	6	4		1	1	TL:SW	454	-658	6340	-136	-460	6341
24069	33-cdcsp-02-uw.160	6	4		2	1	X1	2754	-3193	29999	-223	-2230	30003
24069	33-cdcsp-02-uw.160	6	4		3	1	Y1	2754	-3193	29999	-223	-2230	30003
24069	33-cdcsp-02-uw.160	6	4		4	1	Z1	2754	-3193	29999	-223	-2230	30003
24069	33-cdcsp-02-uw.160	6	4		5	1	TR:SW	432	-540	5712	-107	-377	5713
24069	33-cdcsp-02-uw.160	6	4		6	1	X2	2757	-3193	30048	-225	-2230	30052
24069	33-cdcsp-02-uw.160	6	4		7	1	Y2	2757	-3193	30048	-225	-2230	30052
24069	33-cdcsp-02-uw.160	6	4		8	1	Z2	2757	-3193	30048	-225	-2230	30052
24069	33-cdcsp-02-uw.160	7	1	NESC Ins NA+	1	1	TL:SW	629	195	6155	84	136	6155
24069	33-cdcsp-02-uw.160	7	1		2	1	X1	3300	602	27368	517	420	27368
24069	33-cdcsp-02-uw.160	7	1		3	1	Y1	3300	602	27368	517	420	27368
24069	33-cdcsp-02-uw.160	7	1		4	1	Z1	3300	602	27368	517	420	27368
24069	33-cdcsp-02-uw.160	7	1		5	1	TR:SW	598	181	5922	79	127	5922
24069	33-cdcsp-02-uw.160	7	1		6	1	X2	3301	602	27374	516	420	27374
24069	33-cdcsp-02-uw.160	7	1		7	1	Y2	3301	602	27374	516	420	27374
24069	33-cdcsp-02-uw.160	7	1		8	1	Z2	3301	602	27374	516	420	27374
24069	33-cdcsp-02-uw.160	8	1	NESC Ins NA-	1	1	TL:SW	629	-195	6155	84	-136	6155
24069	33-cdcsp-02-uw.160	8	1		2	1	X1	3300	-602	27368	517	-420	27368
24069	33-cdcsp-02-uw.160	8	1		3	1	Y1	3300	-602	27368	517	-420	27368
24069	33-cdcsp-02-uw.160	8	1		4	1	Z1	3300	-602	27368	517	-420	27368
24069	33-cdcsp-02-uw.160	8	1		5	1	TR:SW	598	-181	5922	79	-127	5922
24069	33-cdcsp-02-uw.160	8	1		6	1	X2	3301	-602	27374	516	-420	27374
24069	33-cdcsp-02-uw.160	8	1		7	1	Y2	3301	-602	27374	516	-420	27374
24069	33-cdcsp-02-uw.160	8	1		8	1	Z2	3301	-602	27374	516	-420	27374
24069	33-cdcsp-02-uw.160	9	5	ASCE Ice/Wind NA	1	1	TL:SW	1011	449	7461	172	313	7461
24069	33-cdcsp-02-uw.160	9	5		2	1	X1	4479	1271	31252	890	887	31253
24069	33-cdcsp-02-uw.160	9	5		3	1	Y1	4479	1271	31252	890	887	31253
24069	33-cdcsp-02-uw.160	9	5		4	1	Z1	4479	1271	31252	890	887	31253
24069	33-cdcsp-02-uw.160	9	5		5	1	TR:SW	965	425	7234	156	297	7234
24069	33-cdcsp-02-uw.160	9	5		6	1	X2	4481	1271	31301	888	887	31302
24069	33-cdcsp-02-uw.160	9	5		7	1	Y2	4481	1271	31301	888	887	31302
24069	33-cdcsp-02-uw.160	9	5		8	1	Z2	4481	1271	31301	888	887	31302
24069	33-cdcsp-02-uw.160	10	5	ASCE Ice/Wind NA	1	1	TL:SW	1011	-449	7461	172	-313	7461
24069	33-cdcsp-02-uw.160	10	5		2	1	X1	4479	-1271	31252	890	-887	31253
24069	33-cdcsp-02-uw.160	10	5		3	1	Y1	4479	-1271	31252	890	-887	31253
24069	33-cdcsp-02-uw.160	10	5		4	1	Z1	4479	-1271	31252	890	-887	31253
24069	33-cdcsp-02-uw.160	10	5		5	1	TR:SW	965	-425	7234	156	-297	7234
24069	33-cdcsp-02-uw.160	10	5		6	1	X2	4481	-1271	31301	888	-887	31302
24069	33-cdcsp-02-uw.160	10	5		7	1	Y2	4481	-1271	31301	888	-887	31302
24069	33-cdcsp-02-uw.160	10	5		8	1	Z2	4481	-1271	31301	888	-887	31302
24069	33-cdcsp-02-uw.160	11	18	NU Ice	1	1	TL:SW	1361	0	8737	324	0	8737
24069	33-cdcsp-02-uw.160	11	18		2	1	X1	5583	0	38032	1175	0	38032
24069	33-cdcsp-02-uw.160	11	18		3	1	Y1	5583	0	38032	1175	0	38032
24069	33-cdcsp-02-uw.160	11	18		4	1	Z1	5583	0	38032	1175	0	38032
24069	33-cdcsp-02-uw.160	11	18		5	1	TR:SW	1297	0	8429	302	0	8429
24069	33-cdcsp-02-uw.160	11	18		6	1	X2	5585	0	38081	1173	0	38081
24069	33-cdcsp-02-uw.160	11	18		7	1	Y2	5585	0	38081	1173	0	38081
24069	33-cdcsp-02-uw.160	11	18		8	1	Z2	5585	0	38081	1173	0	38081
24069	33-cdcsp-02-uw.160	12	24	Tower High Wind	1	1	TL:SW	367	335	4380	-57	234	4380
24069	33-cdcsp-02-uw.160	12	24		2	1	X1	2339	1629	20646	156	1137	20647
24069	33-cdcsp-02-uw.160	12	24		3	1	Y1	2339	1629	20646	156	1137	20647
24069	33-cdcsp-02-uw.160	12	24		4	1	Z1	2339	1629	20646	156	1137	20647
24069	33-cdcsp-02-uw.160	12	24		5	1	TR:SW	357	275	4036	-39	192	4037
24069	33-cdcsp-02-uw.160	12	24		6	1	X2	2340	1629	20674	155	1137	20676
24069	33-cdcsp-02-uw.160	12	24		7	1	Y2	2340	1629	20674	155	1137	20676
24069	33-cdcsp-02-uw.160	12	24		8	1	Z2	2340	1629	20674	155	1137	20676
24069	33-cdcsp-02-uw.160	13	24		1	1	TL:SW	367	-335	4380	-57	-234	4380
24069	33-cdcsp-02-uw.160	13	24		2	1	X1	2339	-1629	20646	156	-1137	20647
24069	33-cdcsp-02-uw.160	13	24		3	1	Y1	2339	-1629	20646	156	-1137	20647
24069	33-cdcsp-02-uw.160	13	24		4	1	Z1	2339	-1629	20646	156	-1137	20647
24069	33-cdcsp-02-uw.160	13	24		5	1	TR:SW	357	-275	4036	-39	-192	4037
24069	33-cdcsp-02-uw.160	13	24		6	1	X2	2340	-1629	20674	155	-1137	20676
24069	33-cdcsp-02-uw.160	13	24		7	1	Y2	2340	-1629	20674	155	-1137	20676
24069	33-cdcsp-02-uw.160	13	24		8	1	Z2	2340	-1629	20674	155	-1137	20676

24069	33-cdcsp-02-uw	14	1	Broken SW NA+	1	1	TL:SW	692	214	6770	0	0	0
24069	33-cdcsp-02-uw	14	1		2	1	X1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	14	1		3	1	Y1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	14	1		4	1	Z1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	14	1		5	1	TR:SW	658	199	6515	87	139	6515
24069	33-cdcsp-02-uw	14	1		6	1	X2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	14	1		7	1	Y2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	14	1		8	1	Z2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	15	1	Broken SW NA-	1	1	TL:SW	692	-214	6770	0	-0	0
24069	33-cdcsp-02-uw	15	1		2	1	X1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	15	1		3	1	Y1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	15	1		4	1	Z1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	15	1		5	1	TR:SW	658	-199	6515	87	-139	6515
24069	33-cdcsp-02-uw	15	1		6	1	X2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	15	1		7	1	Y2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	15	1		8	1	Z2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	16	1	Cond SW NA+	1	1	TL:SW	692	214	6770	92	149	6770
24069	33-cdcsp-02-uw	16	1		2	1	X1	3631	662	30104	284	231	15052
24069	33-cdcsp-02-uw	16	1		3	1	Y1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	16	1		4	1	Z1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	16	1		5	1	TR:SW	658	199	6515	87	139	6515
24069	33-cdcsp-02-uw	16	1		6	1	X2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	16	1		7	1	Y2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	16	1		8	1	Z2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	17	1	Cond SW NA-	1	1	TL:SW	692	-214	6770	92	-149	6770
24069	33-cdcsp-02-uw	17	1		2	1	X1	3631	-662	30104	284	-231	15052
24069	33-cdcsp-02-uw	17	1		3	1	Y1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	17	1		4	1	Z1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	17	1		5	1	TR:SW	658	-199	6515	87	-139	6515
24069	33-cdcsp-02-uw	17	1		6	1	X2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	17	1		7	1	Y2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	17	1		8	1	Z2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	20	25	UI Havey Ice Tow	1	1	TL:SW	2251	0	11347	756	0	11347
24069	33-cdcsp-02-uw	20	25		2	1	X1	7891	0	45327	2259	0	45327
24069	33-cdcsp-02-uw	20	25		3	1	Y1	7891	0	45327	2259	0	45327
24069	33-cdcsp-02-uw	20	25		4	1	Z1	7891	0	45327	2259	0	45327
24069	33-cdcsp-02-uw	20	25		5	1	TR:SW	2182	0	11565	693	0	11565
24069	33-cdcsp-02-uw	20	25		6	1	X2	7895	0	45429	2255	0	45429
24069	33-cdcsp-02-uw	20	25		7	1	Y2	7895	0	45429	2255	0	45429
24069	33-cdcsp-02-uw	20	25		8	1	Z2	7895	0	45429	2255	0	45429
24069	33-cdcsp-02-uw	21	25		1	1	TL:SW	2251	0	11347	756	0	11347
24069	33-cdcsp-02-uw	21	25		2	1	X1	7891	0	45327	2259	0	45327
24069	33-cdcsp-02-uw	21	25		3	1	Y1	7891	0	45327	2259	0	45327
24069	33-cdcsp-02-uw	21	25		4	1	Z1	7891	0	45327	2259	0	45327
24069	33-cdcsp-02-uw	21	25		5	1	TR:SW	2182	0	11565	693	0	11565
24069	33-cdcsp-02-uw	21	25		6	1	X2	7895	0	45429	2255	0	45429
24069	33-cdcsp-02-uw	21	25		7	1	Y2	7895	0	45429	2255	0	45429
24069	33-cdcsp-02-uw	21	25		8	1	Z2	7895	0	45429	2255	0	45429
24069	33-cdcsp-02-uw	22	1	Broken SW & Cond	1	1	TL:SW	692	-214	6770	0	-0	0
24069	33-cdcsp-02-uw	22	1		2	1	X1	3631	-662	30104	284	-231	15052
24069	33-cdcsp-02-uw	22	1		3	1	Y1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	22	1		4	1	Z1	3631	-662	30104	568	-462	30105
24069	33-cdcsp-02-uw	22	1		5	1	TR:SW	658	-199	6515	87	-139	6515
24069	33-cdcsp-02-uw	22	1		6	1	X2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	22	1		7	1	Y2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	22	1		8	1	Z2	3631	-662	30111	568	-462	30111
24069	33-cdcsp-02-uw	23	1		1	1	TL:SW	692	214	6770	0	0	0
24069	33-cdcsp-02-uw	23	1		2	1	X1	3631	662	30104	284	231	15052
24069	33-cdcsp-02-uw	23	1		3	1	Y1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	23	1		4	1	Z1	3631	662	30104	568	462	30105
24069	33-cdcsp-02-uw	23	1		5	1	TR:SW	658	199	6515	87	139	6515
24069	33-cdcsp-02-uw	23	1		6	1	X2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	23	1		7	1	Y2	3631	662	30111	568	462	30111
24069	33-cdcsp-02-uw	23	1		8	1	Z2	3631	662	30111	568	462	30111

Wire Loads In Structure Coordinate System For Structure Range

Note: Loads in this report include load from counter weights, insulator weight and insulator wind area.

Str. No.	Str. Name	LC #	WC #	Load Case Description	Set No.	Phase No.	Attach. Joint	----Structure Loads----			--Loads from back span--			-Loads from ahead span-			Warnings
								Vert.	Trans.	Long.	Vert.	Trans.	Long.	Vert.	Trans.	Long.	

Labels -----(lbs)----- -----(lbs)----- -----(lbs)-----																
24069	33-cdcsp-02-uw.160	1	1	NESC Heavy NA+	1	1	TL:SW	1069	826	-0	943	487	10155	126	340	-10155
24069	33-cdcsp-02-uw.160	1	1		2	1	X1	6101	2554	-1	5138	1504	45157	962	1050	-45157
24069	33-cdcsp-02-uw.160	1	1		3	1	Y1	6101	2554	-1	5138	1504	45157	962	1050	-45157
24069	33-cdcsp-02-uw.160	1	1		4	1	Z1	6101	2554	-1	5138	1504	45157	962	1050	-45157
24069	33-cdcsp-02-uw.160	1	1		5	1	TR:SW	1016	770	-0	897	453	9772	119	316	-9772
24069	33-cdcsp-02-uw.160	1	1		6	1	X2	6101	2554	-1	5139	1504	45166	962	1050	-45167
24069	33-cdcsp-02-uw.160	1	1		7	1	Y2	6101	2554	-1	5139	1504	45166	962	1050	-45167
24069	33-cdcsp-02-uw.160	1	1		8	1	Z2	6101	2554	-1	5139	1504	45166	962	1050	-45167
24069	33-cdcsp-02-uw.160	2	1	NESC Heavy NA-	1	1	TL:SW	1069	-826	-0	943	-487	10155	126	-340	-10155
24069	33-cdcsp-02-uw.160	2	1		2	1	X1	6101	-2554	-1	5138	-1504	45157	962	-1050	-45157
24069	33-cdcsp-02-uw.160	2	1		3	1	Y1	6101	-2554	-1	5138	-1504	45157	962	-1050	-45157
24069	33-cdcsp-02-uw.160	2	1		4	1	Z1	6101	-2554	-1	5138	-1504	45157	962	-1050	-45157
24069	33-cdcsp-02-uw.160	2	1		5	1	TR:SW	1016	-770	-0	897	-453	9772	119	-316	-9772
24069	33-cdcsp-02-uw.160	2	1		6	1	X2	6101	-2554	-1	5139	-1504	45166	962	-1050	-45167
24069	33-cdcsp-02-uw.160	2	1		7	1	Y2	6101	-2554	-1	5139	-1504	45166	962	-1050	-45167
24069	33-cdcsp-02-uw.160	2	1		8	1	Z2	6101	-2554	-1	5139	-1504	45166	962	-1050	-45167
24069	33-cdcsp-02-uw.160	3	1	NESC Uplift NA+	1	1	TL:SW	713	826	-0	629	487	10155	84	340	-10155
24069	33-cdcsp-02-uw.160	3	1		2	1	X1	4067	2554	-1	3425	1504	45157	642	1050	-45157
24069	33-cdcsp-02-uw.160	3	1		3	1	Y1	4067	2554	-1	3425	1504	45157	642	1050	-45157
24069	33-cdcsp-02-uw.160	3	1		4	1	Z1	4067	2554	-1	3425	1504	45157	642	1050	-45157
24069	33-cdcsp-02-uw.160	3	1		5	1	TR:SW	677	770	-0	598	453	9772	79	316	-9772
24069	33-cdcsp-02-uw.160	3	1		6	1	X2	4067	2554	-1	3426	1504	45166	641	1050	-45167
24069	33-cdcsp-02-uw.160	3	1		7	1	Y2	4067	2554	-1	3426	1504	45166	641	1050	-45167
24069	33-cdcsp-02-uw.160	3	1		8	1	Z2	4067	2554	-1	3426	1504	45166	641	1050	-45167
24069	33-cdcsp-02-uw.160	4	1	NESC Uplift NA-	1	1	TL:SW	713	-826	-0	629	-487	10155	84	-340	-10155
24069	33-cdcsp-02-uw.160	4	1		2	1	X1	4067	-2554	-1	3425	-1504	45157	642	-1050	-45157
24069	33-cdcsp-02-uw.160	4	1		3	1	Y1	4067	-2554	-1	3425	-1504	45157	642	-1050	-45157
24069	33-cdcsp-02-uw.160	4	1		4	1	Z1	4067	-2554	-1	3425	-1504	45157	642	-1050	-45157
24069	33-cdcsp-02-uw.160	4	1		5	1	TR:SW	677	-770	-0	598	-453	9772	79	-316	-9772
24069	33-cdcsp-02-uw.160	4	1		6	1	X2	4067	-2554	-1	3426	-1504	45166	641	-1050	-45167
24069	33-cdcsp-02-uw.160	4	1		7	1	Y2	4067	-2554	-1	3426	-1504	45166	641	-1050	-45167
24069	33-cdcsp-02-uw.160	4	1		8	1	Z2	4067	-2554	-1	3426	-1504	45166	641	-1050	-45167
24069	33-cdcsp-02-uw.160	5	4	NESC Ext Wind NA	1	1	TL:SW	318	1117	-1	454	658	6340	-136	460	-6341
24069	33-cdcsp-02-uw.160	5	4		2	1	X1	2807	5422	-4	2892	3193	29999	-85	2230	-30003
24069	33-cdcsp-02-uw.160	5	4		3	1	Y1	2807	5422	-4	2892	3193	29999	-85	2230	-30003
24069	33-cdcsp-02-uw.160	5	4		4	1	Z1	2807	5422	-4	2892	3193	29999	-85	2230	-30003
24069	33-cdcsp-02-uw.160	5	4		5	1	TR:SW	324	917	-1	432	540	5712	-107	377	-5713
24069	33-cdcsp-02-uw.160	5	4		6	1	X2	2807	5422	-4	2894	3193	30048	-87	2230	-30052
24069	33-cdcsp-02-uw.160	5	4		7	1	Y2	2807	5422	-4	2894	3193	30048	-87	2230	-30052
24069	33-cdcsp-02-uw.160	5	4		8	1	Z2	2807	5422	-4	2894	3193	30048	-87	2230	-30052
24069	33-cdcsp-02-uw.160	6	4		1	1	TL:SW	318	-1117	-1	454	-658	6340	-136	-460	-6341
24069	33-cdcsp-02-uw.160	6	4		2	1	X1	2807	-5422	-4	2892	-3193	29999	-85	-2230	-30003
24069	33-cdcsp-02-uw.160	6	4		3	1	Y1	2807	-5422	-4	2892	-3193	29999	-85	-2230	-30003
24069	33-cdcsp-02-uw.160	6	4		4	1	Z1	2807	-5422	-4	2892	-3193	29999	-85	-2230	-30003
24069	33-cdcsp-02-uw.160	6	4		5	1	TR:SW	324	-917	-1	432	-540	5712	-107	-377	-5713
24069	33-cdcsp-02-uw.160	6	4		6	1	X2	2807	-5422	-4	2894	-3193	30048	-87	-2230	-30052
24069	33-cdcsp-02-uw.160	6	4		7	1	Y2	2807	-5422	-4	2894	-3193	30048	-87	-2230	-30052
24069	33-cdcsp-02-uw.160	6	4		8	1	Z2	2807	-5422	-4	2894	-3193	30048	-87	-2230	-30052
24069	33-cdcsp-02-uw.160	7	1	NESC Ins NA+	1	1	TL:SW	713	331	-0	629	195	6155	84	136	-6155
24069	33-cdcsp-02-uw.160	7	1		2	1	X1	4067	1022	-0	3425	602	27368	642	420	-27368
24069	33-cdcsp-02-uw.160	7	1		3	1	Y1	4067	1022	-0	3425	602	27368	642	420	-27368
24069	33-cdcsp-02-uw.160	7	1		4	1	Z1	4067	1022	-0	3425	602	27368	642	420	-27368
24069	33-cdcsp-02-uw.160	7	1		5	1	TR:SW	677	308	-0	598	181	5922	79	127	-5922
24069	33-cdcsp-02-uw.160	7	1		6	1	X2	4067	1022	-0	3426	602	27374	641	420	-27374
24069	33-cdcsp-02-uw.160	7	1		7	1	Y2	4067	1022	-0	3426	602	27374	641	420	-27374
24069	33-cdcsp-02-uw.160	7	1		8	1	Z2	4067	1022	-0	3426	602	27374	641	420	-27374
24069	33-cdcsp-02-uw.160	8	1	NESC Ins NA-	1	1	TL:SW	713	-331	-0	629	-195	6155	84	-136	-6155
24069	33-cdcsp-02-uw.160	8	1		2	1	X1	4067	-1022	-0	3425	-602	27368	642	-420	-27368
24069	33-cdcsp-02-uw.160	8	1		3	1	Y1	4067	-1022	-0	3425	-602	27368	642	-420	-27368
24069	33-cdcsp-02-uw.160	8	1		4	1	Z1	4067	-1022	-0	3425	-602	27368	642	-420	-27368
24069	33-cdcsp-02-uw.160	8	1		5	1	TR:SW	677	-308	-0	598	-181	5922	79	-127	-5922
24069	33-cdcsp-02-uw.160	8	1		6	1	X2	4067	-1022	-0	3426	-602	27374	641	-420	-27374
24069	33-cdcsp-02-uw.160	8	1		7	1	Y2	4067	-1022	-0	3426	-602	27374	641	-420	-27374
24069	33-cdcsp-02-uw.160	8	1		8	1	Z2	4067	-1022	-0	3426	-602	27374	641	-420	-27374
24069	33-cdcsp-02-uw.160	9	5	ASCE Ice/Wind NA	1	1	TL:SW	1184	762	-0	1011	449	7461	172	313	-7461
24069	33-cdcsp-02-uw.160	9	5		2	1	X1	5644	2158	-1	4616	1271	31252	1027	887	-31253
24069	33-cdcsp-02-uw.160	9	5		3	1	Y1	5644	2158	-1	4616	1271	31252	1027	887	-31253
24069	33-cdcsp-02-uw.160	9	5		4	1	Z1	5644	2158	-1	4616	1271	31252	1027	887	-31253
24069	33-cdcsp-02-uw.160	9	5		5	1	TR:SW	1122	722	-0	965	425	7234	156	297	-7234
24069	33-cdcsp-02-uw.160	9	5		6	1	X2	5644	2158	-1	4619	1271	31301	1025	887	-31302

24069	33-cdcsp-02-uw.	160	9	5		7	1	Y2	5644	2158	-1	4619	1271	31301	1025	887	-31302
24069	33-cdcsp-02-uw.	160	9	5		8	1	Z2	5644	2158	-1	4619	1271	31301	1025	887	-31302
24069	33-cdcsp-02-uw.	160	10	5	ASCE Ice/Wind NA	1	1	TL:SW	1184	-762	-0	1011	-449	7461	172	-313	-7461
24069	33-cdcsp-02-uw.	160	10	5		2	1	X1	5644	-2158	-1	4616	-1271	31252	1027	-887	-31253
24069	33-cdcsp-02-uw.	160	10	5		3	1	Y1	5644	-2158	-1	4616	-1271	31252	1027	-887	-31253
24069	33-cdcsp-02-uw.	160	10	5		4	1	Z1	5644	-2158	-1	4616	-1271	31252	1027	-887	-31253
24069	33-cdcsp-02-uw.	160	10	5		5	1	TR:SW	1122	-722	-0	965	-425	7234	156	-297	-7234
24069	33-cdcsp-02-uw.	160	10	5		6	1	X2	5644	-2158	-1	4619	-1271	31301	1025	-887	-31302
24069	33-cdcsp-02-uw.	160	10	5		7	1	Y2	5644	-2158	-1	4619	-1271	31301	1025	-887	-31302
24069	33-cdcsp-02-uw.	160	10	5		8	1	Z2	5644	-2158	-1	4619	-1271	31301	1025	-887	-31302
24069	33-cdcsp-02-uw.	160	11	18	NU Ice	1	1	TL:SW	1685	0	0	1361	0	8737	324	0	-8737
24069	33-cdcsp-02-uw.	160	11	18		2	1	X1	7033	0	0	5720	0	38032	1313	0	-38032
24069	33-cdcsp-02-uw.	160	11	18		3	1	Y1	7033	0	0	5720	0	38032	1313	0	-38032
24069	33-cdcsp-02-uw.	160	11	18		4	1	Z1	7033	0	0	5720	0	38032	1313	0	-38032
24069	33-cdcsp-02-uw.	160	11	18		5	1	TR:SW	1600	0	0	1297	0	8429	302	0	-8429
24069	33-cdcsp-02-uw.	160	11	18		6	1	X2	7033	0	0	5722	0	38081	1311	0	-38081
24069	33-cdcsp-02-uw.	160	11	18		7	1	Y2	7033	0	0	5722	0	38081	1311	0	-38081
24069	33-cdcsp-02-uw.	160	11	18		8	1	Z2	7033	0	0	5722	0	38081	1311	0	-38081
24069	33-cdcsp-02-uw.	160	12	24	Tower High Wind	1	1	TL:SW	311	570	-1	367	335	4380	-57	234	-4380
24069	33-cdcsp-02-uw.	160	12	24		2	1	X1	2770	2766	-2	2476	1629	20646	293	1137	-20647
24069	33-cdcsp-02-uw.	160	12	24		3	1	Y1	2770	2766	-2	2476	1629	20646	293	1137	-20647
24069	33-cdcsp-02-uw.	160	12	24		4	1	Z1	2770	2766	-2	2476	1629	20646	293	1137	-20647
24069	33-cdcsp-02-uw.	160	12	24		5	1	TR:SW	318	468	-0	357	275	4036	-39	192	-4037
24069	33-cdcsp-02-uw.	160	12	24		6	1	X2	2770	2766	-2	2477	1629	20674	292	1137	-20676
24069	33-cdcsp-02-uw.	160	12	24		7	1	Y2	2770	2766	-2	2477	1629	20674	292	1137	-20676
24069	33-cdcsp-02-uw.	160	12	24		8	1	Z2	2770	2766	-2	2477	1629	20674	292	1137	-20676
24069	33-cdcsp-02-uw.	160	13	24		1	1	TL:SW	311	-570	-1	367	-335	4380	-57	-234	-4380
24069	33-cdcsp-02-uw.	160	13	24		2	1	X1	2770	-2766	-2	2476	-1629	20646	293	-1137	-20647
24069	33-cdcsp-02-uw.	160	13	24		3	1	Y1	2770	-2766	-2	2476	-1629	20646	293	-1137	-20647
24069	33-cdcsp-02-uw.	160	13	24		4	1	Z1	2770	-2766	-2	2476	-1629	20646	293	-1137	-20647
24069	33-cdcsp-02-uw.	160	13	24		5	1	TR:SW	318	-468	-0	357	-275	4036	-39	-192	-4037
24069	33-cdcsp-02-uw.	160	13	24		6	1	X2	2770	-2766	-2	2477	-1629	20674	292	-1137	-20676
24069	33-cdcsp-02-uw.	160	13	24		7	1	Y2	2770	-2766	-2	2477	-1629	20674	292	-1137	-20676
24069	33-cdcsp-02-uw.	160	13	24		8	1	Z2	2770	-2766	-2	2477	-1629	20674	292	-1137	-20676
24069	33-cdcsp-02-uw.	160	14	1	Broken SW NA+	1	1	TL:SW	692	214	6770	692	214	6770	0	0	0
24069	33-cdcsp-02-uw.	160	14	1		2	1	X1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw.	160	14	1		3	1	Y1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw.	160	14	1		4	1	Z1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw.	160	14	1		5	1	TR:SW	745	339	-0	658	199	6515	87	139	-6515
24069	33-cdcsp-02-uw.	160	14	1		6	1	X2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw.	160	14	1		7	1	Y2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw.	160	14	1		8	1	Z2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw.	160	15	1	Broken SW NA-	1	1	TL:SW	692	-214	6770	692	-214	6770	0	0	0
24069	33-cdcsp-02-uw.	160	15	1		2	1	X1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw.	160	15	1		3	1	Y1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw.	160	15	1		4	1	Z1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw.	160	15	1		5	1	TR:SW	745	-339	-0	658	-199	6515	87	-139	-6515
24069	33-cdcsp-02-uw.	160	15	1		6	1	X2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw.	160	15	1		7	1	Y2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw.	160	15	1		8	1	Z2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw.	160	16	1	Cond SW NA+	1	1	TL:SW	784	364	-0	692	214	6770	92	149	-6770
24069	33-cdcsp-02-uw.	160	16	1		2	1	X1	4190	893	15052	3768	662	30104	422	231	-15052
24069	33-cdcsp-02-uw.	160	16	1		3	1	Y1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw.	160	16	1		4	1	Z1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw.	160	16	1		5	1	TR:SW	745	339	-0	658	199	6515	87	139	-6515
24069	33-cdcsp-02-uw.	160	16	1		6	1	X2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw.	160	16	1		7	1	Y2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw.	160	16	1		8	1	Z2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw.	160	17	1	Cond SW NA-	1	1	TL:SW	784	-364	-0	692	-214	6770	92	-149	-6770
24069	33-cdcsp-02-uw.	160	17	1		2	1	X1	4190	-893	15052	3768	-662	30104	422	-231	-15052
24069	33-cdcsp-02-uw.	160	17	1		3	1	Y1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw.	160	17	1		4	1	Z1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw.	160	17	1		5	1	TR:SW	745	-339	-0	658	-199	6515	87	-139	-6515
24069	33-cdcsp-02-uw.	160	17	1		6	1	X2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw.	160	17	1		7	1	Y2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw.	160	17	1		8	1	Z2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw.	160	20	25	UI Havey Ice Tow	1	1	TL:SW	3007	0	0	2251	0	11347	756	0	-11347
24069	33-cdcsp-02-uw.	160	20	25		2	1	X1	10424	0	0	8028	0	45327	2396	0	-45327
24069	33-cdcsp-02-uw.	160	20	25		3	1	Y1	10424	0	-0	8028	0	45327	2396	0	-45327
24069	33-cdcsp-02-uw.	160	20	25		4	1	Z1	10424	0	0	8028	0	45327	2396	0	-45327
24069	33-cdcsp-02-uw.	160	20	25		5	1	TR:SW	2876	0	0	2182	0	11565	693	0	-11565
24069	33-cdcsp-02-uw.	160	20	25		6	1	X2	10425	0	0	8033	0	45429	2392	0	-45429

24069	33-cdcsp-02-uw	160	20	25		7	1	Y2	10425	0	0	8033	0	45429	2392	0	-45429
24069	33-cdcsp-02-uw	160	20	25		8	1	Z2	10425	0	0	8033	0	45429	2392	0	-45429
24069	33-cdcsp-02-uw	160	21	25		1	1	TL:SW	3007	0	0	2251	0	11347	756	0	-11347
24069	33-cdcsp-02-uw	160	21	25		2	1	X1	10424	0	0	8028	0	45327	2396	0	-45327
24069	33-cdcsp-02-uw	160	21	25		3	1	Y1	10424	0	-0	8028	0	45327	2396	0	-45327
24069	33-cdcsp-02-uw	160	21	25		4	1	Z1	10424	0	0	8028	0	45327	2396	0	-45327
24069	33-cdcsp-02-uw	160	21	25		5	1	TR:SW	2876	0	0	2182	0	11565	693	0	-11565
24069	33-cdcsp-02-uw	160	21	25		6	1	X2	10425	0	0	8033	0	45429	2392	0	-45429
24069	33-cdcsp-02-uw	160	21	25		7	1	Y2	10425	0	0	8033	0	45429	2392	0	-45429
24069	33-cdcsp-02-uw	160	21	25		8	1	Z2	10425	0	0	8033	0	45429	2392	0	-45429
24069	33-cdcsp-02-uw	160	22	1	Broken SW & Cond	1	1	TL:SW	692	-214	6770	692	-214	6770	0	0	0
24069	33-cdcsp-02-uw	160	22	1		2	1	X1	4190	-893	15052	3768	-662	30104	422	-231	-15052
24069	33-cdcsp-02-uw	160	22	1		3	1	Y1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw	160	22	1		4	1	Z1	4474	-1124	-0	3768	-662	30104	706	-462	-30105
24069	33-cdcsp-02-uw	160	22	1		5	1	TR:SW	745	-339	-0	658	-199	6515	87	-139	-6515
24069	33-cdcsp-02-uw	160	22	1		6	1	X2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw	160	22	1		7	1	Y2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw	160	22	1		8	1	Z2	4474	-1124	-0	3768	-662	30111	705	-462	-30111
24069	33-cdcsp-02-uw	160	23	1		1	1	TL:SW	692	214	6770	692	214	6770	0	0	0
24069	33-cdcsp-02-uw	160	23	1		2	1	X1	4190	893	15052	3768	662	30104	422	231	-15052
24069	33-cdcsp-02-uw	160	23	1		3	1	Y1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw	160	23	1		4	1	Z1	4474	1124	-0	3768	662	30104	706	462	-30105
24069	33-cdcsp-02-uw	160	23	1		5	1	TR:SW	745	339	-0	658	199	6515	87	139	-6515
24069	33-cdcsp-02-uw	160	23	1		6	1	X2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw	160	23	1		7	1	Y2	4474	1124	-0	3768	662	30111	705	462	-30111
24069	33-cdcsp-02-uw	160	23	1		8	1	Z2	4474	1124	-0	3768	662	30111	705	462	-30111

Wire Load Induced Ground Line Moments For Single Pole Centered At Structure Origin For Structure Range

Note: not applicable to guyed structures or frames. These approximate values do not include nonlinear (P-delta) effects or wind on pole. ??

Str. No.	Str. Name	LC #	WC #	Load Case Description	Vert. Load (kips)	Trans. Shear (kips)	Long. Shear (kips)	Resultant Shear (kips)	Trans. Moment (ft-k)	Long. Moment (ft-k)	Resultant Moment (ft-k)
24069	33-cdcsp-02-uw	160	1	1 NESC Heavy NA+	38.688	16.922	-0.004	16.922	1981.572	-0.448	1981.572
24069	33-cdcsp-02-uw	160	2	1 NESC Heavy NA-	38.688	-16.922	-0.004	16.922	-1983.972	-0.448	1983.972
24069	33-cdcsp-02-uw	160	3	1 NESC Uplift NA+	25.792	16.922	-0.004	16.922	1981.972	-0.448	1981.972
24069	33-cdcsp-02-uw	160	4	1 NESC Uplift NA-	25.792	-16.922	-0.004	16.922	-1983.572	-0.448	1983.572
24069	33-cdcsp-02-uw	160	5	4 NESC Ext Wind NA	17.484	34.568	-0.027	34.568	4022.281	-3.131	4022.282
24069	33-cdcsp-02-uw	160	6	4 NESC Ext Wind NA	17.484	-34.568	-0.027	34.568	-4021.992	-3.131	4021.993
24069	33-cdcsp-02-uw	160	7	1 NESC Ins NA+	25.792	6.769	-0.002	6.769	792.309	-0.271	792.309
24069	33-cdcsp-02-uw	160	8	1 NESC Ins NA-	25.792	-6.769	-0.002	6.769	-793.909	-0.271	793.909
24069	33-cdcsp-02-uw	160	9	5 ASCE Ice/Wind NA	36.169	14.434	-0.005	14.434	1692.581	-0.623	1692.581
24069	33-cdcsp-02-uw	160	10	5 ASCE Ice/Wind NA	36.169	-14.434	-0.005	14.434	-1695.377	-0.623	1695.377
24069	33-cdcsp-02-uw	160	11	18 NU Ice	45.481	0.000	0.000	0.000	-1.931	0.000	1.931
24069	33-cdcsp-02-uw	160	12	24 Tower High Wind	17.246	17.633	-0.013	17.633	2051.766	-1.492	2051.767
24069	33-cdcsp-02-uw	160	13	24 Tower High Wind	17.246	-17.633	-0.013	17.633	-2051.432	-1.492	2051.433
24069	33-cdcsp-02-uw	160	14	1 Broken SW NA+	28.279	7.296	6.768	9.952	852.998	934.001	1264.897
24069	33-cdcsp-02-uw	160	15	1 Broken SW NA-	28.279	-7.296	6.768	9.952	-850.593	934.001	1263.276
24069	33-cdcsp-02-uw	160	16	1 Cond SW NA+	28.087	7.215	15.050	16.690	844.115	2061.882	2227.979
24069	33-cdcsp-02-uw	160	17	1 Cond SW NA-	28.087	-7.215	15.050	16.690	-837.431	2061.882	2225.455
24069	33-cdcsp-02-uw	160	20	25 UI Havey Ice Tow	68.430	0.000	-0.000	0.000	-2.960	-0.000	2.960
24069	33-cdcsp-02-uw	160	21	25 UI Havey Ice Tow	68.430	0.000	-0.000	0.000	-2.960	-0.000	2.960
24069	33-cdcsp-02-uw	160	22	1 Broken SW & Cond	27.995	-7.065	21.820	22.936	-814.724	2996.182	3104.977
24069	33-cdcsp-02-uw	160	23	1 Broken SW & Cond	27.995	7.065	21.820	22.936	825.573	2996.182	3107.841

Basic factored design wind pressure on structure For Structure Range

Str. No.	Str. Name	LC #	WC #	Load Case Description	Trans. Wind Press. (psf)	Long. Wind Press. (psf)	Notes
24069	33-cdcsp-02-uw	160	1	1 NESC Heavy NA+	10.0	0.0	
24069	33-cdcsp-02-uw	160	2	1 NESC Heavy NA-	-10.0	-0.0	
24069	33-cdcsp-02-uw	160	3	1 NESC Uplift NA+	10.0	0.0	
24069	33-cdcsp-02-uw	160	4	1 NESC Uplift NA-	-10.0	-0.0	
24069	33-cdcsp-02-uw	160	5	4 NESC Ext Wind NA	35.3	0.0	
24069	33-cdcsp-02-uw	160	6	4 NESC Ext Wind NA	-35.3	-0.0	

24069	33-cdcsp-02-uwc.160	7	1	NESC Ins NA+	4.0	0.0
24069	33-cdcsp-02-uwc.160	8	1	NESC Ins NA-	-4.0	-0.0
24069	33-cdcsp-02-uwc.160	9	5	ASCE Ice/Wind NA	7.0	0.0
24069	33-cdcsp-02-uwc.160	10	5	ASCE Ice/Wind NA	-7.0	-0.0
24069	33-cdcsp-02-uwc.160	11	18	NU Ice	0.0	0.0
24069	33-cdcsp-02-uwc.160	12	24	Tower High Wind	18.0	0.0
24069	33-cdcsp-02-uwc.160	13	24	Tower High Wind	-18.0	-0.0
24069	33-cdcsp-02-uwc.160	14	1	Broken SW NA+	4.4	0.0
24069	33-cdcsp-02-uwc.160	15	1	Broken SW NA-	-4.4	-0.0
24069	33-cdcsp-02-uwc.160	16	1	Cond SW NA+	4.4	0.0
24069	33-cdcsp-02-uwc.160	17	1	Cond SW NA-	-4.4	-0.0
24069	33-cdcsp-02-uwc.160	20	25	UI Havey Ice Tow	0.0	0.0
24069	33-cdcsp-02-uwc.160	21	25	UI Havey Ice Tow	-0.0	-0.0
24069	33-cdcsp-02-uwc.160	22	1	Broken SW & Cond	-4.4	-0.0
24069	33-cdcsp-02-uwc.160	23	1	Broken SW & Cond	4.4	0.0

⊕ T-MOBILE ANTENNAS
EL. ±157'-0" AGL

T-MOBILE (EXISTING TO RELOCATE):
THREE (3) ANDREW TMZXX-6516
PANEL ANTENNAS AND SIX (6) TMAs
TO BE RELOCATED TO PROPOSED
MOUNT

T-MOBILE (PROPOSED):
THREE (3) RFS APXVAARR24_43
PANEL ANTENNAS MOUNTED ON A
PROPOSED SITEPRO 12-FT PLATFORM
(P/N RMQP-384) WITH HANDRAIL KIT
(HRK12)

160.5' TALL STEEL POLE
STRUCTURE NO. 24069

T-MOBILE EXISTING
EIGHTEEN (18) 1-5/8" DIA.
CABLES MOUNTED ON THE
EXTERIOR OF THE POLE

T-MOBILE PROPOSED SIX
(6) 1-5/8" DIA. CABLES
MOUNTED ON THE EXTERIOR
OF THE POLE ON EXISTING
BRACKETS

GRADE

1

EL-1

TOWER & MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS

00	9/5/18	ISSUED FOR REVIEW
01	9/27/18	CONSTRUCTION

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CTNH025A
EVERSOURCE 24069

607 HUNTING HILL PLACE
ORANGE, CT 06477

PROJECT NO: 18058.96
DRAWN BY: TJL
CHECKED BY: CFC
SCALE: AS NOTED
DATE: 9/5/18

TOWER
ELEVATION

EL-1

DWG. 1 OF 1

Subject:

Load Analysis of T-Mobile Equipment on
 Structure #24069

Location:

Orange, CT

Rev. 0: 9/5/18

Prepared by: T.J.L Checked by: C.F.C.
 Job No. 18058.96

Basic Components

Heavy Wind Pressure =
 Basic Windspeed =
 Radial Ice Thickness =
 Radial Ice Density =

$p := 4.00$ psf (User Input NESC 2007 Figure 250-1 & Table 250-1)
 $V := 110$ mph (User Input NESC 2007 Figure 250-2(e))
 $Ir := 0.50$ in (User Input)
 $Id := 56.0$ pcf (User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Tower Above Grade =
 Multiplier Gust Response Factor =
 NESC Factor =
 Importance Factor =

$TME := 160.5$ ft (User Input)
 $m := 1.25$ (User Input - Only for NESC Extreme wind case)
 $kv := 1.43$ (User Input from NESC 2007 Table 250-3 equation)
 $I := 1.0$ (User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient =

$$K_z := 2.01 \cdot \left(\frac{TME}{900} \right)^{\frac{2}{9.5}} = 1.398 \quad (\text{NESC 2007 Table 250-2})$$

Exposure Factor =

$$Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)} \right]^{\frac{1}{7}} = 0.292 \quad (\text{NESC 2007 Table 250-3})$$

Response Term =

$$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220} \right)} = 0.785 \quad (\text{NESC 2007 Table 250-3})$$

Gust Response Factor =

$$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs \cdot \frac{1}{2} \right) \right]}{kv^2} = 0.831 \quad (\text{NESC 2007 Table 250-3})$$

Wind Pressure =

$$qz := 0.00256 \cdot K_z \cdot V^2 \cdot Grf \cdot I = 36 \quad \text{psf} \quad (\text{NESC 2007 Section 250.C.2})$$

NESC Extreme Ice w/ Wind Components

Heavy Wind Pressure =
 Radial Ice Thickness =

$p_{ex} := 6.4$ psf (User Input NESC 2007 Figure 250-3 & Table 250-4)
 $Ir_{ex} := 0.75$ in (User Input NESC 2007 Figure 250-3)

Shape Factors

Shape Factor for Round Members =
 Shape Factor for Flat Members =
 Shape Factor for Coax Cables Attached to Outside of Pole =

NUS Design Criteria Issued April 12, 2007

$Cd_R := 1.3$ (User Input)
 $Cd_F := 1.6$ (User Input)
 $Cd_{coax} := 1.45$ (User Input)

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

NESC Heavy Wind Loading = 2.5 (User Input)
 NESC Extreme Wind Loading = 1.0 (User Input)
 NESC Extreme Ice w/ Wind Loading = 1.0 (User Input)

Overload Factors for Vertical Loads:

NESC Heavy Wind Loading = 1.5 (User Input)
 NESC Extreme Wind Loading = 1.0 (User Input)
 NESC Extreme Ice w/ Wind Loading = 1.0 (User Input)

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Andrew TMZXX-6516
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 60$ in (User Input)
Antenna Width =	$W_{ant} := 19.7$ in (User Input)
Antenna Thickness =	$T_{ant} := 3.5$ in (User Input)
Antenna Weight =	$WT_{ant} := 35.2$ lbs (User Input)
Number of Antennas =	$N_{ant} := 3$ (User Input)

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant1} := WT_{ant} \cdot N_{ant} = 106$	lbs
--------------------------	---	-----

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 4137$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 1545$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 50$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 150$	lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna =	$V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 2382$	cu in
Weight of Extreme Ice on Each Antenna =	$W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 77$	lbs
Weight of Extreme Ice on All Antennas =	$Wt_{ice.ex.ant1} := W_{ICE.exant} \cdot N_{ant} = 232$	lbs

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 8.8$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 26.3$	sf
Total Antenna Wind Force w/ Ice =	$F_{ant1} := p \cdot C_d \cdot F \cdot A_{ICEant} = 168$	lbs

Subject:

Load Analysis of T-Mobile Equipment on
 Structure #24069

Location:

Orange, CT

Rev. 0: 9/5/18

Prepared by: T.J.L Checked by: C.F.C.
 Job No. 18058.96

Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna =

$$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8.2 \quad sf$$

Antenna Projected Surface Area =

$$A_{ant} := SA_{ant} \cdot N_{ant} = 24.6 \quad sf$$

Total Antenna Wind Force =

$$F_{ant1} := qz \cdot C_d \cdot F \cdot A_{ant} \cdot m = 1772 \quad lbs$$

Wind Load (NESC Extreme Ice w/ Wind)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Extreme Ice =

$$SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot I_{rex}) \cdot (W_{ant} + 2 \cdot I_{rex})}{144} = 9.1 \quad sf$$

Antenna Projected Surface Area w/ Extreme Ice =

$$A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 27.2 \quad sf$$

Total Antenna Wind Force w/ Extreme Ice =

$$F_{ex.ant1} := p_{ex} \cdot C_d \cdot F \cdot A_{ICE.exant} \cdot m = 348 \quad lbs$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAARR24_43
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 95.9$ in (User Input)
Antenna Width =	$W_{ant} := 24$ in (User Input)
Antenna Thickness =	$T_{ant} := 8.7$ in (User Input)
Antenna Weight =	$WT_{ant} := 154$ lbs (User Input)
Number of Antennas =	$N_{ant} := 3$ (User Input)

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant2} := WT_{ant} \cdot N_{ant} = 462$	lbs
--------------------------	---	-----

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 3474$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 113$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 338$	lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna =	$V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 5310$	cu in
Weight of Extreme Ice on Each Antenna =	$W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 172$	lbs
Weight of Extreme Ice on All Antennas =	$Wt_{ice.ex.ant2} := W_{ICE.exant} \cdot N_{ant} = 516$	lbs

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 16.8$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 50.5$	sf
Total Antenna Wind Force w/ Ice =	$F_{ant2} := p \cdot C_d \cdot A_{ICEant} = 323$	lbs

Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna =

$$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 16 \quad sf$$

Antenna Projected Surface Area =

$$A_{ant} := SA_{ant} \cdot N_{ant} = 48 \quad sf$$

Total Antenna Wind Force =

$$F_{ant2} := qz \cdot C_d \cdot F \cdot A_{ant} \cdot m = 3451 \quad lbs$$

Wind Load (NESC Extreme Ice w/ Wind)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Extreme Ice =

$$SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot l_{rex}) \cdot (W_{ant} + 2 \cdot l_{rex})}{144} = 17.2 \quad sf$$

Antenna Projected Surface Area w/ Extreme Ice =

$$A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 51.7 \quad sf$$

Total Antenna Wind Force w/ Extreme Ice =

$$F_{ex.ant2} := p_{ex} \cdot C_d \cdot F \cdot A_{ICE.exant} \cdot m = 662 \quad lbs$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	TMA	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 6.1$	in (User Input)
Antenna Width =	$W_{ant} := 6.9$	in (User Input)
Antenna Thickness =	$T_{ant} := 2.8$	in (User Input)
Antenna Weight =	$WT_{ant} := 11$	lbs (User Input)
Number of Antennas =	$N_{ant} := 6$	(User Input)

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant3} := WT_{ant} \cdot N_{ant} = 66$	lbs
--------------------------	--	-----

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 118$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 95$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 3$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 19$	lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna =	$V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 157$	cu in
Weight of Extreme Ice on Each Antenna =	$W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 5$	lbs
Weight of Extreme Ice on All Antennas =	$Wt_{ice.ex.ant3} := W_{ICE.exant} \cdot N_{ant} = 30$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 0.4$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.3$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant3} := p \cdot C_d \cdot F \cdot A_{ICEant} = 15$	lbs

Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna =

$$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3 \quad sf$$

Antenna Projected Surface Area =

$$A_{ant} := SA_{ant} \cdot N_{ant} = 1.8 \quad sf$$

Total Antenna Wind Force =

$$F_{ant3} := qz \cdot C_d \cdot F \cdot A_{ant} \cdot m = 126 \quad lbs$$

Wind Load (NESC Extreme Ice w/ Wind)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Extreme Ice =

$$SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot I_{rex}) \cdot (W_{ant} + 2 \cdot I_{rex})}{144} = 0.4 \quad sf$$

Antenna Projected Surface Area w/ Extreme Ice =

$$A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 2.7 \quad sf$$

Total Antenna Wind Force w/ Extreme Ice =

$$F_{ex.ant3} := p_{ex} \cdot C_d \cdot F \cdot A_{ICE.exant} \cdot m = 34 \quad lbs$$

Subject:

Load Analysis of T-Mobile Equipment on
 Structure #24069

Location:

Orange, CT

Rev. 0: 9/5/18

Prepared by: T.J.L Checked by: C.F.C.
 Job No. 18058.96

Development of Wind & Ice Load on Platform

Platform Data:

Platform Model =	SitePro 12-ft Low Profile Platform RMQP-384 w/ Handrail Kit		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 25$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 28$	sf	(User Input)
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 30$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 2000$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 2300$	lbs	(User Input)
Mount Weight w/ Extreme Ice =	$WT_{mnt.ice.ex} := 2600$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts =

$$Wt_{mnt1} := WT_{mnt} = 2000$$

lbs

Gravity Load (ice only)

Weight of Ice on All Mounts =

$$Wt_{ice.mnt1} := (WT_{mnt.ice} - WT_{mnt}) = 300$$

lbs

Gravity Load (ice only)

Weight of Ice on All Mounts =

$$Wt_{ice.ex.mnt1} := (WT_{mnt.ice.ex} - WT_{mnt}) = 600$$

lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice =

$$Fi_{mnt1} := p \cdot CdAa_{ice} = 112$$

lbs

Wind Load (NESC Extreme)

Total Mount Wind Force =

$$F_{mnt1} := qz \cdot CdAa \cdot m = 1125$$

lbs

Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force =

$$Fi_{ex.mnt1} := p_{ex} \cdot CdAa \cdot m = 200$$

lbs

Subject:

Load Analysis of T-Mobile Equipment on
Structure #24069

Location:

Orange, CT

Rev. 0: 9/5/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 18058.96

Total Equipment Loads:

$$(W_{t_{ant1}} + W_{t_{ice.ant1}} + W_{t_{ant2}} + W_{t_{ice.ant2}} + W_{t_{ant3}} + W_{t_{ice.ant3}} + W_{t_{mnt1}} + W_{t_{ice.mnt1}}) \cdot 1.5 = 5160 \quad \text{lbs}$$

$$(F_{i_{ant1}} + F_{i_{ant2}} + F_{i_{ant3}} + F_{i_{mnt1}}) \cdot 2.5 = 1546 \quad \text{lbs}$$

$$(W_{t_{ant1}} + W_{t_{ant2}} + W_{t_{ant3}} + W_{t_{mnt1}}) = 2634 \quad \text{lbs}$$

$$(F_{ant1} + F_{ant2} + F_{ant3} + F_{mnt1}) = 6475 \quad \text{lbs}$$

$$NESC_{ice.ex} := W_{t_{ant1}} + W_{t_{ice.ex.ant1}} + W_{t_{ant2}} + W_{t_{ice.ex.ant2}} + W_{t_{ant3}} + W_{t_{ice.ex.ant3}} + W_{t_{mnt1}} + W_{t_{ice.ex.mnt1}} = 4012 \quad \text{lbs}$$

$$(F_{i_{ex.ant1}} + F_{i_{ex.ant2}} + F_{i_{ex.ant3}} + F_{i_{ex.mnt1}}) = 1244 \quad \text{lbs}$$

Extreme Ice w/ Wind Vertical Load =

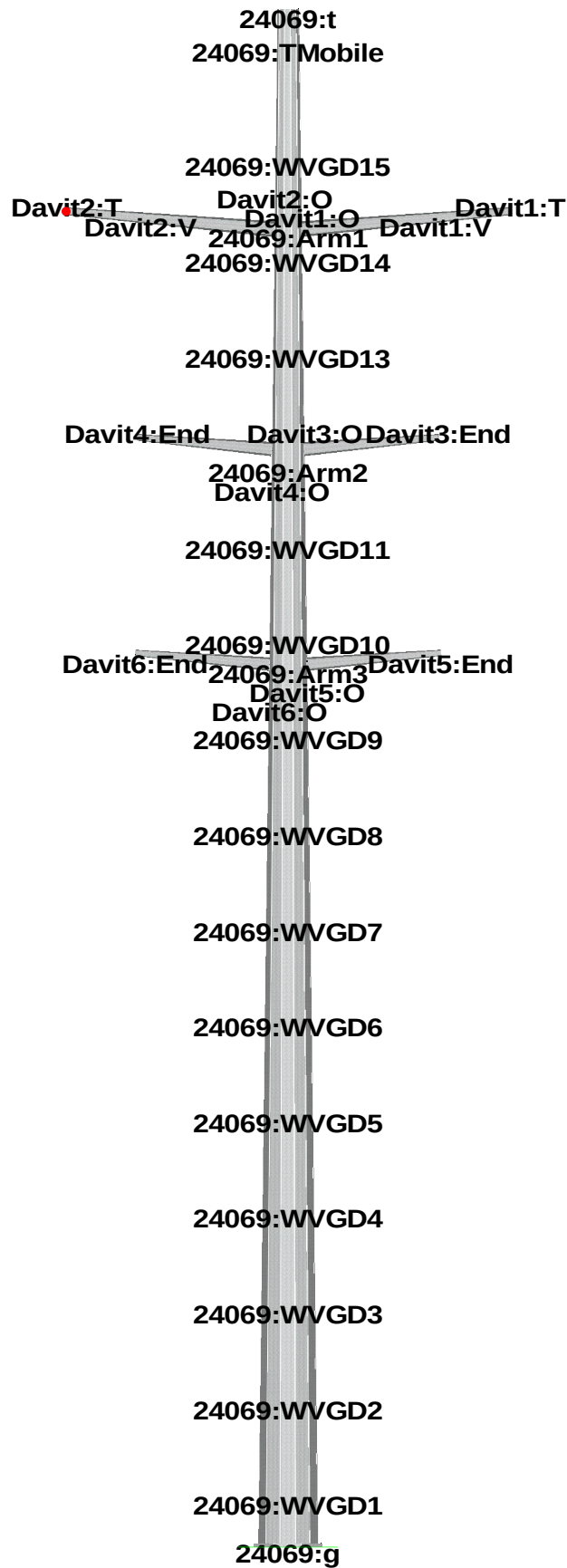
$$\text{Extreme_Ice_Vert} := \left[(N_{\text{coax}} \cdot W_{\text{coax}} + W_{\text{ice.ex}}) \cdot \text{CoaxSpan} \cdot \text{OF}_{\text{EIV}} \right]$$

Extreme Ice w/ Wind Transverse Load =

$$\text{Extreme_Ice_Trans} := \left(p_{\text{ex}} \cdot A_{\text{ice.ex}} \cdot C_{d_{\text{coax}}} \cdot \text{CoaxSpan} \cdot \text{OF}_{\text{EIT}} \right)$$

Extreme_Ice_Vert = 850 lb

Extreme_Ice_Trans = 114 lb



Project Name : 18058.96 - Orange, CT
 Project Notes: Str # 24069/ T-Mobile - CTNH025A
 Project File : J:\Jobs\1805800.WI\96_CTNH025A\05_Structural\Backup Documentation\Calcs\PLS Pole\cl&p structure # 24069.pol
 Date run : 10:52:02 AM Wednesday, September 05, 2018
 by : PLS-POLE Version 12.50
 Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: j:\jobs\1805800.wi\96_ctnh025a\05_structural\backup documentation\calcs\pls pole\cl&p #24069.lca

*** Analysis Results:

Maximum element usage is 57.79% for Steel Pole "24069" in load case "NESC Extreme Wind"

Maximum insulator usage is 8.74% for Clamp "Clamp9" in load case "NESC Extreme Wind"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy Wind	24069:g	-0.29	-31.96	-138.86	31.96	3292.51	-20.27	3292.57	-0.01	0.00
NESC Extreme Wind	24069:g	-0.08	-72.12	-80.42	72.12	7376.12	-5.37	7376.12	-0.01	0.00
NESC Extreme Ice w/ Wind	24069:g	-0.11	-24.37	-108.94	24.37	2581.39	-8.06	2581.40	-0.00	0.00

Summary of Tip Deflections For All Load Cases:

Note: postive tip load results in positive deflection

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
NESC Heavy Wind	24069:t	0.14	28.08	-0.32	28.08	0.01	-1.41	0.00
NESC Extreme Wind	24069:t	0.04	63.69	-1.41	63.71	0.00	-3.27	0.00
NESC Extreme Ice w/ Wind	24069:t	0.06	22.27	-0.21	22.27	0.00	-1.12	0.00

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
24069	1	3252	NESC Extreme Wind	19.14	336.45
24069	2	5024	NESC Extreme Wind	34.67	1069.25
24069	3	8052	NESC Extreme Wind	52.00	2797.28
24069	4	7320	NESC Extreme Wind	50.54	3720.90
24069	5	7400	NESC Extreme Wind	50.86	4962.87
24069	6	8142	NESC Extreme Wind	54.25	6290.67
24069	7	6784	NESC Extreme Wind	57.79	7376.12

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Maximum Load Case Segment Weight

Label	Usage %		Number	(lbs)
24069	57.79	NESC Extreme Wind	44	51651.3

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Segment Number	Weight (lbs)
Davit1	30.31	NESC Heavy Wind	1	1014.2
Davit2	28.03	NESC Heavy Wind	1	1014.2
Davit3	28.28	NESC Heavy Wind	1	566.2
Davit4	26.64	NESC Heavy Wind	1	566.2
Davit5	28.32	NESC Heavy Wind	1	566.2
Davit6	26.69	NESC Heavy Wind	1	566.2

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy Wind	30.31	Davit1	Tubular Davit
NESC Extreme Wind	57.79	24069	Steel Pole
NESC Extreme Ice w/ Wind	28.13	Davit1	Tubular Davit

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Segment Number
NESC Heavy Wind	27.02	24069	44
NESC Extreme Wind	57.79	24069	44
NESC Extreme Ice w/ Wind	21.16	24069	44

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Heavy Wind	24069	11	26.715	133.189	3292.509	-20.275	12.423	56.468	5	63.071	1.593	20.71
NESC Extreme Wind	24069	11	26.715	74.747	7376.119	-5.366	26.199	119.080	5	134.113	2.313	43.66
NESC Extreme Ice w/ Wind	24069	11	26.715	103.269	2581.386	-8.062	9.716	44.162	5	49.374	1.408	16.19

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Segment Number
NESC Heavy Wind	30.31	Davit1	1
NESC Extreme Wind	14.54	Davit1	1
NESC Extreme Ice w/ Wind	28.13	Davit1	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
Clamp1	Clamp	8.27	NESC Heavy Wind	0.0
Clamp2	Clamp	1.76	NESC Extreme Ice w/ Wind	0.0
Clamp3	Clamp	8.27	NESC Heavy Wind	0.0
Clamp4	Clamp	1.67	NESC Extreme Ice w/ Wind	0.0
Clamp5	Clamp	8.27	NESC Heavy Wind	0.0
Clamp6	Clamp	8.27	NESC Heavy Wind	0.0
Clamp7	Clamp	8.27	NESC Heavy Wind	0.0
Clamp8	Clamp	8.27	NESC Heavy Wind	0.0
Clamp9	Clamp	8.74	NESC Extreme Wind	0.0
Clamp10	Clamp	1.17	NESC Heavy Wind	0.0
Clamp11	Clamp	1.17	NESC Heavy Wind	0.0
Clamp12	Clamp	1.17	NESC Heavy Wind	0.0
Clamp13	Clamp	1.17	NESC Heavy Wind	0.0
Clamp14	Clamp	1.17	NESC Heavy Wind	0.0
Clamp15	Clamp	1.17	NESC Heavy Wind	0.0
Clamp16	Clamp	1.17	NESC Heavy Wind	0.0
Clamp17	Clamp	1.17	NESC Heavy Wind	0.0
Clamp18	Clamp	1.17	NESC Heavy Wind	0.0
Clamp19	Clamp	1.17	NESC Heavy Wind	0.0
Clamp20	Clamp	1.17	NESC Heavy Wind	0.0
Clamp21	Clamp	1.17	NESC Heavy Wind	0.0
Clamp22	Clamp	1.17	NESC Heavy Wind	0.0
Clamp23	Clamp	1.17	NESC Heavy Wind	0.0
Clamp24	Clamp	1.17	NESC Heavy Wind	0.0

*** Weight of structure (lbs):
 Weight of Tubular Davit Arms: 4293.2
 Weight of Steel Poles: 51651.3
 Total: 55944.5

*** End of Report

```

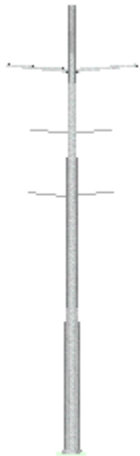
*****
*
*               PLS-POLE
*       POLE AND FRAME ANALYSIS AND DESIGN
*       Copyright Power Line Systems, Inc. 1999-2011
*
*****

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Project Name : 18058.96 - Orange, CT
 Project Notes: Str # 24069/ T-Mobile - CTNH025A
 Project File : J:\Jobs\1805800.WI\96_CTNH025A\05_Structural\Backup Documentation\Calcs\PLS Pole\cl&p structure # 24069.pol
 Date run : 10:52:01 AM Wednesday, September 05, 2018
 by : PLS-POLE Version 12.50
 Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

The model has 0 warnings.



Modeling options:
 Offset Arms from Pole/Mast: Yes
 Offset Braces from Pole/Mast: Yes
 Offset Guys from Pole/Mast: Yes
 Offset Posts from Pole/Mast: Yes
 Offset Strains from Pole/Mast: Yes
 Use Alternate Convergence Process: No
 Steel poles checked with ASCE/SEI 48-05

Default Modulus of Elasticity for Steel = 29000.00 (ksi)
 Default Weight Density for Steel = 490.00 (lbs/ft^3)

Steel Pole Properties:

Steel Pole Ultimate Property	Stock Ultimate Number	Length	Default Embedded	Base Plate	Shape	Tip Diameter	Base Diameter	Taper	Default Drag	Tubes	Modulus of Elasticity	Weight Density	Shape At	Strength Check	Distance From
------------------------------------	-----------------------------	--------	---------------------	---------------	-------	-----------------	------------------	-------	-----------------	-------	--------------------------	-------------------	-------------	-------------------	------------------

Trans.	Long.											Override	Override	Base	Type	Tip	
Label	Label	Length						Coef.									
Load	Load	(ft)	(ft)	(in)	(in)	(in/ft)					(ksi)	(lbs/ft^3)					(ft)
(kips)	(kips)																

CL&P24069	24069	160.50	0	Yes	12F	27.5	74.38	0	1.6	7 tubes	0	0				Calculated	0.000
0.0000	0.0000																

Steel Tubes Properties:

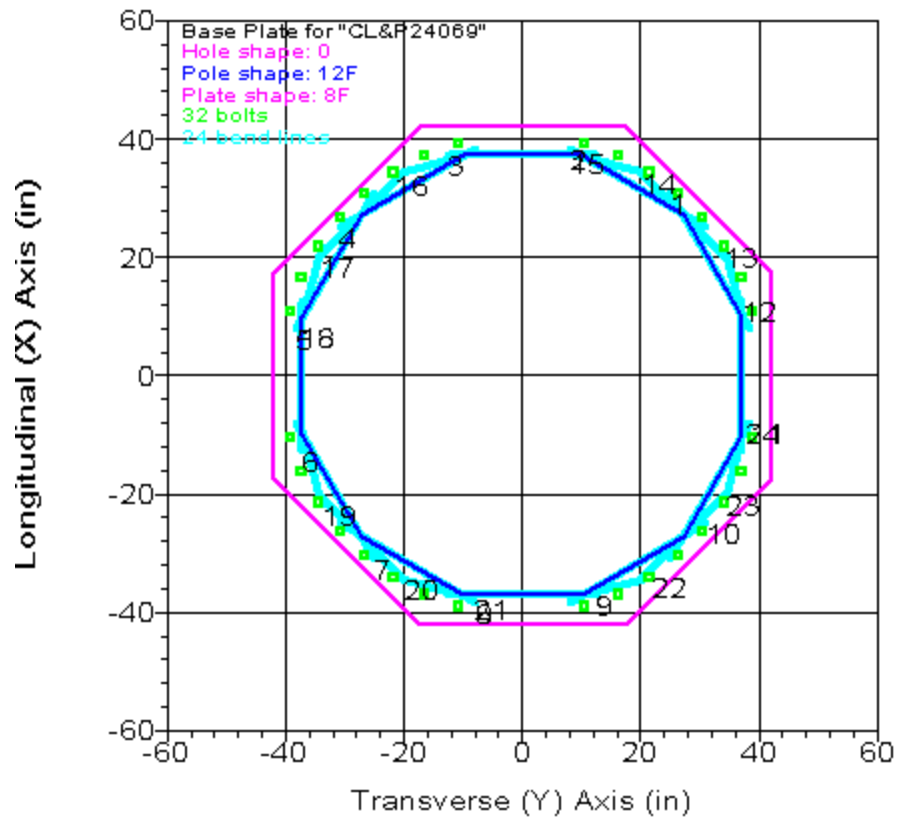
Pole Property	Tube No.	Length (ft)	Thickness (in)	Lap Length (ft)	Lap Factor	Lap Gap (in)	Yield Stress (ksi)	Moment Cap. Override (ft-k)	Tube Weight (lbs)	Center of Gravity (ft)	Calculated Taper (in/ft)	Tube Top Diameter (in)	Tube Bot. Diameter (in)	1.5x Diam. Lap Length (ft)	Actual Overlap (ft)
CL&P24069	1	30	0.3125	0.000	0.000	0.000	65.000	0.000	3252	15.71	0.30140	27.50	36.54	4.490	0.000
CL&P24069	2	30	0.375	5.750	0.000	0.000	65.000	0.000	5024	15.55	0.30140	36.67	45.71	5.620	5.750
CL&P24069	3	35	0.4375	0.000	0.000	0.000	65.000	0.000	8052	18.14	0.30140	43.23	53.78	6.613	0.000
CL&P24069	4	23.5	0.5	7.670	0.000	0.000	65.000	0.000	7320	11.99	0.30140	53.90	60.98	7.498	7.670
CL&P24069	5	20	0.5625	0.000	0.000	0.000	65.000	0.000	7400	10.17	0.30140	57.67	63.70	7.822	0.000
CL&P24069	6	20	0.5625	0.000	0.000	0.000	65.000	0.000	8142	10.15	0.30140	63.70	69.73	8.575	0.000
CL&P24069	7	15.42	0.5625	0.000	0.000	0.000	65.000	0.000	6784	7.79	0.30140	69.73	74.37	0.000	0.000

Base Plate Properties:

Pole Property	Plate Diam. (in)	Plate Shape	Plate Thick. (in)	Plate Weight (lbs)	Bend Line Length Override (in)	Hole Diam. (in)	Hole Shape	Steel Density (lbs/ft^3)	Steel Yield Stress (ksi)	Bolt Diam. (in)	Bolt Pattern (in)	Num. Of Bolts	Bolt Cage X Inertia (in^4)	Bolt Cage Y Inertia (in^4)
CL&P24069	84.000	8F	3.500	5675	0.000	0.000	0	490.00	60.000	2.250	81.000	32	104506.44	104506.44

Base Plate Bolt Coordinates for Property "CL&P24069":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)
0.2623	0.966	0
0.4043	0.9167	0
0.534	0.8457	0
0.6543	0.7562	0
0.7562	0.6543	0
0.8457	0.534	0
0.9167	0.4043	0
0.966	0.2623	0



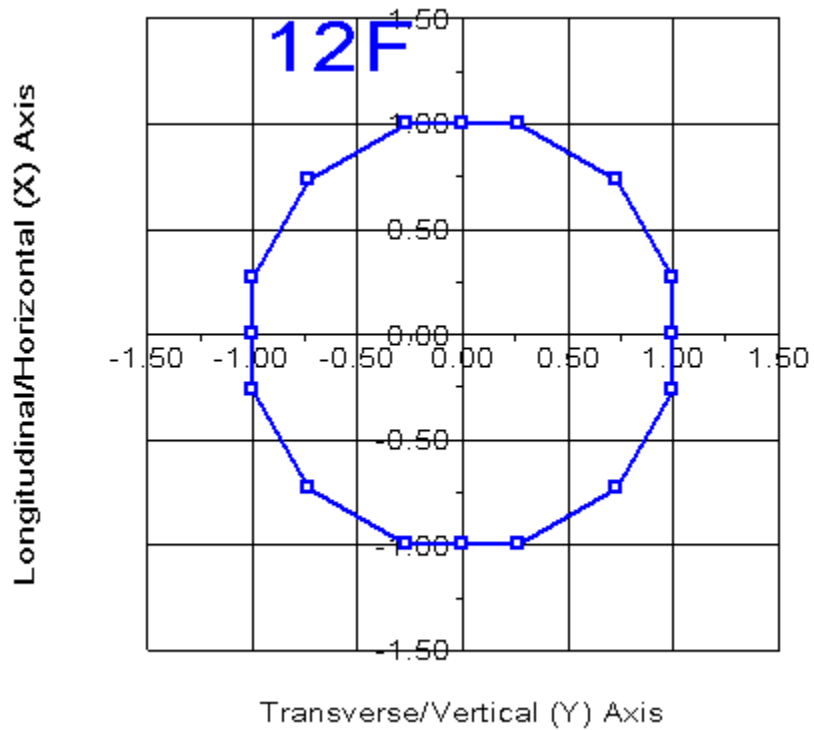
Steel Pole Connectivity:

Pole Label	Tip Joint	Base X of Base (ft)	Y of Base (ft)	Z of Base (ft)	Inclin. About X (deg)	Inclin. About Y (deg)	Property Set	Attach. Labels	Base Connect	Embed % Override	Embed C. Override (ft)
24069		0	0	0	0	0	CL&P24069	19 labels		0.00	0

Relative Attachment Labels for Steel Pole "24069":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
24069:Arm1	0.00	137.50
24069:Arm2	0.00	114.50
24069:Arm3	0.00	92.00
24069:TMobile	0.00	157.00
24069:WVGD1	0.00	5.00

24069:WVG D2	0.00	15.00
24069:WVG D3	0.00	25.00
24069:WVG D4	0.00	35.00
24069:WVG D5	0.00	45.00
24069:WVG D6	0.00	55.00
24069:WVG D7	0.00	65.00
24069:WVG D8	0.00	75.00
24069:WVG D9	0.00	85.00
24069:WVG D10	0.00	95.00
24069:WVG D11	0.00	105.00
24069:WVG D12	0.00	115.00
24069:WVG D13	0.00	125.00
24069:WVG D14	0.00	135.00
24069:WVG D15	0.00	145.00



Pole Steel Properties:

Warning: Capacities and usages printed in splices are listed for the inner tube except at the splice top which uses the outer tube. ??

Element Label	Joint Label	Joint Position	Rel. Dist.	Outer Diam.	Area (in^2)	T-Moment (in^4)	L-Moment (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	T-Moment Capacity (ft-k)	L-Moment Capacity (ft-k)
24069	24069:t	24069:t Ori	0.00	27.50	27.32	2584.81	2584.81	0.00	20.9	65.00	65.00	1018.26	1018.26

24069	24069:TMobile	24069:TMobile	End	3.50	28.55	28.38	2897.49	2897.49	0.00	21.8	65.00	65.00	1099.27	1099.27
24069	24069:TMobile	24069:TMobile	Ori	3.50	28.55	28.38	2897.49	2897.49	0.00	21.8	65.00	65.00	1099.27	1099.27
24069	#24069:0	Tube 1	End	8.50	30.06	29.89	3386.47	3386.47	0.00	23.1	65.00	65.00	1220.37	1220.37
24069	#24069:0	Tube 1	Ori	8.50	30.06	29.89	3386.47	3386.47	0.00	23.1	65.00	65.00	1220.37	1220.37
24069	#24069:1	Tube 1	End	12.00	31.12	30.95	3759.62	3759.62	0.00	24.0	65.00	65.00	1308.91	1308.91
24069	#24069:1	Tube 1	Ori	12.00	31.12	30.95	3759.62	3759.62	0.00	24.0	65.00	65.00	1308.91	1308.91
24069	24069:WVG15	24069:WVG15	End	15.50	32.17	32.01	4159.22	4159.22	0.00	24.9	65.00	65.00	1400.55	1400.55
24069	24069:WVG15	24069:WVG15	Ori	15.50	32.17	32.01	4159.22	4159.22	0.00	24.9	65.00	65.00	1400.55	1400.55
24069	#24069:2	Tube 1	End	19.25	33.30	33.15	4617.74	4617.74	0.00	25.9	65.00	65.00	1502.18	1502.18
24069	#24069:2	Tube 1	Ori	19.25	33.30	33.15	4617.74	4617.74	0.00	25.9	65.00	65.00	1502.18	1502.18
24069	24069:Arm1	24069:Arm1	End	23.00	34.43	34.28	5108.79	5108.79	0.00	26.8	65.00	65.00	1607.36	1607.36
24069	24069:Arm1	24069:Arm1	Ori	23.00	34.43	34.28	5108.79	5108.79	0.00	26.8	65.00	65.00	1607.36	1607.36
24069	24069:WVG14	24069:WVG14	End	25.50	35.19	35.04	5454.77	5454.77	0.00	27.5	65.00	65.00	1679.46	1679.46
24069	24069:WVG14	24069:WVG14	Ori	25.50	35.19	35.04	5454.77	5454.77	0.00	27.5	65.00	65.00	1679.46	1679.46
24069	#24069:3	SpliceT	End	30.00	36.54	36.40	6116.25	6116.25	0.00	28.7	65.00	65.00	1813.23	1813.23
24069	#24069:3	SpliceT	Ori	30.00	36.67	43.76	7377.79	7377.79	0.00	23.5	65.00	65.00	2179.77	2179.77
24069	#24069:4	Tube 2	End	32.75	37.50	44.76	7894.88	7894.88	0.00	24.1	65.00	65.00	2280.99	2280.99
24069	#24069:4	Tube 2	Ori	32.75	37.50	44.76	7894.88	7894.88	0.00	24.1	65.00	65.00	2280.99	2280.99
24069	24069:WVG13	24069:WVG13	End	35.50	38.32	45.76	8435.58	8435.58	0.00	24.7	65.00	65.00	2384.50	2384.50
24069	24069:WVG13	24069:WVG13	Ori	35.50	38.32	45.76	8435.58	8435.58	0.00	24.7	65.00	65.00	2384.50	2384.50
24069	#24069:5	Tube 2	End	40.50	39.83	47.58	9480.89	9480.89	0.00	25.8	65.00	65.00	2578.58	2578.58
24069	#24069:5	Tube 2	Ori	40.50	39.83	47.58	9480.89	9480.89	0.00	25.8	65.00	65.00	2578.58	2578.58
24069	24069:WVG12	24069:WVG12	End	45.50	41.34	49.39	10609.18	10609.18	0.00	26.9	65.00	65.00	2780.26	2780.26
24069	24069:WVG12	24069:WVG12	Ori	45.50	41.34	49.39	10609.18	10609.18	0.00	26.9	65.00	65.00	2780.26	2780.26
24069	24069:Arm2	24069:Arm2	End	46.00	41.49	49.57	10726.70	10726.70	0.00	27.0	65.00	65.00	2800.85	2800.85
24069	24069:Arm2	24069:Arm2	Ori	46.00	41.49	49.57	10726.70	10726.70	0.00	27.0	65.00	65.00	2800.85	2800.85
24069	#24069:6	Tube 2	End	50.13	42.73	51.07	11729.48	11729.48	0.00	27.9	65.00	65.00	2973.58	2973.58
24069	#24069:6	Tube 2	Ori	50.13	42.73	51.07	11729.48	11729.48	0.00	27.9	65.00	65.00	2973.58	2973.58
24069	#24069:7	SpliceT	End	54.25	43.98	52.57	12792.88	12792.88	0.00	28.7	65.00	65.00	3151.47	3151.47
24069	#24069:7	SpliceT	Ori	54.25	43.98	52.57	12792.88	12792.88	0.00	28.7	65.00	65.00	3151.47	3151.47
24069	24069:WVG11	24069:WVG11	End	55.50	43.60	60.72	14482.41	14482.41	0.00	24.0	65.00	65.00	3598.22	3598.22
24069	24069:WVG11	24069:WVG11	Ori	55.50	43.60	60.72	14482.42	14482.42	0.00	24.0	65.00	65.00	3598.22	3598.22
24069	#24069:8	SpliceB	End	60.00	44.96	62.63	15890.83	15890.83	0.00	24.9	65.00	65.00	3829.04	3829.04
24069	#24069:8	SpliceB	Ori	60.00	44.96	62.63	15890.83	15890.83	0.00	24.9	65.00	65.00	3829.04	3829.04
24069	#24069:9	Tube 3	End	62.75	45.79	63.80	16794.91	16794.91	0.00	25.4	65.00	65.00	3973.63	3973.63
24069	#24069:9	Tube 3	Ori	62.75	45.79	63.80	16794.91	16794.91	0.00	25.4	65.00	65.00	3973.63	3973.63
24069	24069:WVG10	24069:WVG10	End	65.50	46.62	64.96	17732.65	17732.65	0.00	25.9	65.00	65.00	4120.90	4120.90
24069	24069:WVG10	24069:WVG10	Ori	65.50	46.62	64.96	17732.66	17732.66	0.00	25.9	65.00	65.00	4120.90	4120.90
24069	24069:Arm3	24069:Arm3	End	68.50	47.52	66.23	18794.75	18794.75	0.00	26.4	65.00	65.00	4284.62	4284.62
24069	24069:Arm3	24069:Arm3	Ori	68.50	47.52	66.23	18794.75	18794.75	0.00	26.4	65.00	65.00	4284.62	4284.62
24069	#24069:10	Tube 3	End	72.00	48.58	67.72	20086.48	20086.48	0.00	27.1	65.00	65.00	4479.65	4479.65
24069	#24069:10	Tube 3	Ori	72.00	48.58	67.72	20086.49	20086.49	0.00	27.1	65.00	65.00	4479.65	4479.65
24069	24069:WVG9	24069:WVG9	End	75.50	49.63	69.20	21436.09	21436.09	0.00	27.7	65.00	65.00	4679.02	4679.02
24069	24069:WVG9	24069:WVG9	Ori	75.50	49.63	69.20	21436.09	21436.09	0.00	27.7	65.00	65.00	4679.02	4679.02
24069	#24069:11	Tube 3	End	80.50	51.14	71.32	23466.99	23466.99	0.00	28.6	65.00	65.00	4971.37	4971.37
24069	#24069:11	Tube 3	Ori	80.50	51.14	71.32	23467.00	23467.00	0.00	28.6	65.00	65.00	4971.37	4971.37
24069	24069:WVG8	24069:WVG8	End	85.50	52.64	73.44	25622.29	25622.29	0.00	29.6	65.00	65.00	5272.58	5272.58
24069	24069:WVG8	24069:WVG8	Ori	85.50	52.64	73.44	25622.29	25622.29	0.00	29.6	65.00	65.00	5272.58	5272.58
24069	#24069:12	SpliceT	End	89.25	53.78	75.03	27322.62	27322.62	0.00	30.3	65.00	64.59	5469.81	5469.81
24069	#24069:12	SpliceT	Ori	89.25	53.90	85.85	31336.38	31336.38	0.00	26.2	65.00	65.00	6298.26	6298.26
24069	#24069:13	Tube 4	End	92.37	54.84	87.37	33023.84	33023.84	0.00	26.7	65.00	65.00	6523.43	6523.43
24069	#24069:13	Tube 4	Ori	92.37	54.84	87.37	33023.85	33023.85	0.00	26.7	65.00	65.00	6523.43	6523.43
24069	24069:WVG7	24069:WVG7	End	95.50	55.78	88.88	34770.84	34770.84	0.00	27.2	65.00	65.00	6752.55	6752.55
24069	24069:WVG7	24069:WVG7	Ori	95.50	55.78	88.88	34770.84	34770.84	0.00	27.2	65.00	65.00	6752.55	6752.55
24069	#24069:14	Tube 4	End	100.29	57.23	91.20	37566.52	37566.52	0.00	28.0	65.00	65.00	7111.43	7111.43
24069	#24069:14	Tube 4	Ori	100.29	57.23	91.20	37566.52	37566.52	0.00	28.0	65.00	65.00	7111.43	7111.43
24069	#24069:15	SpliceT	End	105.08	58.67	93.52	40508.18	40508.18	0.00	28.8	65.00	65.00	7479.60	7479.60
24069	#24069:15	SpliceT	Ori	105.08	58.67	93.52	40508.19	40508.19	0.00	28.8	65.00	65.00	7479.60	7479.60
24069	24069:WVG6	24069:WVG6	End	105.50	57.80	103.52	43408.27	43408.27	0.00	24.9	65.00	65.00	8136.21	8136.21

24069	24069:WVGD6	24069:WVGD6 Ori	105.50	57.80	103.52	43408.28	43408.28	0.00	24.9	65.00	65.00	8136.21	8136.21
24069	#24069:16	Tube 4 End	109.12	58.89	105.50	45941.77	45941.77	0.00	25.4	65.00	65.00	8451.31	8451.31
24069	#24069:16	Tube 4 Ori	109.12	58.89	105.50	45941.77	45941.77	0.00	25.4	65.00	65.00	8451.31	8451.31
24069	#24069:17	SpliceB End	112.75	59.98	107.47	48571.97	48571.97	0.00	25.9	65.00	65.00	8772.40	8772.40
24069	#24069:17	SpliceB Ori	112.75	59.98	107.47	48571.97	48571.97	0.00	25.9	65.00	65.00	8772.40	8772.40
24069	24069:WVGD5	24069:WVGD5 End	115.50	60.81	108.97	50632.92	50632.92	0.00	26.3	65.00	65.00	9019.98	9019.98
24069	24069:WVGD5	24069:WVGD5 Ori	115.50	60.81	108.97	50632.92	50632.92	0.00	26.3	65.00	65.00	9019.98	9019.98
24069	#24069:18	Tube 5 End	120.29	62.26	111.58	54360.46	54360.46	0.00	27.0	65.00	65.00	9459.45	9459.45
24069	#24069:18	Tube 5 Ori	120.29	62.26	111.58	54360.47	54360.47	0.00	27.0	65.00	65.00	9459.45	9459.45
24069	#24069:19	SpliceT End	125.08	63.70	114.19	58266.61	58266.61	0.00	27.7	65.00	65.00	9909.37	9909.37
24069	#24069:19	SpliceT Ori	125.08	63.70	114.19	58266.62	58266.62	0.00	27.7	65.00	65.00	9909.37	9909.37
24069	24069:WVGD4	24069:WVGD4 End	125.50	63.83	114.42	58617.77	58617.77	0.00	27.7	65.00	65.00	9949.32	9949.32
24069	24069:WVGD4	24069:WVGD4 Ori	125.50	63.83	114.42	58617.77	58617.77	0.00	27.7	65.00	65.00	9949.32	9949.32
24069	#24069:20	Tube 6 End	130.50	65.33	117.15	62907.16	62907.16	0.00	28.4	65.00	65.00	10431.08	10431.08
24069	#24069:20	Tube 6 Ori	130.50	65.33	117.15	62907.16	62907.16	0.00	28.4	65.00	65.00	10431.08	10431.08
24069	24069:WVGD3	24069:WVGD3 End	135.50	66.84	119.87	67400.86	67400.86	0.00	29.2	65.00	65.00	10924.23	10924.23
24069	24069:WVGD3	24069:WVGD3 Ori	135.50	66.84	119.87	67400.86	67400.86	0.00	29.2	65.00	65.00	10924.23	10924.23
24069	#24069:21	Tube 6 End	140.29	68.28	122.48	71901.84	71901.84	0.00	29.8	65.00	64.99	11406.00	11406.00
24069	#24069:21	Tube 6 Ori	140.29	68.28	122.48	71901.85	71901.85	0.00	29.8	65.00	64.99	11406.00	11406.00
24069	#24069:22	SpliceT End	145.08	69.73	125.10	76598.88	76598.88	0.00	30.5	65.00	64.32	11776.08	11776.08
24069	#24069:22	SpliceT Ori	145.08	69.73	125.10	76598.89	76598.89	0.00	30.5	65.00	64.32	11776.09	11776.09
24069	24069:WVGD2	24069:WVGD2 End	145.50	69.85	125.32	77020.22	77020.22	0.00	30.6	65.00	64.26	11808.54	11808.54
24069	24069:WVGD2	24069:WVGD2 Ori	145.50	69.85	125.32	77020.22	77020.22	0.00	30.6	65.00	64.26	11808.54	11808.54
24069	#24069:23	Tube 7 End	150.50	71.36	128.05	82155.38	82155.38	0.00	31.3	65.00	63.56	12194.83	12194.83
24069	#24069:23	Tube 7 Ori	150.50	71.36	128.05	82155.39	82155.39	0.00	31.3	65.00	63.56	12194.83	12194.83
24069	24069:WVGD1	24069:WVGD1 End	155.50	72.87	130.78	87513.88	87513.88	0.00	32.0	65.00	62.85	12580.72	12580.72
24069	24069:WVGD1	24069:WVGD1 Ori	155.50	72.87	130.78	87513.88	87513.88	0.00	32.0	65.00	62.85	12580.72	12580.72
24069	24069:g	24069:g End	160.50	74.37	133.50	93100.45	93100.45	0.00	32.7	65.00	62.15	12965.83	12965.83

Tubular Davit Properties:

Davit Steel	Stock	Steel Thickness	Base	Tip	Taper	Drag	Modulus	Geometry	Strength	Vertical	Tension	Compres.	Long.	Yield	Weight
Property	Number	Shape	Diameter	Diameter		Coef.	of		Check	Capacity	Capacity	Capacity	Capacity	Stress	Density
Shape									Type						
Label			or Depth	or Depth			Elasticity								Override
At End			(in)	(in)	(in) (in/ft)		(ksi)			(lbs)	(lbs)	(lbs)	(lbs)	(ksi)	(lbs/ft^3)

ARM1	20707-A	8T	0.3125	18	9	0	1	29000	2 points	Calculated	0	0	0	65	0
ARM2	20707-H	8T	0.3125	16	7.5	0	1	29000	1 point	Calculated	0	0	0	65	0

Intermediate Joints for Davit Property "ARM1":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)

V	14	-1.2083
T	21.75	-1.8125

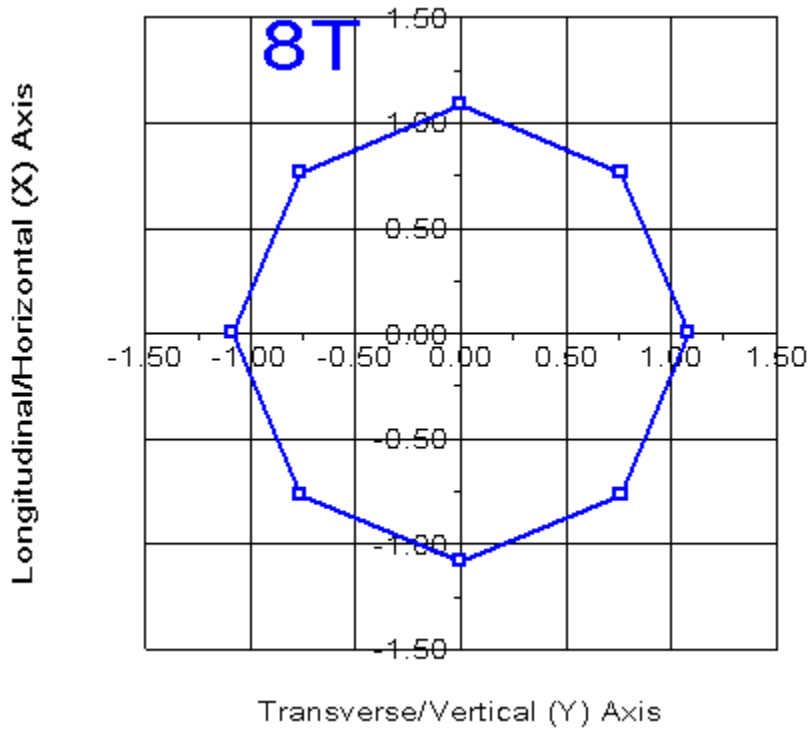
Intermediate Joints for Davit Property "ARM2":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)

End 14 -1.167

Tubular Davit Arm Connectivity:

Davit Label	Attach Label	Davit Property Set	Azimuth (deg)
Davit1	24069:Arm1	ARM1	0
Davit2	24069:Arm1	ARM1	180
Davit3	24069:Arm2	ARM2	0
Davit4	24069:Arm2	ARM2	180
Davit5	24069:Arm3	ARM2	0
Davit6	24069:Arm3	ARM2	180



Tubular Davit Arm Steel Properties:

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	V-Moment Inertia (in^4)	H-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	V-Moment Capacity (ft-k)	H-Moment Capacity (ft-k)
Davit1	Davit1:0	Origin	0.00	18.00	18.32	757.46	757.46	0.00	19.7	65.00	65.00	421.18	421.18
Davit1	#Davit1:0	End	5.00	15.94	16.18	522.30	522.30	0.00	17.0	65.00	65.00	327.99	327.99
Davit1	#Davit1:0	Origin	5.00	15.94	16.18	522.30	522.30	0.00	17.0	65.00	65.00	327.99	327.99

Davit1	#Davit1:1	End	9.53	14.07	14.25	356.65	356.65	0.00	14.5	65.00	65.00	253.67	253.67
Davit1	#Davit1:1	Origin	9.53	14.07	14.25	356.65	356.65	0.00	14.5	65.00	65.00	253.67	253.67
Davit1	Davit1:V	End	14.05	12.21	12.32	230.35	230.35	0.00	12.0	65.00	65.00	188.89	188.89
Davit1	Davit1:V	Origin	14.05	12.21	12.32	230.35	230.35	0.00	12.0	65.00	65.00	188.89	188.89
Davit1	#Davit1:2	End	17.94	10.60	10.66	149.24	149.24	0.00	9.9	65.00	65.00	140.88	140.88
Davit1	#Davit1:2	Origin	17.94	10.60	10.66	149.24	149.24	0.00	9.9	65.00	65.00	140.88	140.88
Davit1	Davit1:T	End	21.83	9.00	9.00	89.84	89.84	0.00	7.8	65.00	65.00	99.91	99.91
Davit2	Davit2:0	Origin	0.00	18.00	18.32	757.46	757.46	0.00	19.7	65.00	65.00	421.18	421.18
Davit2	#Davit2:0	End	5.00	15.94	16.18	522.30	522.30	0.00	17.0	65.00	65.00	327.99	327.99
Davit2	#Davit2:0	Origin	5.00	15.94	16.18	522.30	522.30	0.00	17.0	65.00	65.00	327.99	327.99
Davit2	#Davit2:1	End	9.53	14.07	14.25	356.65	356.65	0.00	14.5	65.00	65.00	253.67	253.67
Davit2	#Davit2:1	Origin	9.53	14.07	14.25	356.65	356.65	0.00	14.5	65.00	65.00	253.67	253.67
Davit2	Davit2:V	End	14.05	12.21	12.32	230.35	230.35	0.00	12.0	65.00	65.00	188.89	188.89
Davit2	Davit2:V	Origin	14.05	12.21	12.32	230.35	230.35	0.00	12.0	65.00	65.00	188.89	188.89
Davit2	#Davit2:2	End	17.94	10.60	10.66	149.24	149.24	0.00	9.9	65.00	65.00	140.88	140.88
Davit2	#Davit2:2	Origin	17.94	10.60	10.66	149.24	149.24	0.00	9.9	65.00	65.00	140.88	140.88
Davit2	Davit2:T	End	21.83	9.00	9.00	89.84	89.84	0.00	7.8	65.00	65.00	99.91	99.91
Davit3	Davit3:0	Origin	0.00	16.00	16.24	528.52	528.52	0.00	17.1	65.00	65.00	330.61	330.61
Davit3	#Davit3:0	End	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit3	#Davit3:0	Origin	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit3	#Davit3:1	End	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit3	#Davit3:1	Origin	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit3	Davit3:End	End	14.05	7.50	7.44	50.90	50.90	0.00	5.8	65.00	65.00	67.93	67.93
Davit4	Davit4:0	Origin	0.00	16.00	16.24	528.52	528.52	0.00	17.1	65.00	65.00	330.61	330.61
Davit4	#Davit4:0	End	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit4	#Davit4:0	Origin	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit4	#Davit4:1	End	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit4	#Davit4:1	Origin	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit4	Davit4:End	End	14.05	7.50	7.44	50.90	50.90	0.00	5.8	65.00	65.00	67.93	67.93
Davit5	Davit5:0	Origin	0.00	16.00	16.24	528.52	528.52	0.00	17.1	65.00	65.00	330.61	330.61
Davit5	#Davit5:0	End	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit5	#Davit5:0	Origin	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit5	#Davit5:1	End	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit5	#Davit5:1	Origin	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit5	Davit5:End	End	14.05	7.50	7.44	50.90	50.90	0.00	5.8	65.00	65.00	67.93	67.93
Davit6	Davit6:0	Origin	0.00	16.00	16.24	528.52	528.52	0.00	17.1	65.00	65.00	330.61	330.61
Davit6	#Davit6:0	End	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit6	#Davit6:0	Origin	5.00	12.97	13.11	277.99	277.99	0.00	13.1	65.00	65.00	214.44	214.44
Davit6	#Davit6:1	End	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit6	#Davit6:1	Origin	9.52	10.24	10.28	133.91	133.91	0.00	9.4	65.00	65.00	130.92	130.92
Davit6	Davit6:End	End	14.05	7.50	7.44	50.90	50.90	0.00	5.8	65.00	65.00	67.93	67.93

*** Insulator Data

Clamp Properties:

Label	Stock	Holding
	Number	Capacity
		(lbs)
clamp	clamp1	8e+004

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
Clamp1	Davit1:V	clamp	No Limit
Clamp2	Davit1:T	clamp	No Limit
Clamp3	Davit2:V	clamp	No Limit
Clamp4	Davit2:T	clamp	No Limit
Clamp5	Davit3:End	clamp	No Limit
Clamp6	Davit4:End	clamp	No Limit
Clamp7	Davit5:End	clamp	No Limit
Clamp8	Davit6:End	clamp	No Limit
Clamp9	24069:TMobile	clamp	No Limit
Clamp10	24069:WVGD1	clamp	No Limit
Clamp11	24069:WVGD2	clamp	No Limit
Clamp12	24069:WVGD3	clamp	No Limit
Clamp13	24069:WVGD4	clamp	No Limit
Clamp14	24069:WVGD5	clamp	No Limit
Clamp15	24069:WVGD6	clamp	No Limit
Clamp16	24069:WVGD7	clamp	No Limit
Clamp17	24069:WVGD8	clamp	No Limit
Clamp18	24069:WVGD9	clamp	No Limit
Clamp19	24069:WVGD10	clamp	No Limit
Clamp20	24069:WVGD11	clamp	No Limit
Clamp21	24069:WVGD12	clamp	No Limit
Clamp22	24069:WVGD13	clamp	No Limit
Clamp23	24069:WVGD14	clamp	No Limit
Clamp24	24069:WVGD15	clamp	No Limit

*** Loads Data

Loads from file: j:\jobs\1805800.wi\96_ctnh025a\05_structural\backup documentation\calcs\pls pole\cl&p #24069.lca

Insulator dead and wind loads are already included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):

Z of ground for wind height adjust 0.00 (ft) and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
 Ground elevation shift 0.00 (ft)
 Z of ground with shift 0.00 (ft)
 Z of structure top (highest joint) 160.50 (ft)
 Structure height 160.50 (ft)
 Structure height above ground 160.50 (ft)

Vector Load Cases:

Longit.	Ice	Load Case Description	Dead Load	Wind Area	SF for Pole Steel	SF for Pole Wood	SF for Pole Conc.	SF for Pole Conc.	SF for Pole Conc.	SF for Pole Guys	SF for Pole Non Braces	SF for Pole Insuls.	SF for Pole Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure
(psf)	(in)	(lbs/ft^3)	(deg F)		Deflection	Deflection	Ult. Limit	First Crack	Zero Tens.	Cables	Arms					(psf)
0	0.000	NESC Heavy Wind	1.5000	2.5000	1.00000	0.6500	0.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	24 loads	Wind on All	4
0	0.000	NESC Extreme Wind	1.0000	1.0000	1.00000	0.6500	0.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	24 loads	NESC 2012	31
0	0.000	NESC Extreme Ice w/ Wind	1.0000	1.0000	1.00000	0.6500	0.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	24 loads	Wind on All	6.4
0	0.000		0.0	No Limit												

Point Loads for Load Case "NESC Heavy Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
Davit1:T	1069	826	0	TL:SW
Davit2:T	1016	770	0	TR:SW
Davit1:V	6101	2554	0	X1
Davit2:V	6101	2554	0	X2
Davit3:End	6101	2554	0	Y1
Davit4:End	6101	2554	0	Y2
Davit5:End	6101	2554	0	Z1
Davit6:End	6101	2554	0	Z2
24069:TMobile	5160	1546	0	T-Mobile Equipment
24069:WVG D1	920	172	0	Coax Cables
24069:WVG D2	920	172	0	Coax Cables
24069:WVG D3	920	172	0	Coax Cables
24069:WVG D4	920	172	0	Coax Cables
24069:WVG D5	920	172	0	Coax Cables

24069:WVG D6	920	172	0	Coax Cables
24069:WVG D7	920	172	0	Coax Cables
24069:WVG D8	920	172	0	Coax Cables
24069:WVG D9	920	172	0	Coax Cables
24069:WVG D10	920	172	0	Coax Cables
24069:WVG D11	920	172	0	Coax Cables
24069:WVG D12	920	172	0	Coax Cables
24069:WVG D13	920	172	0	Coax Cables
24069:WVG D14	920	172	0	Coax Cables
24069:WVG D15	920	172	0	Coax Cables

Point Loads for Load Case "NESC Extreme Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment

Davit1:T	318	1117	0	TL:SW
Davit2:T	324	917	0	TR:SW
Davit1:V	2807	5422	0	X1
Davit2:V	2807	5422	0	X2
Davit3:End	2807	5422	0	Y1
Davit4:End	2807	5422	0	Y2
Davit5:End	2807	5422	0	Z1
Davit6:End	2807	5422	0	Z2
24069:TMobile	2634	6475	0	T-Mobile Equipment
24069:WVG D1	250	570	0	Coax Cables
24069:WVG D2	250	570	0	Coax Cables
24069:WVG D3	250	570	0	Coax Cables
24069:WVG D4	250	570	0	Coax Cables
24069:WVG D5	250	570	0	Coax Cables
24069:WVG D6	250	570	0	Coax Cables
24069:WVG D7	250	570	0	Coax Cables
24069:WVG D8	250	570	0	Coax Cables
24069:WVG D9	250	570	0	Coax Cables
24069:WVG D10	250	570	0	Coax Cables
24069:WVG D11	250	570	0	Coax Cables
24069:WVG D12	250	570	0	Coax Cables
24069:WVG D13	250	570	0	Coax Cables
24069:WVG D14	250	570	0	Coax Cables
24069:WVG D15	250	570	0	Coax Cables

Detailed Pole Loading Data for Load Case "NESC Extreme Wind":

Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Long. Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Load (lbs)	Pole Ice Load (lbs)	Tran. Wind Load (lbs)

24069	24069:t	24069:TMobile	160.50	157.00	158.75	28.027	2.41e+006	1.000	33.08	0.00	331.66	270.38	0.00	0.00	270.38
0.00															

24069	24069:TMobile		157.00	152.00	154.50	29.308	2.52e+006	1.000	33.08	0.00	495.71	403.91	0.00	0.00	403.91
0.00															
24069			152.00	148.50	150.25	30.589	2.63e+006	1.000	33.08	0.00	362.32	295.10	0.00	0.00	295.10
0.00															
24069		24069:WVGD15	148.50	145.00	146.75	31.644	2.72e+006	1.000	33.08	0.00	374.95	305.27	0.00	0.00	305.27
0.00															
24069	24069:WVGD15		145.00	141.25	143.13	32.737	2.82e+006	1.000	33.08	0.00	415.74	338.37	0.00	0.00	338.37
0.00															
24069		24069:Arm1	141.25	137.50	139.38	33.867	2.92e+006	1.000	33.08	0.00	430.23	350.05	0.00	0.00	350.05
0.00															
24069	24069:Arm1	24069:WVGD14	137.50	135.00	136.25	34.809	3e+006	1.000	33.08	0.00	294.87	239.86	0.00	0.00	239.86
0.00															
24069	24069:WVGD14		135.00	130.50	132.75	35.864	3.09e+006	1.000	33.08	0.00	547.00	444.83	0.00	0.00	444.83
0.00															
24069			130.50	127.75	129.13	37.081	3.19e+006	1.000	33.08	0.00	414.15	281.07	0.00	0.00	281.07
0.00															
24069		24069:WVGD13	127.75	125.00	126.37	37.910	3.26e+006	1.000	33.08	0.00	423.52	287.35	0.00	0.00	287.35
0.00															
24069	24069:WVGD13		125.00	120.00	122.50	39.078	3.36e+006	1.000	33.08	0.00	793.99	538.55	0.00	0.00	538.55
0.00															
24069		24069:WVGD12	120.00	115.00	117.50	40.585	3.49e+006	1.000	33.08	0.00	824.91	559.32	0.00	0.00	559.32
0.00															
24069	24069:WVGD12	24069:Arm2	115.00	114.50	114.75	41.414	3.57e+006	1.000	33.08	0.00	84.19	57.07	0.00	0.00	57.07
0.00															
24069	24069:Arm2		114.50	110.37	112.44	42.111	3.63e+006	1.000	33.08	0.00	706.37	478.79	0.00	0.00	478.79
0.00															
24069			110.37	106.25	108.31	43.354	3.73e+006	1.000	33.08	0.00	727.42	492.93	0.00	0.00	492.93
0.00															
24069		24069:WVGD11	106.25	105.00	105.62	43.789	3.77e+006	1.000	33.08	0.00	481.74	150.87	0.00	0.00	150.87
0.00															
24069	24069:WVGD11		105.00	100.50	102.75	44.281	3.81e+006	1.000	33.08	0.00	1768.91	549.23	0.00	0.00	549.23
0.00															
24069			100.50	97.75	99.12	45.374	3.91e+006	1.000	33.08	0.00	591.64	343.92	0.00	0.00	343.92
0.00															
24069		24069:WVGD10	97.75	95.00	96.37	46.202	3.98e+006	1.000	33.08	0.00	602.44	350.20	0.00	0.00	350.20
0.00															
24069	24069:WVGD10	24069:Arm3	95.00	92.00	93.50	47.069	4.05e+006	1.000	33.08	0.00	669.65	389.21	0.00	0.00	389.21
0.00															
24069	24069:Arm3		92.00	88.50	90.25	48.048	4.14e+006	1.000	33.08	0.00	797.66	463.52	0.00	0.00	463.52
0.00															
24069		24069:WVGD9	88.50	85.00	86.75	49.103	4.23e+006	1.000	33.08	0.00	815.34	473.70	0.00	0.00	473.70
0.00															
24069	24069:WVGD9		85.00	80.00	82.50	50.384	4.34e+006	1.000	33.08	0.00	1195.43	694.37	0.00	0.00	694.37
0.00															
24069		24069:WVGD8	80.00	75.00	77.50	51.891	4.47e+006	1.000	33.08	0.00	1231.50	715.14	0.00	0.00	715.14
0.00															
24069	24069:WVGD8		75.00	71.25	73.13	53.210	4.58e+006	1.000	33.08	0.00	947.31	549.98	0.00	0.00	549.98
0.00															
24069			71.25	68.13	69.69	54.371	4.68e+006	1.000	33.08	0.00	920.94	468.32	0.00	0.00	468.32
0.00															
24069		24069:WVGD7	68.13	65.00	66.56	55.313	4.76e+006	1.000	33.08	0.00	937.07	476.43	0.00	0.00	476.43
0.00															
24069	24069:WVGD7		65.00	60.21	62.60	56.506	4.87e+006	1.000	33.08	0.00	1467.59	746.02	0.00	0.00	746.02
0.00															
24069			60.21	55.42	57.81	57.949	4.99e+006	1.000	33.08	0.00	1505.42	765.08	0.00	0.00	765.08
0.00															
24069		24069:WVGD6	55.42	55.00	55.21	58.235	5.01e+006	1.000	33.08	0.00	281.59	67.41	0.00	0.00	67.41
0.00															
24069	24069:WVGD6		55.00	51.38	53.19	58.344	5.02e+006	1.000	33.08	0.00	2456.04	582.95	0.00	0.00	582.95

0.00															
24069		51.38	47.75	49.56	59.437	5.12e+006	1.000	33.08	0.00	2502.09	593.86	0.00	0.00	593.86	
0.00															
24069	24069:WVGD5	47.75	45.00	46.38	60.397	5.2e+006	1.000	33.08	0.00	1012.89	457.80	0.00	0.00	457.80	
0.00															
24069	24069:WVGD5	45.00	40.21	42.61	61.534	5.3e+006	1.000	33.08	0.00	1797.42	812.41	0.00	0.00	812.41	
0.00															
24069		40.21	35.42	37.82	62.977	5.42e+006	1.000	33.08	0.00	1839.98	831.47	0.00	0.00	831.47	
0.00															
24069	24069:WVGD4	35.42	35.00	35.21	63.763	5.49e+006	1.000	33.08	0.00	163.36	73.81	0.00	0.00	73.81	
0.00															
24069	24069:WVGD4	35.00	30.00	32.50	64.579	5.56e+006	1.000	33.08	0.00	1969.95	890.00	0.00	0.00	890.00	
0.00															
24069	24069:WVGD3	30.00	25.00	27.50	66.086	5.69e+006	1.000	33.08	0.00	2016.32	910.77	0.00	0.00	910.77	
0.00															
24069	24069:WVGD3	25.00	20.21	22.60	67.562	5.82e+006	1.000	33.08	0.00	1975.13	891.99	0.00	0.00	891.99	
0.00															
24069		20.21	15.42	17.81	69.006	5.94e+006	1.000	33.08	0.00	2017.69	911.05	0.00	0.00	911.05	
0.00															
24069	24069:WVGD2	15.42	15.00	15.21	69.791	6.01e+006	1.000	33.08	0.00	178.95	80.79	0.00	0.00	80.79	
0.00															
24069	24069:WVGD2	15.00	10.00	12.50	70.607	6.08e+006	1.000	33.08	0.00	2155.44	973.07	0.00	0.00	973.07	
0.00															
24069	24069:WVGD1	10.00	5.00	7.50	72.114	6.21e+006	1.000	33.08	0.00	2201.82	993.84	0.00	0.00	993.84	
0.00															
24069	24069:WVGD1	24069:g	5.00	0.00	2.50	73.621	6.34e+006	1.000	33.08	0.00	2248.19	1014.61	0.00	0.00	1014.61
0.00															

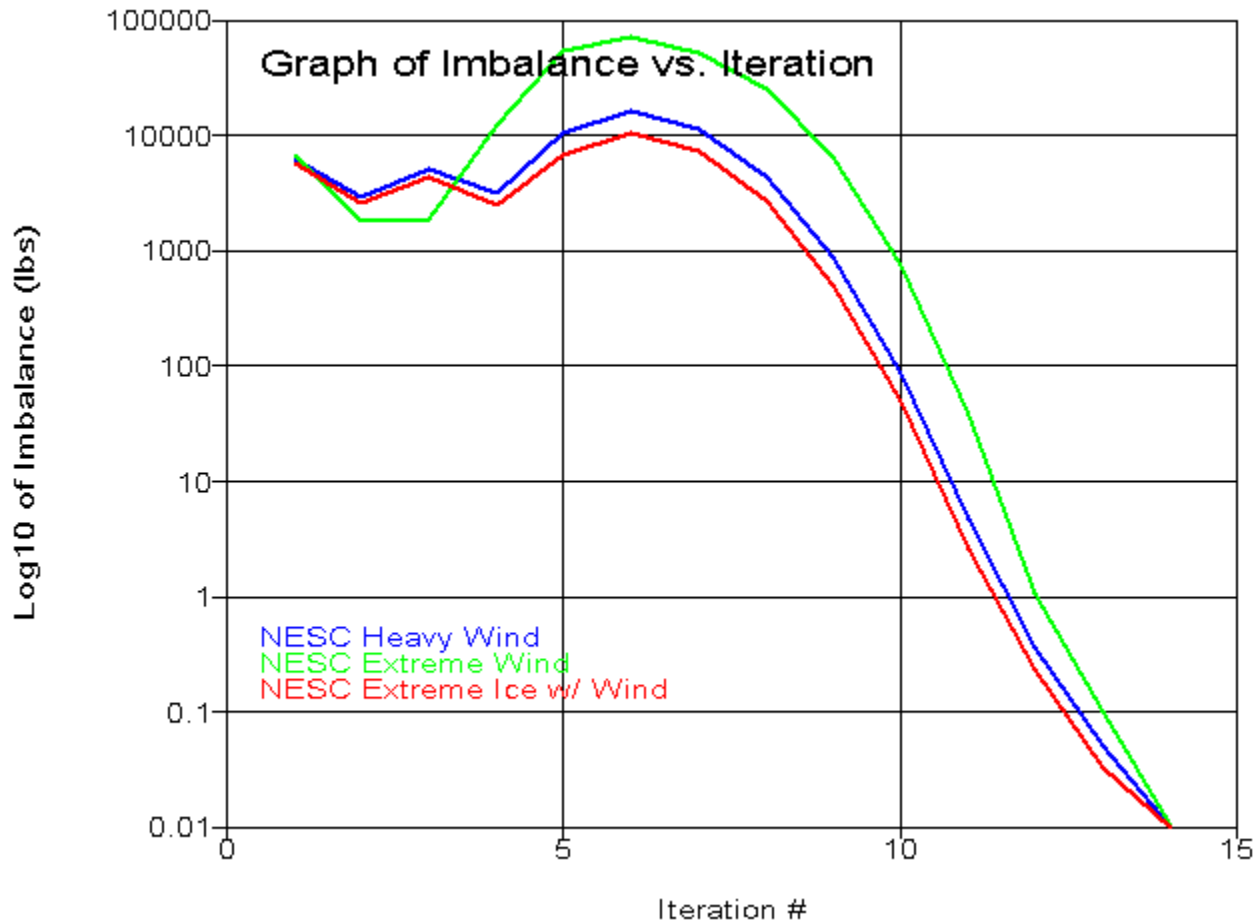
Point Loads for Load Case "NESC Extreme Ice w/ Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment

Davit1:T	1184	762	0	TL:SW
Davit2:T	1122	722	0	TR:SW
Davit1:V	5644	2158	0	X1
Davit2:V	5644	2158	0	X2
Davit3:End	5644	2158	0	Y1
Davit4:End	5644	2158	0	Y2
Davit5:End	5644	2158	0	Z1
Davit6:End	5644	2158	0	Z2
24069:TMobile	4012	1244	0	T-Mobile Equipment
24069:WVGD1	850	114	0	Coax Cables
24069:WVGD2	850	114	0	Coax Cables
24069:WVGD3	850	114	0	Coax Cables
24069:WVGD4	850	114	0	Coax Cables
24069:WVGD5	850	114	0	Coax Cables
24069:WVGD6	850	114	0	Coax Cables
24069:WVGD7	850	114	0	Coax Cables
24069:WVGD8	850	114	0	Coax Cables
24069:WVGD9	850	114	0	Coax Cables
24069:WVGD10	850	114	0	Coax Cables
24069:WVGD11	850	114	0	Coax Cables
24069:WVGD12	850	114	0	Coax Cables
24069:WVGD13	850	114	0	Coax Cables
24069:WVGD14	850	114	0	Coax Cables
24069:WVGD15	850	114	0	Coax Cables

*** Analysis Results:

Maximum element usage is 57.79% for Steel Pole "24069" in load case "NESC Extreme Wind"
Maximum insulator usage is 8.74% for Clamp "Clamp9" in load case "NESC Extreme Wind"



*** Analysis Results for Load Case No. 1 "NESC Heavy Wind" - Number of iterations in SAPS 14

Equilibrium Joint Positions and Rotations for Load Case "NESC Heavy Wind":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
24069:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
24069:t	0.01173	2.34	-0.02674	-1.4114	0.0068	0.0000	0.01173	2.34	160.5
24069:TMobile	0.01131	2.253	-0.02568	-1.4114	0.0068	0.0000	0.01131	2.253	157

24069:WVGD15	0.009897	1.959	-0.02197	-1.4000	0.0067	0.0000	0.009897	1.959	145
24069:Arm1	0.009023	1.776	-0.01968	-1.3838	0.0066	0.0000	0.009023	1.776	137.5
24069:WVGD14	0.008735	1.716	-0.01889	-1.3746	0.0066	0.0000	0.008735	1.716	135
24069:WVGD13	0.007605	1.48	-0.01586	-1.3204	0.0064	0.0000	0.007605	1.48	125
24069:WVGD12	0.006519	1.256	-0.0131	-1.2479	0.0061	0.0000	0.006519	1.256	115
24069:Arm2	0.006467	1.245	-0.01297	-1.2439	0.0060	0.0000	0.006467	1.245	114.5
24069:WVGD11	0.005494	1.046	-0.01056	-1.1552	0.0057	0.0000	0.005494	1.046	105
24069:WVGD10	0.004539	0.8522	-0.00839	-1.0548	0.0053	0.0000	0.004539	0.8522	94.99
24069:Arm3	0.004267	0.7977	-0.007804	-1.0227	0.0051	0.0000	0.004267	0.7977	91.99
24069:WVGD9	0.003662	0.6773	-0.006506	-0.9427	0.0048	0.0000	0.003662	0.6773	84.99
24069:WVGD8	0.002873	0.5231	-0.004938	-0.8195	0.0042	0.0000	0.002873	0.5231	75
24069:WVGD7	0.002178	0.3904	-0.00371	-0.7003	0.0037	0.0000	0.002178	0.3904	65
24069:WVGD6	0.001576	0.2779	-0.002744	-0.5847	0.0032	0.0000	0.001576	0.2779	55
24069:WVGD5	0.001067	0.1852	-0.002	-0.4752	0.0026	0.0000	0.001067	0.1852	45
24069:WVGD4	0.0006528	0.1115	-0.001405	-0.3664	0.0021	0.0000	0.0006528	0.1115	35
24069:WVGD3	0.0003373	0.05664	-0.0009267	-0.2591	0.0015	0.0000	0.0003373	0.05664	25
24069:WVGD2	0.0001236	0.02039	-0.0005275	-0.1537	0.0009	0.0000	0.0001236	0.02039	15
24069:WVGD1	1.457e-005	0.002334	-0.0001721	-0.0506	0.0003	0.0000	1.457e-005	0.002334	5
Davit1:0	0.009018	1.776	-0.05433	-1.3838	0.0066	0.0000	0.009018	3.211	137.4
Davit1:V	0.009106	1.806	-0.4701	-1.9298	0.0066	0.0000	0.009106	17.24	138.2
Davit1:T	0.009144	1.822	-0.7371	-1.9946	0.0066	0.0000	0.009144	25.01	138.6
Davit2:0	0.009027	1.777	0.01497	-1.3838	0.0066	0.0000	0.009027	0.3421	137.5
Davit2:V	0.009207	1.803	0.282	-0.8841	0.0066	0.0000	0.009207	-13.63	139
Davit2:T	0.009298	1.812	0.3966	-0.8278	0.0066	0.0001	0.009298	-21.37	139.7
Davit3:0	0.006462	1.245	-0.0505	-1.2439	0.0060	0.0000	0.006462	2.973	114.4
Davit3:End	0.006539	1.272	-0.4538	-1.9814	0.0060	0.0000	0.006539	17	115.2
Davit4:0	0.006471	1.245	0.02456	-1.2439	0.0060	0.0000	0.006471	-0.4834	114.5
Davit4:End	0.006622	1.265	0.2355	-0.5518	0.0060	0.0000	0.006622	-14.46	115.9
Davit5:0	0.004263	0.7974	-0.04314	-1.0227	0.0051	0.0000	0.004263	2.777	91.96
Davit5:End	0.004335	0.8221	-0.3924	-1.7611	0.0051	0.0000	0.004335	16.8	92.77
Davit6:0	0.00427	0.798	0.02754	-1.0227	0.0051	0.0000	0.00427	-1.182	92.03
Davit6:End	0.004393	0.8122	0.1844	-0.3292	0.0051	0.0000	0.004393	-15.17	93.35

Joint Support Reactions for Load Case "NESC Heavy Wind":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Z Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
24069:g	-0.29	0.0	-31.96	0.0	0.0	-138.86	0.0	0.0	142.49	0.0	3292.51	0.0	-20.3	0.0	0.0	-0.01	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Heavy Wind":

Element At Pt.	Joint Label	Joint Position	Rel. Dist.	Trans. Defl.	Long. Defl.	Vert. Defl.	Trans. Mom. (Local Mx)	Long. Mom. (Local My)	Tors. Mom.	Axial Force	Tran. Shear	Long. Shear	P/A	M/S.	V/Q.	T/R.	Res.	Max. Usage	
			(ft)	(in)	(in)	(in)	(ft-k)	(ft-k)	(ft-k)	(kips)	(kips)	(kips)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	%	
-	24069	24069:t	Origin	0.00	28.08	0.14	-0.32	-0.00	-0.00	0.0	-0.25	0.07	-0.00	-0.01	0.00	0.01	0.00	0.01	0.0
5	24069	24069:TMobile	End	3.50	27.04	0.14	-0.31	0.25	-0.01	0.0	-0.25	0.07	-0.00	-0.01	0.01	0.00	0.00	0.02	0.0
2	24069	24069:TMobile	Origin	3.50	27.04	0.14	-0.31	0.25	-0.01	-0.0	-5.99	1.92	-0.01	-0.21	0.00	0.14	0.00	0.32	0.5
5	24069	Tube 1	End	8.50	25.56	0.13	-0.29	9.86	-0.04	-0.0	-5.99	1.92	-0.01	-0.20	0.53	0.03	0.00	0.73	1.1
2																			

2	24069	Tube 1	Origin	8.50	25.56	0.13	-0.29	9.86	-0.04	-0.0	-6.63	2.11	-0.01	-0.22	0.53	0.04	0.00	0.75	1.2
2	24069	Tube 1	End	12.00	24.53	0.12	-0.28	17.24	-0.08	-0.0	-6.63	2.11	-0.01	-0.21	0.86	0.04	0.00	1.07	1.7
2	24069	Tube 1	Origin	12.00	24.53	0.12	-0.28	17.24	-0.08	-0.0	-7.19	2.26	-0.02	-0.23	0.86	0.04	0.00	1.09	1.7
2	24069	24069:WVGD15	End	15.50	23.50	0.12	-0.26	25.16	-0.13	-0.0	-7.19	2.26	-0.02	-0.22	1.17	0.04	0.00	1.40	2.1
2	24069	24069:WVGD15	Origin	15.50	23.50	0.12	-0.26	25.16	-0.13	-0.0	-8.69	2.63	-0.02	-0.27	1.17	0.04	0.00	1.44	2.2
2	24069	Tube 1	End	19.25	22.41	0.11	-0.25	35.02	-0.20	-0.0	-8.69	2.63	-0.02	-0.26	1.52	0.04	0.00	1.78	2.7
2	24069	Tube 1	Origin	19.25	22.41	0.11	-0.25	35.02	-0.20	-0.0	-9.33	2.81	-0.02	-0.28	1.52	0.04	0.00	1.80	2.8
2	24069	24069:Arm1	End	23.00	21.32	0.11	-0.24	45.55	-0.29	-0.0	-9.33	2.81	-0.02	-0.27	1.85	0.04	0.00	2.12	3.3
2	24069	24069:Arm1	Origin	23.00	21.32	0.11	-0.24	55.71	-0.30	0.0	-27.03	10.08	-0.03	-0.79	2.26	0.16	0.00	3.06	4.7
2	24069	24069:WVGD14	End	25.50	20.59	0.10	-0.23	80.92	-0.37	0.0	-27.03	10.08	-0.03	-0.77	3.14	0.15	0.00	3.92	6.0
2	24069	24069:WVGD14	Origin	25.50	20.59	0.10	-0.23	80.92	-0.37	0.0	-28.58	10.45	-0.03	-0.82	3.14	0.16	0.00	3.96	6.1
2	24069	SpliceT	End	30.00	19.31	0.10	-0.21	127.95	-0.53	0.0	-28.58	10.45	-0.03	-0.79	4.59	0.15	0.00	5.38	8.3
2	24069	SpliceT	Origin	30.00	19.31	0.10	-0.21	127.95	-0.53	0.0	-29.31	10.63	-0.04	-0.67	3.82	0.13	0.00	4.49	6.9
2	24069	Tube 2	End	32.75	18.53	0.09	-0.20	157.19	-0.64	0.0	-29.31	10.63	-0.04	-0.65	4.48	0.13	0.00	5.14	7.9
2	24069	Tube 2	Origin	32.75	18.53	0.09	-0.20	157.19	-0.64	0.0	-29.94	10.78	-0.04	-0.67	4.48	0.13	0.00	5.16	7.9
2	24069	24069:WVGD13	End	35.50	17.77	0.09	-0.19	186.82	-0.76	0.0	-29.94	10.78	-0.04	-0.65	5.10	0.12	0.00	5.76	8.9
2	24069	24069:WVGD13	Origin	35.50	17.77	0.09	-0.19	186.82	-0.76	0.0	-31.77	11.18	-0.05	-0.69	5.10	0.13	0.00	5.80	8.9
2	24069	Tube 2	End	40.50	16.40	0.08	-0.17	242.71	-1.00	0.0	-31.77	11.18	-0.05	-0.67	6.12	0.12	0.00	6.80	10.5
2	24069	Tube 2	Origin	40.50	16.40	0.08	-0.17	242.71	-1.00	0.0	-32.99	11.45	-0.06	-0.69	6.12	0.13	0.00	6.82	10.5
2	24069	24069:WVGD12	End	45.50	15.07	0.08	-0.16	299.96	-1.28	0.0	-32.99	11.45	-0.06	-0.67	7.02	0.12	0.00	7.69	11.8
2	24069	24069:WVGD12	Origin	45.50	15.07	0.08	-0.16	299.96	-1.28	0.0	-34.60	11.79	-0.06	-0.70	7.02	0.13	0.00	7.72	11.9
2	24069	24069:Arm2	End	46.00	14.94	0.08	-0.16	305.85	-1.31	0.0	-34.60	11.79	-0.06	-0.70	7.11	0.13	0.00	7.81	12.0
2	24069	24069:Arm2	Origin	46.00	14.94	0.08	-0.16	311.64	-1.31	0.0	-48.98	17.33	-0.06	-0.99	7.24	0.18	0.00	8.23	12.7
2	24069	Tube 2	End	50.13	13.88	0.07	-0.14	383.12	-1.58	0.0	-48.98	17.33	-0.06	-0.96	8.38	0.18	0.00	9.35	14.4
2	24069	Tube 2	Origin	50.13	13.88	0.07	-0.14	383.12	-1.58	0.0	-50.07	17.55	-0.07	-0.98	8.38	0.18	0.00	9.37	14.4
2	24069	SpliceT	End	54.25	12.85	0.07	-0.13	455.53	-1.87	0.0	-50.07	17.55	-0.07	-0.95	9.41	0.18	0.00	10.36	15.9
2	24069	SpliceT	Origin	54.25	12.85	0.07	-0.13	455.53	-1.87	0.0	-50.98	17.70	-0.08	-0.97	9.41	0.18	0.00	10.38	16.0
2	24069	24069:WVGD11	End	55.50	12.55	0.07	-0.13	477.66	-1.96	0.0	-50.98	17.70	-0.08	-0.84	8.64	0.15	0.00	9.48	14.6
2	24069	24069:WVGD11	Origin	55.50	12.55	0.07	-0.13	477.66	-1.96	0.0	-53.59	18.07	-0.08	-0.88	8.64	0.16	0.00	9.52	14.7
2	24069	SpliceB	End	60.00	11.48	0.06	-0.11	558.98	-2.32	0.0	-53.59	18.07	-0.08	-0.86	9.50	0.15	0.00	10.36	15.9

2	24069	SpliceB	Origin	60.00	11.48	0.06	-0.11	558.98	-2.32	0.0	-55.38	18.29	-0.09	-0.88	9.50	0.15	0.00	10.39	16.0
2	24069	Tube 3	End	62.75	10.84	0.06	-0.11	609.27	-2.56	0.0	-55.38	18.29	-0.09	-0.87	9.98	0.15	0.00	10.85	16.7
2	24069	Tube 3	Origin	62.75	10.84	0.06	-0.11	609.27	-2.56	0.0	-56.28	18.45	-0.09	-0.88	9.98	0.15	0.00	10.86	16.7
2	24069	24069:WVGD10	End	65.50	10.23	0.05	-0.10	659.99	-2.80	0.0	-56.28	18.45	-0.09	-0.87	10.42	0.15	0.00	11.29	17.4
2	24069	24069:WVGD10	Origin	65.50	10.23	0.05	-0.10	659.99	-2.80	0.0	-58.16	18.80	-0.09	-0.90	10.42	0.15	0.00	11.32	17.4
2	24069	24069:Arm3	End	68.50	9.57	0.05	-0.09	716.39	-3.09	0.0	-58.16	18.80	-0.09	-0.88	10.88	0.15	0.00	11.76	18.1
2	24069	24069:Arm3	Origin	68.50	9.57	0.05	-0.09	722.13	-3.09	0.0	-73.08	24.34	-0.10	-1.10	10.97	0.19	0.00	12.08	18.6
2	24069	Tube 3	End	72.00	8.84	0.05	-0.09	807.32	-3.44	0.0	-73.08	24.34	-0.10	-1.08	11.73	0.19	0.00	12.81	19.7
2	24069	Tube 3	Origin	72.00	8.84	0.05	-0.09	807.32	-3.44	0.0	-74.31	24.54	-0.11	-1.10	11.73	0.19	0.00	12.83	19.7
2	24069	24069:WVGD9	End	75.50	8.13	0.04	-0.08	893.20	-3.82	0.0	-74.31	24.54	-0.11	-1.07	12.42	0.19	0.00	13.50	20.8
2	24069	24069:WVGD9	Origin	75.50	8.13	0.04	-0.08	893.20	-3.82	0.0	-76.75	24.97	-0.11	-1.11	12.42	0.19	0.00	13.54	20.8
2	24069	Tube 3	End	80.50	7.17	0.04	-0.07	1018.02	-4.39	0.0	-76.75	24.97	-0.11	-1.08	13.33	0.18	0.00	14.41	22.2
2	24069	Tube 3	Origin	80.50	7.17	0.04	-0.07	1018.02	-4.39	0.0	-78.60	25.25	-0.12	-1.10	13.33	0.19	0.00	14.43	22.2
2	24069	24069:WVGD8	End	85.50	6.28	0.03	-0.06	1144.27	-5.01	0.0	-78.60	25.25	-0.12	-1.07	14.12	0.18	0.00	15.20	23.4
2	24069	24069:WVGD8	Origin	85.50	6.28	0.03	-0.06	1144.27	-5.01	0.0	-81.18	25.69	-0.13	-1.11	14.12	0.18	0.00	15.23	23.4
2	24069	SpliceT	End	89.25	5.65	0.03	-0.05	1240.59	-5.50	0.0	-81.18	25.69	-0.13	-1.08	14.67	0.18	0.00	15.75	24.4
2	24069	SpliceT	Origin	89.25	5.65	0.03	-0.05	1240.59	-5.50	0.0	-82.60	25.89	-0.14	-0.96	12.82	0.16	0.00	13.78	21.2
2	24069	Tube 4	End	92.37	5.16	0.03	-0.05	1321.50	-5.93	0.0	-82.60	25.89	-0.14	-0.95	13.18	0.16	0.00	14.13	21.7
2	24069	Tube 4	Origin	92.37	5.16	0.03	-0.05	1321.50	-5.93	0.0	-84.01	26.09	-0.14	-0.96	13.18	0.16	0.00	14.15	21.8
2	24069	24069:WVGD7	End	95.50	4.68	0.03	-0.04	1403.02	-6.38	0.0	-84.01	26.09	-0.14	-0.95	13.52	0.16	0.00	14.47	22.3
2	24069	24069:WVGD7	Origin	95.50	4.68	0.03	-0.04	1403.02	-6.38	0.0	-86.75	26.52	-0.15	-0.98	13.52	0.16	0.00	14.50	22.3
2	24069	Tube 4	End	100.29	4.01	0.02	-0.04	1530.05	-7.10	0.0	-86.75	26.52	-0.15	-0.95	14.00	0.15	0.00	14.96	23.0
2	24069	Tube 4	Origin	100.29	4.01	0.02	-0.04	1530.05	-7.10	0.0	-89.00	26.83	-0.16	-0.98	14.00	0.16	0.00	14.98	23.0
2	24069	SpliceT	End	105.08	3.39	0.02	-0.03	1658.54	-7.87	0.0	-89.00	26.83	-0.16	-0.95	14.43	0.15	0.00	15.39	23.7
2	24069	SpliceT	Origin	105.08	3.39	0.02	-0.03	1658.54	-7.87	0.0	-90.36	26.99	-0.17	-0.97	14.43	0.15	0.00	15.40	23.7
2	24069	24069:WVGD6	End	105.50	3.34	0.02	-0.03	1669.88	-7.94	0.0	-90.36	26.99	-0.17	-0.87	13.36	0.14	0.00	14.23	21.9
2	24069	24069:WVGD6	Origin	105.50	3.34	0.02	-0.03	1669.88	-7.94	0.0	-93.34	27.32	-0.17	-0.90	13.36	0.14	0.00	14.26	21.9
2	24069	Tube 4	End	109.12	2.91	0.02	-0.03	1768.90	-8.55	0.0	-93.34	27.32	-0.17	-0.88	13.62	0.14	0.00	14.51	22.3
2	24069	Tube 4	Origin	109.12	2.91	0.02	-0.03	1768.90	-8.55	0.0	-97.08	27.57	-0.18	-0.92	13.62	0.14	0.00	14.54	22.4

2	24069	SpliceB	End	112.75	2.51	0.01	-0.03	1868.85	-9.19	0.0	-97.08	27.57	-0.18	-0.90	13.87	0.14	0.00	14.77	22.7
2	24069	SpliceB	Origin	112.75	2.51	0.01	-0.03	1868.85	-9.19	0.0	-99.73	27.79	-0.18	-0.93	13.87	0.14	0.00	14.80	22.8
2	24069	24069:WVGD5	End	115.50	2.22	0.01	-0.02	1945.26	-9.70	0.0	-99.73	27.79	-0.18	-0.92	14.04	0.13	0.00	14.95	23.0
2	24069	24069:WVGD5	Origin	115.50	2.22	0.01	-0.02	1945.26	-9.70	0.0	-102.78	28.22	-0.19	-0.94	14.04	0.14	0.00	14.98	23.0
2	24069	Tube 5	End	120.29	1.77	0.01	-0.02	2080.44	-10.61	0.0	-102.78	28.22	-0.19	-0.92	14.32	0.13	0.00	15.24	23.4
2	24069	Tube 5	Origin	120.29	1.77	0.01	-0.02	2080.44	-10.61	0.0	-105.53	28.54	-0.20	-0.95	14.32	0.14	0.00	15.26	23.5
2	24069	SpliceT	End	125.08	1.37	0.01	-0.02	2217.16	-11.57	0.0	-105.53	28.54	-0.20	-0.92	14.56	0.13	0.00	15.49	23.8
2	24069	SpliceT	Origin	125.08	1.37	0.01	-0.02	2217.16	-11.57	0.0	-107.05	28.72	-0.21	-0.94	14.56	0.13	0.00	15.50	23.9
2	24069	24069:WVGD4	End	125.50	1.34	0.01	-0.02	2229.22	-11.66	0.0	-107.05	28.72	-0.21	-0.94	14.58	0.13	0.00	15.52	23.9
2	24069	24069:WVGD4	Origin	125.50	1.34	0.01	-0.02	2229.22	-11.66	0.0	-109.58	29.09	-0.21	-0.96	14.58	0.13	0.00	15.54	23.9
2	24069	Tube 6	End	130.50	0.98	0.01	-0.01	2374.65	-12.72	0.0	-109.58	29.09	-0.21	-0.94	14.82	0.13	0.00	15.76	24.2
2	24069	Tube 6	Origin	130.50	0.98	0.01	-0.01	2374.65	-12.72	0.0	-112.60	29.43	-0.22	-0.96	14.82	0.13	0.00	15.78	24.3
2	24069	24069:WVGD3	End	135.50	0.68	0.00	-0.01	2521.81	-13.84	0.0	-112.60	29.43	-0.22	-0.94	15.03	0.13	0.00	15.97	24.6
2	24069	24069:WVGD3	Origin	135.50	0.68	0.00	-0.01	2521.81	-13.84	0.0	-116.54	29.96	-0.23	-0.97	15.03	0.13	0.00	16.00	24.6
2	24069	Tube 6	End	140.29	0.44	0.00	-0.01	2665.29	-14.96	0.0	-116.54	29.96	-0.23	-0.95	15.21	0.13	0.00	16.16	24.9
2	24069	Tube 6	Origin	140.29	0.44	0.00	-0.01	2665.29	-14.96	0.0	-119.56	30.30	-0.25	-0.98	15.21	0.13	0.00	16.19	24.9
2	24069	SpliceT	End	145.08	0.26	0.00	-0.01	2810.41	-16.13	0.0	-119.56	30.30	-0.25	-0.96	15.37	0.13	0.00	16.33	25.4
2	24069	SpliceT	Origin	145.08	0.26	0.00	-0.01	2810.41	-16.13	0.0	-121.22	30.49	-0.25	-0.97	15.37	0.13	0.00	16.34	25.4
2	24069	24069:WVGD2	End	145.50	0.24	0.00	-0.01	2823.22	-16.24	0.0	-121.22	30.49	-0.25	-0.97	15.39	0.13	0.00	16.36	25.5
2	24069	24069:WVGD2	Origin	145.50	0.24	0.00	-0.01	2823.22	-16.24	0.0	-123.91	30.86	-0.26	-0.99	15.39	0.13	0.00	16.38	25.5
2	24069	Tube 7	End	150.50	0.11	0.00	-0.00	2977.51	-17.52	0.0	-123.91	30.86	-0.26	-0.97	15.54	0.13	0.00	16.51	26.0
2	24069	Tube 7	Origin	150.50	0.11	0.00	-0.00	2977.51	-17.52	0.0	-127.20	31.23	-0.27	-0.99	15.54	0.13	0.00	16.54	26.0
2	24069	24069:WVGD1	End	155.50	0.03	0.00	-0.00	3133.64	-18.87	0.0	-127.20	31.23	-0.27	-0.97	15.68	0.13	0.00	16.65	26.5
2	24069	24069:WVGD1	Origin	155.50	0.03	0.00	-0.00	3133.64	-18.87	0.0	-131.49	31.77	-0.28	-1.01	15.68	0.13	0.00	16.69	26.6
2	24069	24069:g	End	160.50	0.00	0.00	0.00	3292.51	-20.27	0.0	-131.49	31.77	-0.28	-0.98	15.81	0.13	0.00	16.79	27.0

Detailed Tubular Davit Arm Usages for Load Case "NESC Heavy Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
Davit1	Davit1:0	Origin	0.00	21.31	0.11	-0.65	-126.63	-0.02	-0.0	2.87	8.66	0.00	0.16	19.54	0.00	0.00	19.70	30.3	1

Davit1	#Davit1:0	End	5.00	21.43	0.11	-2.23	-83.33	-0.01	-0.0	2.87	8.66	0.00	0.18	16.52	0.00	0.00	16.69	25.7	1
Davit1	#Davit1:0	Origin	5.00	21.43	0.11	-2.23	-83.33	-0.01	-0.0	2.92	8.25	0.00	0.18	16.52	0.00	0.00	16.70	25.7	1
Davit1	#Davit1:1	End	9.53	21.54	0.11	-3.86	-45.98	-0.01	-0.0	2.92	8.25	0.00	0.21	11.78	0.00	0.00	11.99	18.4	1
Davit1	#Davit1:1	Origin	9.53	21.54	0.11	-3.86	-45.98	-0.01	-0.0	2.96	7.92	0.00	0.21	11.78	0.00	0.00	11.99	18.4	1
Davit1	Davit1:V	End	14.05	21.67	0.11	-5.64	-10.16	-0.00	-0.0	2.96	7.92	0.00	0.24	3.50	0.00	0.00	3.74	5.7	1
Davit1	Davit1:V	Origin	14.05	21.67	0.11	-5.64	-10.16	-0.00	-0.0	0.77	1.41	0.00	0.06	3.50	0.00	0.00	3.56	5.5	1
Davit1	#Davit1:2	End	17.94	21.76	0.11	-7.23	-4.67	-0.00	-0.0	0.77	1.41	0.00	0.07	2.15	0.00	0.00	2.23	3.4	1
Davit1	#Davit1:2	Origin	17.94	21.76	0.11	-7.23	-4.67	-0.00	-0.0	0.77	1.20	0.00	0.07	2.15	0.00	0.00	2.23	3.4	1
Davit1	Davit1:T	End	21.83	21.86	0.11	-8.85	0.00	0.00	-0.0	0.77	1.20	0.00	0.09	0.00	0.28	0.00	0.49	0.8	3
Davit2	Davit2:0	Origin	0.00	21.32	0.11	0.18	-116.55	0.02	0.0	-4.21	8.01	-0.00	-0.23	17.99	0.00	0.00	18.22	28.0	1
Davit2	#Davit2:0	End	5.00	21.45	0.11	1.50	-76.51	0.01	0.0	-4.21	8.01	-0.00	-0.26	15.16	0.00	0.00	15.42	23.7	1
Davit2	#Davit2:0	Origin	5.00	21.45	0.11	1.50	-76.51	0.01	0.0	-4.14	7.63	-0.00	-0.26	15.16	0.00	0.00	15.42	23.7	1
Davit2	#Davit2:1	End	9.53	21.55	0.11	2.51	-41.98	0.01	0.0	-4.14	7.63	-0.00	-0.29	10.76	0.00	0.00	11.05	17.0	1
Davit2	#Davit2:1	Origin	9.53	21.55	0.11	2.51	-41.98	0.01	0.0	-4.09	7.31	-0.00	-0.29	10.76	0.00	0.00	11.04	17.0	1
Davit2	Davit2:V	End	14.05	21.63	0.11	3.38	-8.88	0.00	0.0	-4.09	7.31	-0.00	-0.33	3.06	0.00	0.00	3.39	5.2	1
Davit2	Davit2:V	Origin	14.05	21.63	0.11	3.38	-8.88	0.00	0.0	-0.89	1.25	-0.00	-0.07	3.06	0.00	0.00	3.13	4.8	1
Davit2	#Davit2:2	End	17.94	21.69	0.11	4.08	-4.03	0.00	0.0	-0.89	1.25	-0.00	-0.08	1.86	0.00	0.00	1.94	3.0	1
Davit2	#Davit2:2	Origin	17.94	21.69	0.11	4.08	-4.03	0.00	0.0	-0.87	1.04	-0.00	-0.08	1.86	0.00	0.00	1.94	3.0	1
Davit2	Davit2:T	End	21.83	21.75	0.11	4.76	-0.00	0.00	0.0	-0.87	1.04	-0.00	-0.10	0.00	0.24	0.00	0.43	0.7	3
Davit3	Davit3:0	Origin	0.00	14.93	0.08	-0.61	-92.84	-0.01	-0.0	2.15	6.90	0.00	0.13	18.25	0.00	0.00	18.38	28.3	1
Davit3	#Davit3:0	End	5.00	15.04	0.08	-2.06	-58.33	-0.01	-0.0	2.15	6.90	0.00	0.16	17.68	0.00	0.00	17.84	27.5	1
Davit3	#Davit3:0	Origin	5.00	15.04	0.08	-2.06	-58.33	-0.01	-0.0	2.20	6.57	0.00	0.17	17.68	0.00	0.00	17.85	27.5	1
Davit3	#Davit3:1	End	9.52	15.15	0.08	-3.63	-28.61	-0.00	-0.0	2.20	6.57	0.00	0.21	14.20	0.00	0.00	14.42	22.2	1
Davit3	#Davit3:1	Origin	9.52	15.15	0.08	-3.63	-28.61	-0.00	0.0	2.24	6.32	0.00	0.22	14.20	0.00	0.00	14.42	22.2	1
Davit3	Davit3:End	End	14.05	15.27	0.08	-5.45	0.00	0.00	0.0	2.24	6.32	0.00	0.30	0.00	1.77	0.00	3.08	4.7	3
Davit4	Davit4:0	Origin	0.00	14.94	0.08	0.29	-87.05	0.01	0.0	-3.23	6.47	-0.00	-0.20	17.11	0.00	0.00	17.31	26.6	1
Davit4	#Davit4:0	End	5.00	15.05	0.08	1.45	-54.72	0.01	0.0	-3.23	6.47	-0.00	-0.25	16.59	0.00	0.00	16.83	25.9	1
Davit4	#Davit4:0	Origin	5.00	15.05	0.08	1.45	-54.72	0.01	0.0	-3.17	6.16	-0.00	-0.24	16.59	0.00	0.00	16.83	25.9	1
Davit4	#Davit4:1	End	9.52	15.13	0.08	2.25	-26.86	0.00	0.0	-3.17	6.16	-0.00	-0.31	13.33	0.00	0.00	13.64	21.0	1
Davit4	#Davit4:1	Origin	9.52	15.13	0.08	2.25	-26.86	0.00	0.0	-3.12	5.94	-0.00	-0.30	13.33	0.00	0.00	13.64	21.0	1
Davit4	Davit4:End	End	14.05	15.18	0.08	2.83	-0.00	0.00	0.0	-3.12	5.94	-0.00	-0.42	0.00	1.66	0.00	2.91	4.5	3
Davit5	Davit5:0	Origin	0.00	9.57	0.05	-0.52	-92.96	-0.01	-0.0	2.12	6.91	0.00	0.13	18.28	0.00	0.00	18.41	28.3	1
Davit5	#Davit5:0	End	5.00	9.66	0.05	-1.74	-58.40	-0.01	-0.0	2.12	6.91	0.00	0.16	17.70	0.00	0.00	17.87	27.5	1
Davit5	#Davit5:0	Origin	5.00	9.66	0.05	-1.74	-58.40	-0.01	-0.0	2.18	6.58	0.00	0.17	17.70	0.00	0.00	17.87	27.5	1
Davit5	#Davit5:1	End	9.52	9.76	0.05	-3.10	-28.64	-0.00	-0.0	2.18	6.58	0.00	0.21	14.22	0.00	0.00	14.43	22.2	1
Davit5	#Davit5:1	Origin	9.52	9.76	0.05	-3.10	-28.64	-0.00	0.0	2.22	6.33	0.00	0.22	14.22	0.00	0.00	14.44	22.2	1
Davit5	Davit5:End	End	14.05	9.87	0.05	-4.71	0.00	0.00	0.0	2.22	6.33	0.00	0.30	0.00	1.77	0.00	3.08	4.7	3
Davit6	Davit6:0	Origin	0.00	9.58	0.05	0.33	-87.22	0.01	0.0	-3.21	6.48	-0.00	-0.20	17.15	0.00	0.00	17.35	26.7	1
Davit6	#Davit6:0	End	5.00	9.66	0.05	1.25	-54.84	0.01	0.0	-3.21	6.48	-0.00	-0.24	16.62	0.00	0.00	16.87	25.9	1
Davit6	#Davit6:0	Origin	5.00	9.66	0.05	1.25	-54.84	0.01	0.0	-3.15	6.17	-0.00	-0.24	16.62	0.00	0.00	16.86	25.9	1
Davit6	#Davit6:1	End	9.52	9.71	0.05	1.85	-26.91	0.00	0.0	-3.15	6.17	-0.00	-0.31	13.36	0.00	0.00	13.67	21.0	1
Davit6	#Davit6:1	Origin	9.52	9.71	0.05	1.85	-26.91	0.00	0.0	-3.10	5.95	-0.00	-0.30	13.36	0.00	0.00	13.66	21.0	1
Davit6	Davit6:End	End	14.05	9.75	0.05	2.21	-0.00	0.00	0.0	-3.10	5.95	-0.00	-0.42	0.00	1.67	0.00	2.91	4.5	3

Summary of Clamp Capacities and Usages for Load Case "NESC Heavy Wind":

Clamp Label	Clamp Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %

Clamp1	6.614	80.00	80.00	8.27
Clamp2	1.351	80.00	80.00	1.69

Clamp3	6.614	80.00	80.00	8.27
Clamp4	1.275	80.00	80.00	1.59
Clamp5	6.614	80.00	80.00	8.27
Clamp6	6.614	80.00	80.00	8.27
Clamp7	6.614	80.00	80.00	8.27
Clamp8	6.614	80.00	80.00	8.27
Clamp9	5.387	80.00	80.00	6.73
Clamp10	0.936	80.00	80.00	1.17
Clamp11	0.936	80.00	80.00	1.17
Clamp12	0.936	80.00	80.00	1.17
Clamp13	0.936	80.00	80.00	1.17
Clamp14	0.936	80.00	80.00	1.17
Clamp15	0.936	80.00	80.00	1.17
Clamp16	0.936	80.00	80.00	1.17
Clamp17	0.936	80.00	80.00	1.17
Clamp18	0.936	80.00	80.00	1.17
Clamp19	0.936	80.00	80.00	1.17
Clamp20	0.936	80.00	80.00	1.17
Clamp21	0.936	80.00	80.00	1.17
Clamp22	0.936	80.00	80.00	1.17
Clamp23	0.936	80.00	80.00	1.17
Clamp24	0.936	80.00	80.00	1.17

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme Wind":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
24069:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
24069:t	0.003075	5.308	-0.1173	-3.2718	0.0018	0.0000	0.003075	5.308	160.4
24069:TMobile	0.002967	5.108	-0.1116	-3.2717	0.0018	0.0000	0.002967	5.108	156.9
24069:WVGDI5	0.002597	4.426	-0.09216	-3.2306	0.0018	0.0000	0.002597	4.426	144.9
24069:Arm1	0.002369	4.007	-0.08039	-3.1742	0.0017	0.0000	0.002369	4.007	137.4
24069:WVGDI4	0.002293	3.869	-0.07654	-3.1471	0.0017	0.0000	0.002293	3.869	134.9
24069:WVGDI3	0.001998	3.331	-0.06196	-3.0048	0.0017	0.0000	0.001998	3.331	124.9
24069:WVGDI2	0.001714	2.821	-0.04885	-2.8266	0.0016	0.0000	0.001714	2.821	115
24069:Arm2	0.0017	2.797	-0.04823	-2.8168	0.0016	0.0000	0.0017	2.797	114.5
24069:WVGDI1	0.001445	2.346	-0.03738	-2.6068	0.0015	0.0000	0.001445	2.346	105
24069:WVGDI0	0.001194	1.91	-0.02774	-2.3737	0.0014	0.0000	0.001194	1.91	94.97
24069:Arm3	0.001123	1.788	-0.02519	-2.2997	0.0013	0.0000	0.001123	1.788	91.97
24069:WVGDI9	0.0009643	1.518	-0.01984	-2.1169	0.0013	0.0000	0.0009643	1.518	84.98
24069:WVGDI8	0.000757	1.171	-0.01365	-1.8376	0.0011	0.0000	0.000757	1.171	74.99
24069:WVGDI7	0.0005744	0.8741	-0.009046	-1.5690	0.0010	0.0000	0.0005744	0.8741	64.99
24069:WVGDI6	0.0004158	0.6222	-0.005696	-1.3092	0.0008	0.0000	0.0004158	0.6222	54.99
24069:WVGDI5	0.0002817	0.4146	-0.003368	-1.0638	0.0007	0.0000	0.0002817	0.4146	45
24069:WVGDI4	0.0001724	0.2496	-0.001828	-0.8202	0.0005	0.0000	0.0001724	0.2496	35
24069:WVGDI3	8.915e-005	0.1268	-0.0008912	-0.5800	0.0004	0.0000	8.915e-005	0.1268	25
24069:WVGDI2	3.271e-005	0.04567	-0.0003734	-0.3441	0.0002	0.0000	3.271e-005	0.04567	15
24069:WVGDI1	3.857e-006	0.005231	-9.87e-005	-0.1134	0.0001	0.0000	3.857e-006	0.005231	5
Davit1:0	0.002366	4.004	-0.1598	-3.1742	0.0017	0.0000	0.002366	5.439	137.3
Davit1:V	0.002373	4.051	-0.9723	-3.4203	0.0017	0.0000	0.002373	19.49	137.7
Davit1:T	0.002375	4.073	-1.438	-3.4428	0.0017	0.0000	0.002375	27.26	137.9
Davit2:0	0.002371	4.009	-0.0009445	-3.1742	0.0017	0.0000	0.002371	2.574	137.5
Davit2:V	0.002438	4.094	0.7473	-2.9991	0.0017	0.0000	0.002438	-11.34	139.5
Davit2:T	0.002473	4.136	1.151	-2.9837	0.0017	0.0000	0.002473	-19.05	140.5
Davit3:0	0.001697	2.794	-0.1332	-2.8168	0.0016	0.0000	0.001697	4.523	114.4
Davit3:End	0.001706	2.837	-0.8706	-3.1726	0.0016	0.0000	0.001706	18.57	114.8
Davit4:0	0.001702	2.799	0.03672	-2.8168	0.0016	0.0000	0.001702	1.07	114.5
Davit4:End	0.001757	2.869	0.6891	-2.5620	0.0016	0.0000	0.001757	-12.86	116.4
Davit5:0	0.001121	1.786	-0.1046	-2.2997	0.0013	0.0000	0.001121	3.766	91.9
Davit5:End	0.001132	1.824	-0.716	-2.6609	0.0013	0.0000	0.001132	17.8	92.45
Davit6:0	0.001125	1.79	0.05426	-2.2997	0.0013	0.0000	0.001125	-0.1905	92.05
Davit6:End	0.001168	1.844	0.58	-2.0388	0.0013	0.0000	0.001168	-14.14	93.75

Joint Support Reactions for Load Case "NESC Extreme Wind":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Comp. Force (kips)	Z Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
24069:g	-0.08	0.0	-72.12	0.0	0.0	-80.42	0.0	0.0	108.02	0.0	7376.12	0.0	-5.4	0.0	0.0	-0.01	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Extreme Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
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24069	24069:t	Origin	0.00	63.69	0.04	-1.41	-0.00	-0.00	0.0	-0.17	0.14	-0.00	-0.01	0.00	0.01	0.00	0.02	0.0	5
24069	24069:TMobile	End	3.50	61.30	0.04	-1.34	0.50	-0.00	0.0	-0.17	0.14	-0.00	-0.01	0.03	0.00	0.00	0.04	0.1	2
24069	24069:TMobile	Origin	3.50	61.30	0.04	-1.34	0.50	-0.00	-0.0	-2.84	7.12	-0.00	-0.10	0.00	0.51	0.00	0.89	1.4	5
24069	Tube 1	End	8.50	57.87	0.03	-1.24	36.10	-0.01	-0.0	-2.84	7.12	-0.00	-0.09	1.92	0.13	0.00	2.03	3.1	2
24069	Tube 1	Origin	8.50	57.87	0.03	-1.24	36.10	-0.01	-0.0	-3.27	7.49	-0.00	-0.11	1.92	0.13	0.00	2.05	3.1	2
24069	Tube 1	End	12.00	55.49	0.03	-1.17	62.31	-0.02	-0.0	-3.27	7.49	-0.00	-0.11	3.09	0.13	0.00	3.21	4.9	2
24069	Tube 1	Origin	12.00	55.49	0.03	-1.17	62.31	-0.02	-0.0	-3.64	7.81	-0.00	-0.12	3.09	0.13	0.00	3.22	5.0	2
24069	24069:WVGD15	End	15.50	53.11	0.03	-1.11	89.65	-0.03	-0.0	-3.64	7.81	-0.00	-0.11	4.16	0.13	0.00	4.28	6.6	2
24069	24069:WVGD15	Origin	15.50	53.11	0.03	-1.11	89.65	-0.03	-0.0	-4.25	8.73	-0.01	-0.13	4.16	0.14	0.00	4.30	6.6	2
24069	Tube 1	End	19.25	50.58	0.03	-1.03	122.40	-0.05	-0.0	-4.25	8.73	-0.01	-0.13	5.30	0.14	0.00	5.43	8.4	2
24069	Tube 1	Origin	19.25	50.58	0.03	-1.03	122.40	-0.05	-0.0	-4.68	9.10	-0.01	-0.14	5.30	0.15	0.00	5.44	8.4	2
24069	24069:Arm1	End	23.00	48.08	0.03	-0.96	156.53	-0.08	-0.0	-4.68	9.10	-0.01	-0.14	6.33	0.14	0.00	6.47	10.0	2
24069	24069:Arm1	Origin	23.00	48.08	0.03	-0.96	173.13	-0.08	0.0	-12.59	22.73	-0.01	-0.37	7.00	0.35	0.00	7.39	11.4	2
24069	24069:WVGD14	End	25.50	46.42	0.03	-0.92	229.95	-0.10	0.0	-12.59	22.73	-0.01	-0.36	8.90	0.34	0.00	9.28	14.3	2
24069	24069:WVGD14	Origin	25.50	46.42	0.03	-0.92	229.95	-0.10	0.0	-13.25	23.67	-0.01	-0.38	8.90	0.36	0.00	9.30	14.3	2
24069	SpliceT	End	30.00	43.48	0.03	-0.84	336.45	-0.14	0.0	-13.25	23.67	-0.01	-0.36	12.06	0.34	0.00	12.44	19.1	2
24069	SpliceT	Origin	30.00	43.48	0.03	-0.84	336.45	-0.14	0.0	-13.75	24.04	-0.01	-0.31	10.03	0.29	0.00	10.36	15.9	2
24069	Tube 2	End	32.75	41.72	0.02	-0.79	402.56	-0.16	0.0	-13.75	24.04	-0.01	-0.31	11.47	0.28	0.00	11.79	18.1	2
24069	Tube 2	Origin	32.75	41.72	0.02	-0.79	402.56	-0.16	0.0	-14.19	24.34	-0.01	-0.32	11.47	0.29	0.00	11.80	18.2	2
24069	24069:WVGD13	End	35.50	39.97	0.02	-0.74	469.48	-0.20	0.0	-14.19	24.34	-0.01	-0.31	12.80	0.28	0.00	13.12	20.2	2
24069	24069:WVGD13	Origin	35.50	39.97	0.02	-0.74	469.48	-0.20	0.0	-15.04	25.35	-0.01	-0.33	12.80	0.29	0.00	13.14	20.2	2
24069	Tube 2	End	40.50	36.87	0.02	-0.66	596.22	-0.26	0.0	-15.04	25.35	-0.01	-0.32	15.03	0.28	0.00	15.35	23.6	2
24069	Tube 2	Origin	40.50	36.87	0.02	-0.66	596.22	-0.26	0.0	-15.89	25.91	-0.01	-0.33	15.03	0.29	0.00	15.37	23.7	2
24069	24069:WVGD12	End	45.50	33.85	0.02	-0.59	725.77	-0.33	0.0	-15.89	25.91	-0.01	-0.32	16.97	0.28	0.00	17.30	26.6	2
24069	24069:WVGD12	Origin	45.50	33.85	0.02	-0.59	725.77	-0.33	0.0	-16.59	26.81	-0.02	-0.34	16.97	0.29	0.00	17.31	26.6	2
24069	24069:Arm2	End	46.00	33.56	0.02	-0.58	739.18	-0.34	0.0	-16.59	26.81	-0.02	-0.33	17.16	0.29	0.00	17.50	26.9	2
24069	24069:Arm2	Origin	46.00	33.56	0.02	-0.58	751.78	-0.34	0.0	-23.21	38.24	-0.02	-0.47	17.45	0.41	0.00	17.93	27.6	2
24069	Tube 2	End	50.13	31.16	0.02	-0.52	909.52	-0.41	0.0	-23.21	38.24	-0.02	-0.45	19.88	0.40	0.00	20.35	31.3	2
24069	Tube 2	Origin	50.13	31.16	0.02	-0.52	909.52	-0.41	0.0	-23.99	38.72	-0.02	-0.47	19.88	0.40	0.00	20.37	31.3	2
24069	SpliceT	End	54.25	28.84	0.02	-0.46	1069.25	-0.49	0.0	-23.99	38.72	-0.02	-0.46	22.06	0.39	0.00	22.52	34.7	2
24069	SpliceT	Origin	54.25	28.84	0.02	-0.46	1069.25	-0.49	0.0	-24.64	39.04	-0.02	-0.47	22.06	0.39	0.00	22.54	34.7	2
24069	24069:WVGD11	End	55.50	28.15	0.02	-0.45	1118.05	-0.51	0.0	-24.64	39.04	-0.02	-0.41	20.20	0.34	0.00	20.61	31.7	2
24069	24069:WVGD11	Origin	55.50	28.15	0.02	-0.45	1118.05	-0.51	0.0	-26.03	40.00	-0.02	-0.43	20.20	0.35	0.00	20.64	31.7	2
24069	SpliceB	End	60.00	25.74	0.02	-0.39	1298.03	-0.60	0.0	-26.03	40.00	-0.02	-0.42	22.04	0.34	0.00	22.46	34.6	2
24069	SpliceB	Origin	60.00	25.74	0.02	-0.39	1298.03	-0.60	0.0	-27.27	40.46	-0.02	-0.44	22.04	0.34	0.00	22.48	34.6	2
24069	Tube 3	End	62.75	24.31	0.02	-0.36	1409.29	-0.66	0.0	-27.27	40.46	-0.02	-0.43	23.06	0.34	0.00	23.49	36.1	2
24069	Tube 3	Origin	62.75	24.31	0.02	-0.36	1409.29	-0.66	0.0	-27.91	40.80	-0.02	-0.44	23.06	0.34	0.00	23.50	36.2	2
24069	24069:WVGD10	End	65.50	22.93	0.01	-0.33	1521.47	-0.73	0.0	-27.91	40.80	-0.02	-0.43	24.00	0.33	0.00	24.44	37.6	2
24069	24069:WVGD10	Origin	65.50	22.93	0.01	-0.33	1521.47	-0.73	0.0	-28.82	41.74	-0.02	-0.44	24.00	0.34	0.00	24.45	37.6	2
24069	24069:Arm3	End	68.50	21.46	0.01	-0.30	1646.68	-0.80	0.0	-28.82	41.74	-0.02	-0.44	24.98	0.33	0.00	25.43	39.1	2
24069	24069:Arm3	Origin	68.50	21.46	0.01	-0.30	1659.21	-0.80	0.0	-35.92	53.25	-0.03	-0.54	25.17	0.42	0.00	25.73	39.6	2
24069	Tube 3	End	72.00	19.80	0.01	-0.27	1845.59	-0.90	0.0	-35.92	53.25	-0.03	-0.53	26.78	0.42	0.00	27.32	42.0	2
24069	Tube 3	Origin	72.00	19.80	0.01	-0.27	1845.59	-0.90	0.0	-36.81	53.69	-0.03	-0.54	26.78	0.42	0.00	27.34	42.1	2
24069	24069:WVGD9	End	75.50	18.21	0.01	-0.24	2033.51	-1.00	0.0	-36.81	53.69	-0.03	-0.53	28.25	0.41	0.00	28.79	44.3	2
24069	24069:WVGD9	Origin	75.50	18.21	0.01	-0.24	2033.51	-1.00	0.0	-38.15	54.82	-0.03	-0.55	28.25	0.42	0.00	28.81	44.3	2
24069	Tube 3	End	80.50	16.06	0.01	-0.20	2307.60	-1.15	0.0	-38.15	54.82	-0.03	-0.53	30.18	0.41	0.00	30.72	47.3	2
24069	Tube 3	Origin	80.50	16.06	0.01	-0.20	2307.60	-1.15	0.0	-39.50	55.47	-0.03	-0.55	30.18	0.41	0.00	30.74	47.3	2
24069	24069:WVGD8	End	85.50	14.06	0.01	-0.16	2584.93	-1.31	0.0	-39.50	55.47	-0.03	-0.54	31.87	0.40	0.00	32.42	49.9	2
24069	24069:WVGD8	Origin	85.50	14.06	0.01	-0.16	2584.93	-1.31	0.0	-40.94	56.63	-0.03	-0.56	31.87	0.41	0.00	32.44	49.9	2
24069	SpliceT	End	89.25	12.65	0.01	-0.14	2797.28	-1.44	0.0	-40.94	56.63	-0.03	-0.55	33.04	0.40	0.00	33.59	52.0	2
24069	SpliceT	Origin	89.25	12.65	0.01	-0.14	2797.28	-1.44	0.0	-41.97	57.09	-0.04	-0.49	28.87	0.35	0.00	29.37	45.2	2
24069	Tube 4	End	92.37	11.54	0.01	-0.12	2975.69	-1.55	0.0	-41.97	57.09	-0.04	-0.48	29.65	0.35	0.00	30.14	46.4	2
24069	Tube 4	Origin	92.37	11.54	0.01	-0.12	2975.69	-1.55	0.0	-42.98	57.53	-0.04	-0.49	29.65	0.35	0.00	30.15	46.4	2
24069	24069:WVGD7	End	95.50	10.49	0.01	-0.11	3155.48	-1.67	0.0	-42.98	57.53	-0.04	-0.48	30.38	0.34	0.00	30.87	47.5	2
24069	24069:WVGD7	Origin	95.50	10.49	0.01	-0.11	3155.48	-1.67	0.0	-44.52	58.68	-0.04	-0.50	30.38	0.35	0.00	30.89	47.5	2
24069	Tube 4	End	100.29	8.97	0.01	-0.09	3436.53	-1.86	0.0	-44.52	58.68	-0.04	-0.49	31.42	0.34	0.00	31.91	49.1	2
24069	Tube 4	Origin	100.29	8.97	0.01	-0.09	3436.53	-1.86	0.0	-46.14	59.37	-0.04	-0.51	31.42	0.34	0.00	31.93	49.1	2
24069	SpliceT	End	105.08	7.58	0.01	-0.07	3720.90	-2.06	0.0	-46.14	59.37	-0.04	-0.49	32.34	0.34	0.00	32.84	50.5	2

24069	SpliceT	Origin	105.08	7.58	0.01	-0.07	3720.90	-2.06	0.0	-47.10	59.75	-0.04	-0.50	32.34	0.34	0.00	32.85	50.5	2
24069	24069:WVG D6	End	105.50	7.47	0.00	-0.07	3746.00	-2.08	0.0	-47.10	59.75	-0.04	-0.45	29.93	0.31	0.00	30.39	46.8	2
24069	24069:WVG D6	Origin	105.50	7.47	0.00	-0.07	3746.00	-2.08	0.0	-48.76	60.64	-0.04	-0.47	29.93	0.31	0.00	30.41	46.8	2
24069	Tube 4	End	109.12	6.50	0.00	-0.06	3965.81	-2.24	0.0	-48.76	60.64	-0.04	-0.46	30.51	0.30	0.00	30.97	47.7	2
24069	Tube 4	Origin	109.12	6.50	0.00	-0.06	3965.81	-2.24	0.0	-51.33	61.20	-0.05	-0.49	30.51	0.31	0.00	31.00	47.7	2
24069	SpliceB	End	112.75	5.61	0.00	-0.05	4187.67	-2.41	0.0	-51.33	61.20	-0.05	-0.48	31.03	0.30	0.00	31.52	48.5	2
24069	SpliceB	Origin	112.75	5.61	0.00	-0.05	4187.67	-2.41	0.0	-53.17	61.69	-0.05	-0.49	31.03	0.30	0.00	31.53	48.5	2
24069	24069:WVG D5	End	115.50	4.98	0.00	-0.04	4357.33	-2.55	0.0	-53.17	61.69	-0.05	-0.49	31.40	0.30	0.00	31.90	49.1	2
24069	24069:WVG D5	Origin	115.50	4.98	0.00	-0.04	4357.33	-2.55	0.0	-54.92	62.84	-0.05	-0.50	31.40	0.30	0.00	31.91	49.1	2
24069	Tube 5	End	120.29	3.96	0.00	-0.03	4658.33	-2.79	0.0	-54.92	62.84	-0.05	-0.49	32.01	0.30	0.00	32.51	50.0	2
24069	Tube 5	Origin	120.29	3.96	0.00	-0.03	4658.33	-2.79	0.0	-56.86	63.58	-0.05	-0.51	32.01	0.30	0.00	32.53	50.0	2
24069	SpliceT	End	125.08	3.07	0.00	-0.02	4962.87	-3.04	0.0	-56.86	63.58	-0.05	-0.50	32.56	0.29	0.00	33.06	50.9	2
24069	SpliceT	Origin	125.08	3.07	0.00	-0.02	4962.87	-3.04	0.0	-57.94	63.98	-0.05	-0.51	32.56	0.30	0.00	33.07	50.9	2
24069	24069:WVG D4	End	125.50	3.00	0.00	-0.02	4989.74	-3.07	0.0	-57.94	63.98	-0.05	-0.51	32.60	0.30	0.00	33.11	50.9	2
24069	24069:WVG D4	Origin	125.50	3.00	0.00	-0.02	4989.74	-3.07	0.0	-59.32	64.99	-0.06	-0.52	32.60	0.30	0.00	33.13	51.0	2
24069	Tube 6	End	130.50	2.20	0.00	-0.02	5314.67	-3.35	0.0	-59.32	64.99	-0.06	-0.51	33.12	0.29	0.00	33.63	51.7	2
24069	Tube 6	Origin	130.50	2.20	0.00	-0.02	5314.67	-3.35	0.0	-61.45	65.78	-0.06	-0.52	33.12	0.30	0.00	33.65	51.8	2
24069	24069:WVG D3	End	135.50	1.52	0.00	-0.01	5643.59	-3.65	0.0	-61.45	65.78	-0.06	-0.51	33.59	0.29	0.00	34.10	52.5	2
24069	24069:WVG D3	Origin	135.50	1.52	0.00	-0.01	5643.59	-3.65	0.0	-63.82	67.15	-0.06	-0.53	33.59	0.30	0.00	34.12	52.5	2
24069	Tube 6	End	140.29	0.99	0.00	-0.01	5965.24	-3.95	0.0	-63.82	67.15	-0.06	-0.52	34.00	0.29	0.00	34.52	53.1	2
24069	Tube 6	Origin	140.29	0.99	0.00	-0.01	5965.24	-3.95	0.0	-65.95	67.94	-0.07	-0.54	34.00	0.29	0.00	34.54	53.1	2
24069	SpliceT	End	145.08	0.58	0.00	-0.00	6290.67	-4.26	0.0	-65.95	67.94	-0.07	-0.53	34.36	0.29	0.00	34.90	54.3	2
24069	SpliceT	Origin	145.08	0.58	0.00	-0.00	6290.67	-4.26	0.0	-67.12	68.37	-0.07	-0.54	34.36	0.29	0.00	34.90	54.3	2
24069	24069:WVG D2	End	145.50	0.55	0.00	-0.00	6319.39	-4.29	0.0	-67.12	68.37	-0.07	-0.54	34.39	0.29	0.00	34.93	54.4	2
24069	24069:WVG D2	Origin	145.50	0.55	0.00	-0.00	6319.39	-4.29	0.0	-68.61	69.40	-0.07	-0.55	34.39	0.29	0.00	34.95	54.4	2
24069	Tube 7	End	150.50	0.24	0.00	-0.00	6666.40	-4.63	0.0	-68.61	69.40	-0.07	-0.54	34.75	0.29	0.00	35.29	55.5	2
24069	Tube 7	Origin	150.50	0.24	0.00	-0.00	6666.40	-4.63	0.0	-70.93	70.26	-0.07	-0.55	34.75	0.29	0.00	35.31	55.6	2
24069	24069:WVG D1	End	155.50	0.06	0.00	-0.00	7017.67	-4.99	0.0	-70.93	70.26	-0.07	-0.54	35.07	0.28	0.00	35.61	56.7	2
24069	24069:WVG D1	Origin	155.50	0.06	0.00	-0.00	7017.67	-4.99	0.0	-73.55	71.69	-0.08	-0.56	35.07	0.29	0.00	35.63	56.7	2
24069	24069:g	End	160.50	0.00	0.00	0.00	7376.12	-5.37	0.0	-73.55	71.69	-0.08	-0.55	35.36	0.28	0.00	35.92	57.8	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Extreme Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
Davit1	Davit1:0	Origin	0.00	48.05	0.03	-1.92	-58.97	-0.00	-0.0	6.42	4.19	0.00	0.35	9.10	0.00	0.00	9.45	14.5	1
Davit1	#Davit1:0	End	5.00	48.25	0.03	-5.30	-38.05	-0.00	-0.0	6.42	4.19	0.00	0.40	7.54	0.00	0.00	7.94	12.2	1
Davit1	#Davit1:0	Origin	5.00	48.25	0.03	-5.30	-38.05	-0.00	-0.0	6.43	3.91	0.00	0.40	7.54	0.00	0.00	7.94	12.2	1
Davit1	#Davit1:1	End	9.53	48.43	0.03	-8.45	-20.35	-0.00	-0.0	6.43	3.91	0.00	0.45	5.21	0.00	0.00	5.67	8.7	1
Davit1	#Davit1:1	Origin	9.53	48.43	0.03	-8.45	-20.35	-0.00	-0.0	6.44	3.68	0.00	0.45	5.21	0.00	0.00	5.67	8.7	1
Davit1	Davit1:V	End	14.05	48.61	0.03	-11.67	-3.68	-0.00	-0.0	6.44	3.68	0.00	0.52	1.27	0.00	0.00	1.79	2.8	1
Davit1	Davit1:V	Origin	14.05	48.61	0.03	-11.67	-3.68	-0.00	-0.0	1.11	0.54	0.00	0.09	1.27	0.00	0.00	1.36	2.1	1
Davit1	#Davit1:2	End	17.94	48.75	0.03	-14.46	-1.57	-0.00	-0.0	1.11	0.54	0.00	0.10	0.72	0.00	0.00	0.83	1.3	1
Davit1	#Davit1:2	Origin	17.94	48.75	0.03	-14.46	-1.57	-0.00	0.0	1.11	0.40	0.00	0.10	0.72	0.00	0.00	0.83	1.3	1
Davit1	Davit1:T	End	21.83	48.88	0.03	-17.25	0.00	0.00	0.0	1.11	0.40	0.00	0.12	0.00	0.09	0.00	0.20	0.3	3
Davit2	Davit2:0	Origin	0.00	48.11	0.03	-0.01	-42.36	0.01	0.0	-6.84	3.06	-0.00	-0.37	6.54	0.00	0.00	6.91	10.6	1
Davit2	#Davit2:0	End	5.00	48.48	0.03	3.25	-27.08	0.00	0.0	-6.84	3.06	-0.00	-0.42	5.37	0.00	0.00	5.79	8.9	1
Davit2	#Davit2:0	Origin	5.00	48.48	0.03	3.25	-27.08	0.00	0.0	-6.80	2.81	-0.00	-0.42	5.37	0.00	0.00	5.79	8.9	1
Davit2	#Davit2:1	End	9.53	48.80	0.03	6.13	-14.37	0.00	0.0	-6.80	2.81	-0.00	-0.48	3.68	0.00	0.00	4.16	6.4	1
Davit2	#Davit2:1	Origin	9.53	48.80	0.03	6.13	-14.37	0.00	0.0	-6.76	2.60	-0.00	-0.47	3.68	0.00	0.00	4.16	6.4	1
Davit2	Davit2:V	End	14.05	49.13	0.03	8.97	-2.60	0.00	0.0	-6.76	2.60	-0.00	-0.55	0.90	0.00	0.00	1.45	2.2	1
Davit2	Davit2:V	Origin	14.05	49.13	0.03	8.97	-2.60	0.00	0.0	-0.98	0.40	-0.00	-0.08	0.90	0.00	0.00	0.98	1.5	1
Davit2	#Davit2:2	End	17.94	49.38	0.03	11.39	-1.03	0.00	0.0	-0.98	0.40	-0.00	-0.09	0.48	0.00	0.00	0.57	0.9	1
Davit2	#Davit2:2	Origin	17.94	49.38	0.03	11.39	-1.03	0.00	0.0	-0.96	0.27	-0.00	-0.09	0.48	0.00	0.00	0.57	0.9	1
Davit2	Davit2:T	End	21.83	49.63	0.03	13.81	-0.00	0.00	0.0	-0.96	0.27	-0.00	-0.11	0.00	0.06	0.00	0.15	0.2	3

Davit3	Davit3:0	Origin	0.00	33.53	0.02	-1.60	-45.29	-0.00	-0.0	5.31	3.42	0.00	0.33	8.90	0.00	0.00	9.23	14.2	1
Davit3	#Davit3:0	End	5.00	33.71	0.02	-4.62	-28.16	-0.00	-0.0	5.31	3.42	0.00	0.41	8.54	0.00	0.00	8.94	13.8	1
Davit3	#Davit3:0	Origin	5.00	33.71	0.02	-4.62	-28.16	-0.00	-0.0	5.33	3.20	0.00	0.41	8.54	0.00	0.00	8.94	13.8	1
Davit3	#Davit3:1	End	9.52	33.87	0.02	-7.47	-13.70	-0.00	-0.0	5.33	3.20	0.00	0.52	6.80	0.00	0.00	7.32	11.3	1
Davit3	#Davit3:1	Origin	9.52	33.87	0.02	-7.47	-13.70	-0.00	0.0	5.34	3.03	0.00	0.52	6.80	0.00	0.00	7.32	11.3	1
Davit3	Davit3:End	End	14.05	34.04	0.02	-10.45	-0.00	0.00	0.0	5.34	3.03	0.00	0.72	0.00	0.85	0.00	1.63	2.5	3
Davit4	Davit4:0	Origin	0.00	33.58	0.02	0.44	-32.70	0.00	0.0	-5.80	2.50	-0.00	-0.36	6.43	0.00	0.00	6.79	10.4	1
Davit4	#Davit4:0	End	5.00	33.89	0.02	3.32	-20.18	0.00	0.0	-5.80	2.50	-0.00	-0.44	6.12	0.00	0.00	6.56	10.1	1
Davit4	#Davit4:0	Origin	5.00	33.89	0.02	3.32	-20.18	0.00	0.0	-5.77	2.30	-0.00	-0.44	6.12	0.00	0.00	6.56	10.1	1
Davit4	#Davit4:1	End	9.52	34.16	0.02	5.84	-9.76	0.00	0.0	-5.77	2.30	-0.00	-0.56	4.85	0.00	0.00	5.41	8.3	1
Davit4	#Davit4:1	Origin	9.52	34.16	0.02	5.84	-9.76	0.00	0.0	-5.75	2.16	-0.00	-0.56	4.85	0.00	0.00	5.40	8.3	1
Davit4	Davit4:End	End	14.05	34.42	0.02	8.27	-0.00	0.00	0.0	-5.75	2.16	-0.00	-0.77	0.00	0.60	0.00	1.30	2.0	3
Davit5	Davit5:0	Origin	0.00	21.44	0.01	-1.26	-45.96	-0.00	-0.0	5.28	3.47	0.00	0.33	9.04	0.00	0.00	9.36	14.4	1
Davit5	#Davit5:0	End	5.00	21.59	0.01	-3.73	-28.59	-0.00	-0.0	5.28	3.47	0.00	0.40	8.67	0.00	0.00	9.07	14.0	1
Davit5	#Davit5:0	Origin	5.00	21.59	0.01	-3.73	-28.59	-0.00	-0.0	5.30	3.24	0.00	0.40	8.67	0.00	0.00	9.07	14.0	1
Davit5	#Davit5:1	End	9.52	21.74	0.01	-6.10	-13.91	-0.00	-0.0	5.30	3.24	0.00	0.52	6.91	0.00	0.00	7.42	11.4	1
Davit5	#Davit5:1	Origin	9.52	21.74	0.01	-6.10	-13.91	-0.00	0.0	5.31	3.08	0.00	0.52	6.91	0.00	0.00	7.42	11.4	1
Davit5	Davit5:End	End	14.05	21.89	0.01	-8.59	-0.00	0.00	0.0	5.31	3.08	0.00	0.71	0.00	0.86	0.00	1.65	2.5	3
Davit6	Davit6:0	Origin	0.00	21.47	0.01	0.65	-33.44	0.00	0.0	-5.78	2.56	-0.00	-0.36	6.57	0.00	0.00	6.93	10.7	1
Davit6	#Davit6:0	End	5.00	21.72	0.01	2.99	-20.66	0.00	0.0	-5.78	2.56	-0.00	-0.44	6.26	0.00	0.00	6.70	10.3	1
Davit6	#Davit6:0	Origin	5.00	21.72	0.01	2.99	-20.66	0.00	0.0	-5.75	2.36	-0.00	-0.44	6.26	0.00	0.00	6.70	10.3	1
Davit6	#Davit6:1	End	9.52	21.92	0.01	5.02	-10.00	0.00	0.0	-5.75	2.36	-0.00	-0.56	4.96	0.00	0.00	5.52	8.5	1
Davit6	#Davit6:1	Origin	9.52	21.92	0.01	5.02	-10.00	0.00	0.0	-5.73	2.21	-0.00	-0.56	4.96	0.00	0.00	5.52	8.5	1
Davit6	Davit6:End	End	14.05	22.12	0.01	6.96	-0.00	0.00	0.0	-5.73	2.21	-0.00	-0.77	0.00	0.62	0.00	1.32	2.0	3

Summary of Clamp Capacities and Usages for Load Case "NESC Extreme Wind":

Clamp Label	Clamp Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
Clamp1	6.106	80.00	80.00	7.63
Clamp2	1.161	80.00	80.00	1.45
Clamp3	6.106	80.00	80.00	7.63
Clamp4	0.973	80.00	80.00	1.22
Clamp5	6.106	80.00	80.00	7.63
Clamp6	6.106	80.00	80.00	7.63
Clamp7	6.106	80.00	80.00	7.63
Clamp8	6.106	80.00	80.00	7.63
Clamp9	6.990	80.00	80.00	8.74
Clamp10	0.622	80.00	80.00	0.78
Clamp11	0.622	80.00	80.00	0.78
Clamp12	0.622	80.00	80.00	0.78
Clamp13	0.622	80.00	80.00	0.78
Clamp14	0.622	80.00	80.00	0.78
Clamp15	0.622	80.00	80.00	0.78
Clamp16	0.622	80.00	80.00	0.78
Clamp17	0.622	80.00	80.00	0.78
Clamp18	0.622	80.00	80.00	0.78
Clamp19	0.622	80.00	80.00	0.78
Clamp20	0.622	80.00	80.00	0.78
Clamp21	0.622	80.00	80.00	0.78
Clamp22	0.622	80.00	80.00	0.78

Clamp23 0.622	80.00	80.00	0.78
Clamp24 0.622	80.00	80.00	0.78

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme Ice w/ Wind":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
24069:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
24069:t	0.004646	1.856	-0.01768	-1.1211	0.0027	0.0000	0.004646	1.856	160.5
24069:TMobile	0.004482	1.787	-0.01701	-1.1210	0.0027	0.0000	0.004482	1.787	157
24069:WVGDI5	0.003922	1.553	-0.01466	-1.1124	0.0027	0.0000	0.003922	1.553	145
24069:Arm1	0.003576	1.408	-0.0132	-1.1002	0.0026	0.0000	0.003576	1.408	137.5
24069:WVGDI4	0.003462	1.36	-0.01269	-1.0930	0.0026	0.0000	0.003462	1.36	135
24069:WVGDI3	0.003015	1.173	-0.01072	-1.0498	0.0025	0.0000	0.003015	1.173	125
24069:WVGDI2	0.002585	0.9945	-0.008932	-0.9918	0.0024	0.0000	0.002585	0.9945	115
24069:Arm2	0.002564	0.9858	-0.008847	-0.9886	0.0024	0.0000	0.002564	0.9858	114.5
24069:WVGDI1	0.002179	0.8274	-0.00726	-0.9176	0.0022	0.0000	0.002179	0.8274	105
24069:WVGDI0	0.0018	0.6739	-0.005831	-0.8372	0.0021	0.0000	0.0018	0.6739	94.99
24069:Arm3	0.001693	0.6306	-0.005444	-0.8115	0.0020	0.0000	0.001693	0.6306	91.99
24069:WVGDI9	0.001453	0.5352	-0.004573	-0.7475	0.0019	0.0000	0.001453	0.5352	85
24069:WVGDI8	0.00114	0.4129	-0.003513	-0.6491	0.0017	0.0000	0.00114	0.4129	75
24069:WVGDI7	0.0008648	0.3079	-0.002676	-0.5539	0.0015	0.0000	0.0008648	0.3079	65
24069:WVGDI6	0.0006257	0.219	-0.002009	-0.4618	0.0013	0.0000	0.0006257	0.219	55
24069:WVGDI5	0.0004237	0.1458	-0.001489	-0.3749	0.0010	0.0000	0.0004237	0.1458	45
24069:WVGDI4	0.0002593	0.08766	-0.001063	-0.2886	0.0008	0.0000	0.0002593	0.08766	35
24069:WVGDI3	0.000134	0.0445	-0.0007103	-0.2038	0.0006	0.0000	0.000134	0.0445	25
24069:WVGDI2	4.915e-005	0.016	-0.000408	-0.1207	0.0004	0.0000	4.915e-005	0.016	15
24069:WVGDI1	5.793e-006	0.001829	-0.0001336	-0.0397	0.0001	0.0000	5.793e-006	0.001829	5
Davit1:0	0.003575	1.408	-0.04075	-1.1002	0.0026	0.0000	0.003575	2.843	137.5
Davit1:V	0.003613	1.433	-0.3824	-1.6164	0.0026	0.0000	0.003613	16.87	138.3
Davit1:T	0.00363	1.448	-0.6071	-1.6847	0.0026	0.0000	0.00363	24.63	138.7
Davit2:0	0.003577	1.409	0.01434	-1.1002	0.0026	0.0000	0.003577	-0.02607	137.5
Davit2:V	0.003645	1.428	0.2164	-0.6267	0.0026	0.0000	0.003645	-14.01	138.9
Davit2:T	0.003679	1.434	0.2959	-0.5670	0.0026	0.0000	0.003679	-21.75	139.6
Davit3:0	0.002563	0.9856	-0.03867	-0.9886	0.0024	0.0000	0.002563	2.714	114.5
Davit3:End	0.002596	1.009	-0.371	-1.6646	0.0024	0.0000	0.002596	16.74	115.3
Davit4:0	0.002565	0.9861	0.02098	-0.9886	0.0024	0.0000	0.002565	-0.7426	114.5
Davit4:End	0.002623	1	0.1771	-0.3511	0.0024	0.0000	0.002623	-14.73	115.8
Davit5:0	0.001692	0.6304	-0.03349	-0.8115	0.0020	0.0000	0.001692	2.61	91.97
Davit5:End	0.001722	0.6515	-0.3226	-1.4881	0.0020	0.0000	0.001722	16.63	92.84
Davit6:0	0.001694	0.6308	0.0226	-0.8115	0.0020	0.0000	0.001694	-1.349	92.02
Davit6:End	0.001741	0.6409	0.1354	-0.1730	0.0020	0.0000	0.001741	-15.34	93.3

Joint Support Reactions for Load Case "NESC Extreme Ice w/ Wind":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Comp. Force (kips)	Z Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
24069:g	-0.11	0.0	-24.37	0.0	0.0	-108.94	0.0	0.0	111.64	0.0	2581.39	0.0	-8.1	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Extreme Ice w/ Wind":

Element At Label	Joint Label	Joint Position	Rel. Dist.	Trans. Defl.	Long. Defl.	Vert. Defl.	Trans. Mom. (Local Mx)	Long. Mom. (Local My)	Tors. Mom.	Axial Force	Tran. Shear	Long. Shear	P/A	M/S.	V/Q.	T/R.	Res.	Max. Usage
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Pt.				(ft)	(in)	(in)	(in)	(ft-k)	(ft-k)	(ft-k)	(kips)	(kips)	(kips)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	%
-	24069	24069:t	Origin	0.00	22.27	0.06	-0.21	-0.00	-0.00	0.0	-0.17	0.05	-0.00	-0.01	0.00	0.00	0.00	0.01	0.0
5	24069	24069:TMobile	End	3.50	21.45	0.05	-0.20	0.16	-0.00	0.0	-0.17	0.05	-0.00	-0.01	0.01	0.00	0.00	0.02	0.0
2	24069	24069:TMobile	Origin	3.50	21.45	0.05	-0.20	0.16	-0.00	-0.0	-4.57	1.48	-0.00	-0.16	0.00	0.11	0.00	0.24	0.4
5	24069	Tube 1	End	8.50	20.28	0.05	-0.19	7.56	-0.02	-0.0	-4.57	1.48	-0.00	-0.15	0.40	0.03	0.00	0.56	0.9
2	24069	Tube 1	Origin	8.50	20.28	0.05	-0.19	7.56	-0.02	-0.0	-5.00	1.60	-0.00	-0.17	0.40	0.03	0.00	0.57	0.9
2	24069	Tube 1	End	12.00	19.46	0.05	-0.18	13.14	-0.03	-0.0	-5.00	1.60	-0.00	-0.16	0.65	0.03	0.00	0.82	1.3
2	24069	Tube 1	Origin	12.00	19.46	0.05	-0.18	13.14	-0.03	-0.0	-5.36	1.70	-0.01	-0.17	0.65	0.03	0.00	0.83	1.3
2	24069	24069:WVGD15	End	15.50	18.64	0.05	-0.18	19.08	-0.05	-0.0	-5.36	1.70	-0.01	-0.17	0.89	0.03	0.00	1.05	1.6
2	24069	24069:WVGD15	Origin	15.50	18.64	0.05	-0.18	19.08	-0.05	-0.0	-6.61	1.93	-0.01	-0.21	0.89	0.03	0.00	1.09	1.7
2	24069	Tube 1	End	19.25	17.77	0.04	-0.17	26.33	-0.08	-0.0	-6.61	1.93	-0.01	-0.20	1.14	0.03	0.00	1.34	2.1
2	24069	Tube 1	Origin	19.25	17.77	0.04	-0.17	26.33	-0.08	-0.0	-7.03	2.05	-0.01	-0.21	1.14	0.03	0.00	1.35	2.1
2	24069	24069:Arm1	End	23.00	16.90	0.04	-0.16	34.00	-0.12	-0.0	-7.03	2.05	-0.01	-0.21	1.38	0.03	0.00	1.58	2.4
2	24069	24069:Arm1	Origin	23.00	16.90	0.04	-0.16	43.19	-0.12	0.0	-22.90	8.24	-0.01	-0.67	1.75	0.13	0.00	2.43	3.7
2	24069	24069:WVGD14	End	25.50	16.33	0.04	-0.15	63.80	-0.15	0.0	-22.90	8.24	-0.01	-0.65	2.47	0.12	0.00	3.13	4.8
2	24069	24069:WVGD14	Origin	25.50	16.33	0.04	-0.15	63.80	-0.15	0.0	-24.17	8.48	-0.01	-0.69	2.47	0.13	0.00	3.17	4.9
2	24069	SpliceT	End	30.00	15.30	0.04	-0.14	101.97	-0.21	0.0	-24.17	8.48	-0.01	-0.66	3.66	0.12	0.00	4.33	6.7
2	24069	SpliceT	Origin	30.00	15.30	0.04	-0.14	101.97	-0.21	0.0	-24.65	8.60	-0.02	-0.56	3.04	0.10	0.00	3.61	5.6
2	24069	Tube 2	End	32.75	14.69	0.04	-0.13	125.61	-0.25	0.0	-24.65	8.60	-0.02	-0.55	3.58	0.10	0.00	4.14	6.4
2	24069	Tube 2	Origin	32.75	14.69	0.04	-0.13	125.61	-0.25	0.0	-25.07	8.69	-0.02	-0.56	3.58	0.10	0.00	4.15	6.4
2	24069	24069:WVGD13	End	35.50	14.08	0.04	-0.13	149.50	-0.30	0.0	-25.07	8.69	-0.02	-0.55	4.08	0.10	0.00	4.63	7.1
2	24069	24069:WVGD13	Origin	35.50	14.08	0.04	-0.13	149.50	-0.30	0.0	-26.53	8.95	-0.02	-0.58	4.08	0.10	0.00	4.66	7.2
2	24069	Tube 2	End	40.50	12.99	0.03	-0.12	194.23	-0.39	0.0	-26.53	8.95	-0.02	-0.56	4.90	0.10	0.00	5.46	8.4
2	24069	Tube 2	Origin	40.50	12.99	0.03	-0.12	194.23	-0.39	0.0	-27.35	9.12	-0.02	-0.57	4.90	0.10	0.00	5.48	8.4
2	24069	24069:WVGD12	End	45.50	11.93	0.03	-0.11	239.82	-0.50	0.0	-27.35	9.12	-0.02	-0.55	5.61	0.10	0.00	6.17	9.5
2	24069	24069:WVGD12	Origin	45.50	11.93	0.03	-0.11	239.82	-0.50	0.0	-28.65	9.34	-0.02	-0.58	5.61	0.10	0.00	6.19	9.5
2	24069	24069:Arm2	End	46.00	11.83	0.03	-0.11	244.49	-0.52	0.0	-28.65	9.34	-0.02	-0.58	5.68	0.10	0.00	6.26	9.6
2	24069	24069:Arm2	Origin	46.00	11.83	0.03	-0.11	249.38	-0.52	0.0	-41.39	13.95	-0.03	-0.84	5.79	0.15	0.00	6.63	10.2
2	24069	Tube 2	End	50.13	10.99	0.03	-0.10	306.92	-0.62	0.0	-41.39	13.95	-0.03	-0.81	6.71	0.14	0.00	7.53	11.6

2	24069	Tube 2	Origin	50.13	10.99	0.03	-0.10	306.92	-0.62	0.0	-42.12	14.09	-0.03	-0.82	6.71	0.15	0.00	7.54	11.6
2	24069	SpliceT	End	54.25	10.17	0.03	-0.09	365.04	-0.74	0.0	-42.12	14.09	-0.03	-0.80	7.53	0.14	0.00	8.34	12.8
2	24069	SpliceT	Origin	54.25	10.17	0.03	-0.09	365.04	-0.74	0.0	-42.73	14.18	-0.03	-0.81	7.53	0.14	0.00	8.35	12.8
2	24069	24069:WVGD11	End	55.50	9.93	0.03	-0.09	382.77	-0.77	0.0	-42.73	14.18	-0.03	-0.70	6.92	0.12	0.00	7.62	11.7
2	24069	24069:WVGD11	Origin	55.50	9.93	0.03	-0.09	382.77	-0.77	0.0	-44.71	14.42	-0.03	-0.74	6.92	0.13	0.00	7.66	11.8
2	24069	SpliceB	End	60.00	9.08	0.02	-0.08	447.66	-0.92	0.0	-44.71	14.42	-0.03	-0.71	7.60	0.12	0.00	8.32	12.8
2	24069	SpliceB	Origin	60.00	9.08	0.02	-0.08	447.66	-0.92	0.0	-45.90	14.55	-0.03	-0.73	7.60	0.12	0.00	8.34	12.8
2	24069	Tube 3	End	62.75	8.58	0.02	-0.07	487.68	-1.01	0.0	-45.90	14.55	-0.03	-0.72	7.98	0.12	0.00	8.70	13.4
2	24069	Tube 3	Origin	62.75	8.58	0.02	-0.07	487.68	-1.01	0.0	-46.50	14.65	-0.04	-0.73	7.98	0.12	0.00	8.71	13.4
2	24069	24069:WVGD10	End	65.50	8.09	0.02	-0.07	527.98	-1.11	0.0	-46.50	14.65	-0.04	-0.72	8.33	0.12	0.00	9.05	13.9
2	24069	24069:WVGD10	Origin	65.50	8.09	0.02	-0.07	527.98	-1.11	0.0	-47.99	14.88	-0.04	-0.74	8.33	0.12	0.00	9.07	14.0
2	24069	24069:Arm3	End	68.50	7.57	0.02	-0.07	572.62	-1.22	0.0	-47.99	14.88	-0.04	-0.72	8.69	0.12	0.00	9.42	14.5
2	24069	24069:Arm3	Origin	68.50	7.57	0.02	-0.07	577.47	-1.22	0.0	-61.09	19.49	-0.04	-0.92	8.77	0.16	0.00	9.69	14.9
2	24069	Tube 3	End	72.00	6.98	0.02	-0.06	645.68	-1.36	0.0	-61.09	19.49	-0.04	-0.90	9.37	0.15	0.00	10.28	15.8
2	24069	Tube 3	Origin	72.00	6.98	0.02	-0.06	645.68	-1.36	0.0	-61.91	19.61	-0.04	-0.91	9.37	0.15	0.00	10.29	15.8
2	24069	24069:WVGD9	End	75.50	6.42	0.02	-0.05	714.32	-1.51	0.0	-61.91	19.61	-0.04	-0.89	9.93	0.15	0.00	10.83	16.7
2	24069	24069:WVGD9	Origin	75.50	6.42	0.02	-0.05	714.32	-1.51	0.0	-63.77	19.89	-0.05	-0.92	9.93	0.15	0.00	10.85	16.7
2	24069	Tube 3	End	80.50	5.66	0.02	-0.05	813.75	-1.74	0.0	-63.77	19.89	-0.05	-0.89	10.65	0.15	0.00	11.54	17.8
2	24069	Tube 3	Origin	80.50	5.66	0.02	-0.05	813.75	-1.74	0.0	-65.00	20.06	-0.05	-0.91	10.65	0.15	0.00	11.56	17.8
2	24069	24069:WVGD8	End	85.50	4.95	0.01	-0.04	914.06	-1.98	0.0	-65.00	20.06	-0.05	-0.89	11.28	0.14	0.00	12.16	18.7
2	24069	24069:WVGD8	Origin	85.50	4.95	0.01	-0.04	914.06	-1.98	0.0	-66.96	20.34	-0.05	-0.91	11.28	0.15	0.00	12.19	18.8
2	24069	SpliceT	End	89.25	4.46	0.01	-0.04	990.35	-2.18	0.0	-66.96	20.34	-0.05	-0.89	11.70	0.14	0.00	12.60	19.5
2	24069	SpliceT	Origin	89.25	4.46	0.01	-0.04	990.35	-2.18	0.0	-67.90	20.47	-0.05	-0.79	10.23	0.13	0.00	11.02	17.0
2	24069	Tube 4	End	92.37	4.07	0.01	-0.03	1054.32	-2.35	0.0	-67.90	20.47	-0.05	-0.78	10.51	0.12	0.00	11.29	17.4
2	24069	Tube 4	Origin	92.37	4.07	0.01	-0.03	1054.32	-2.35	0.0	-68.84	20.59	-0.06	-0.79	10.51	0.12	0.00	11.30	17.4
2	24069	24069:WVGD7	End	95.50	3.69	0.01	-0.03	1118.68	-2.52	0.0	-68.84	20.59	-0.06	-0.77	10.77	0.12	0.00	11.55	17.8
2	24069	24069:WVGD7	Origin	95.50	3.69	0.01	-0.03	1118.68	-2.52	0.0	-70.91	20.87	-0.06	-0.80	10.77	0.12	0.00	11.57	17.8
2	24069	Tube 4	End	100.29	3.16	0.01	-0.03	1218.66	-2.81	0.0	-70.91	20.87	-0.06	-0.78	11.15	0.12	0.00	11.92	18.3
2	24069	Tube 4	Origin	100.29	3.16	0.01	-0.03	1218.66	-2.81	0.0	-72.41	21.07	-0.06	-0.79	11.15	0.12	0.00	11.94	18.4

2	24069	SpliceT	End	105.08	2.67	0.01	-0.02	1319.56	-3.11	0.0	-72.41	21.07	-0.06	-0.77	11.47	0.12	0.00	12.25	18.8
2	24069	SpliceT	Origin	105.08	2.67	0.01	-0.02	1319.56	-3.11	0.0	-73.31	21.17	-0.07	-0.78	11.47	0.12	0.00	12.26	18.9
2	24069	24069:WVGD6	End	105.50	2.63	0.01	-0.02	1328.45	-3.14	0.0	-73.31	21.17	-0.07	-0.71	10.62	0.11	0.00	11.33	17.4
2	24069	24069:WVGD6	Origin	105.50	2.63	0.01	-0.02	1328.45	-3.14	0.0	-75.54	21.38	-0.07	-0.73	10.62	0.11	0.00	11.35	17.5
2	24069	Tube 4	End	109.12	2.29	0.01	-0.02	1405.95	-3.39	0.0	-75.54	21.38	-0.07	-0.72	10.82	0.11	0.00	11.54	17.8
2	24069	Tube 4	Origin	109.12	2.29	0.01	-0.02	1405.95	-3.39	0.0	-78.03	21.54	-0.07	-0.74	10.82	0.11	0.00	11.56	17.8
2	24069	SpliceB	End	112.75	1.97	0.01	-0.02	1484.02	-3.64	0.0	-78.03	21.54	-0.07	-0.73	11.00	0.11	0.00	11.73	18.0
2	24069	SpliceB	Origin	112.75	1.97	0.01	-0.02	1484.02	-3.64	0.0	-79.79	21.68	-0.07	-0.74	11.00	0.11	0.00	11.75	18.1
2	24069	24069:WVGD5	End	115.50	1.75	0.01	-0.02	1543.63	-3.84	0.0	-79.79	21.68	-0.07	-0.73	11.13	0.11	0.00	11.86	18.3
2	24069	24069:WVGD5	Origin	115.50	1.75	0.01	-0.02	1543.63	-3.84	0.0	-82.06	21.95	-0.08	-0.75	11.13	0.11	0.00	11.89	18.3
2	24069	Tube 5	End	120.29	1.39	0.00	-0.02	1648.79	-4.21	0.0	-82.06	21.95	-0.08	-0.74	11.34	0.10	0.00	12.07	18.6
2	24069	Tube 5	Origin	120.29	1.39	0.00	-0.02	1648.79	-4.21	0.0	-83.90	22.16	-0.08	-0.75	11.34	0.10	0.00	12.09	18.6
2	24069	SpliceT	End	125.08	1.08	0.00	-0.01	1754.93	-4.59	0.0	-83.90	22.16	-0.08	-0.73	11.52	0.10	0.00	12.26	18.9
2	24069	SpliceT	Origin	125.08	1.08	0.00	-0.01	1754.93	-4.59	0.0	-84.91	22.27	-0.08	-0.74	11.52	0.10	0.00	12.26	18.9
2	24069	24069:WVGD4	End	125.50	1.05	0.00	-0.01	1764.28	-4.62	0.0	-84.91	22.27	-0.08	-0.74	11.53	0.10	0.00	12.28	18.9
2	24069	24069:WVGD4	Origin	125.50	1.05	0.00	-0.01	1764.28	-4.62	0.0	-86.83	22.51	-0.08	-0.76	11.53	0.10	0.00	12.29	18.9
2	24069	Tube 6	End	130.50	0.77	0.00	-0.01	1876.83	-5.05	0.0	-86.83	22.51	-0.08	-0.74	11.70	0.10	0.00	12.45	19.1
2	24069	Tube 6	Origin	130.50	0.77	0.00	-0.01	1876.83	-5.05	0.0	-88.84	22.73	-0.09	-0.76	11.70	0.10	0.00	12.46	19.2
2	24069	24069:WVGD3	End	135.50	0.53	0.00	-0.01	1990.49	-5.49	0.0	-88.84	22.73	-0.09	-0.74	11.85	0.10	0.00	12.59	19.4
2	24069	24069:WVGD3	Origin	135.50	0.53	0.00	-0.01	1990.49	-5.49	0.0	-91.70	23.07	-0.09	-0.77	11.85	0.10	0.00	12.62	19.4
2	24069	Tube 6	End	140.29	0.35	0.00	-0.01	2100.99	-5.94	0.0	-91.70	23.07	-0.09	-0.75	11.98	0.10	0.00	12.73	19.6
2	24069	Tube 6	Origin	140.29	0.35	0.00	-0.01	2100.99	-5.94	0.0	-93.72	23.29	-0.10	-0.77	11.98	0.10	0.00	12.75	19.6
2	24069	SpliceT	End	145.08	0.20	0.00	-0.01	2212.56	-6.41	0.0	-93.72	23.29	-0.10	-0.75	12.09	0.10	0.00	12.84	20.0
2	24069	SpliceT	Origin	145.08	0.20	0.00	-0.01	2212.56	-6.41	0.0	-94.82	23.41	-0.10	-0.76	12.09	0.10	0.00	12.85	20.0
2	24069	24069:WVGD2	End	145.50	0.19	0.00	-0.00	2222.39	-6.45	0.0	-94.82	23.41	-0.10	-0.76	12.10	0.10	0.00	12.86	20.0
2	24069	24069:WVGD2	Origin	145.50	0.19	0.00	-0.00	2222.39	-6.45	0.0	-96.85	23.66	-0.10	-0.77	12.10	0.10	0.00	12.88	20.0
2	24069	Tube 7	End	150.50	0.09	0.00	-0.00	2340.67	-6.96	0.0	-96.85	23.66	-0.10	-0.76	12.21	0.10	0.00	12.97	20.4
2	24069	Tube 7	Origin	150.50	0.09	0.00	-0.00	2340.67	-6.96	0.0	-99.04	23.89	-0.11	-0.77	12.21	0.10	0.00	12.98	20.4
2	24069	24069:WVGD1	End	155.50	0.02	0.00	-0.00	2460.13	-7.50	0.0	-99.04	23.89	-0.11	-0.76	12.30	0.10	0.00	13.06	20.8
2	24069	24069:WVGD1	Origin	155.50	0.02	0.00	-0.00	2460.13	-7.50	0.0	-102.14	24.25	-0.11	-0.78	12.30	0.10	0.00	13.08	20.8

2
24069 24069:g End 160.50 0.00 0.00 0.00 2581.39 -8.06 0.0 -102.14 24.25 -0.11 -0.77 12.38 0.10 0.00 13.15 21.2
2

Detailed Tubular Davit Arm Usages for Load Case "NESC Extreme Ice w/ Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
Davit1	Davit1:0	Origin	0.00	16.90	0.04	-0.49	-117.62	-0.01	-0.0	2.42	7.87	0.00	0.13	18.15	0.00	0.00	18.28	28.1	1
Davit1	#Davit1:0	End	5.00	16.99	0.04	-1.76	-78.28	-0.00	-0.0	2.42	7.87	0.00	0.15	15.51	0.00	0.00	15.66	24.1	1
Davit1	#Davit1:0	Origin	5.00	16.99	0.04	-1.76	-78.28	-0.00	-0.0	2.46	7.60	0.00	0.15	15.51	0.00	0.00	15.67	24.1	1
Davit1	#Davit1:1	End	9.53	17.09	0.04	-3.10	-43.90	-0.00	-0.0	2.46	7.60	0.00	0.17	11.25	0.00	0.00	11.42	17.6	1
Davit1	#Davit1:1	Origin	9.53	17.09	0.04	-3.10	-43.90	-0.00	-0.0	2.49	7.37	0.00	0.17	11.25	0.00	0.00	11.42	17.6	1
Davit1	Davit1:V	End	14.05	17.20	0.04	-4.59	-10.53	-0.00	-0.0	2.49	7.37	0.00	0.20	3.62	0.00	0.00	3.83	5.9	1
Davit1	Davit1:V	Origin	14.05	17.20	0.04	-4.59	-10.53	-0.00	-0.0	0.69	1.43	0.00	0.06	3.62	0.00	0.00	3.68	5.7	1
Davit1	#Davit1:2	End	17.94	17.29	0.04	-5.92	-4.99	-0.00	-0.0	0.69	1.43	0.00	0.07	2.30	0.00	0.00	2.37	3.6	1
Davit1	#Davit1:2	Origin	17.94	17.29	0.04	-5.92	-4.99	-0.00	-0.0	0.70	1.28	0.00	0.07	2.30	0.00	0.00	2.37	3.6	1
Davit1	Davit1:T	End	21.83	17.37	0.04	-7.29	0.00	0.00	-0.0	0.70	1.28	0.00	0.08	0.00	0.30	0.00	0.52	0.8	3
Davit2	Davit2:0	Origin	0.00	16.90	0.04	0.17	-108.53	0.01	0.0	-3.65	7.29	-0.00	-0.20	16.75	0.00	0.00	16.95	26.1	1
Davit2	#Davit2:0	End	5.00	17.00	0.04	1.21	-72.05	0.00	0.0	-3.65	7.29	-0.00	-0.23	14.28	0.00	0.00	14.51	22.3	1
Davit2	#Davit2:0	Origin	5.00	17.00	0.04	1.21	-72.05	0.00	0.0	-3.60	7.04	-0.00	-0.22	14.28	0.00	0.00	14.50	22.3	1
Davit2	#Davit2:1	End	9.53	17.07	0.04	1.97	-40.17	0.00	0.0	-3.60	7.04	-0.00	-0.25	10.29	0.00	0.00	10.55	16.2	1
Davit2	#Davit2:1	Origin	9.53	17.07	0.04	1.97	-40.17	0.00	0.0	-3.56	6.83	-0.00	-0.25	10.29	0.00	0.00	10.54	16.2	1
Davit2	Davit2:V	End	14.05	17.13	0.04	2.60	-9.24	0.00	0.0	-3.56	6.83	-0.00	-0.29	3.18	0.00	0.00	3.47	5.3	1
Davit2	Davit2:V	Origin	14.05	17.13	0.04	2.60	-9.24	0.00	0.0	-0.84	1.26	-0.00	-0.07	3.18	0.00	0.00	3.25	5.0	1
Davit2	#Davit2:2	End	17.94	17.17	0.04	3.09	-4.35	0.00	0.0	-0.84	1.26	-0.00	-0.08	2.01	0.00	0.00	2.09	3.2	1
Davit2	#Davit2:2	Origin	17.94	17.17	0.04	3.09	-4.35	0.00	0.0	-0.82	1.12	-0.00	-0.08	2.01	0.00	0.00	2.08	3.2	1
Davit2	Davit2:T	End	21.83	17.21	0.04	3.55	-0.00	0.00	0.0	-0.82	1.12	-0.00	-0.09	0.00	0.26	0.00	0.46	0.7	3
Davit3	Davit3:0	Origin	0.00	11.83	0.03	-0.46	-84.49	-0.00	-0.0	1.77	6.21	0.00	0.11	16.61	0.00	0.00	16.72	25.7	1
Davit3	#Davit3:0	End	5.00	11.91	0.03	-1.64	-53.43	-0.00	-0.0	1.77	6.21	0.00	0.13	16.20	0.00	0.00	16.33	25.1	1
Davit3	#Davit3:0	Origin	5.00	11.91	0.03	-1.64	-53.43	-0.00	-0.0	1.81	5.99	0.00	0.14	16.20	0.00	0.00	16.33	25.1	1
Davit3	#Davit3:1	End	9.52	12.01	0.03	-2.93	-26.34	-0.00	-0.0	1.81	5.99	0.00	0.18	13.08	0.00	0.00	13.25	20.4	1
Davit3	#Davit3:1	Origin	9.52	12.01	0.03	-2.93	-26.34	-0.00	0.0	1.84	5.82	0.00	0.18	13.08	0.00	0.00	13.26	20.4	1
Davit3	Davit3:End	End	14.05	12.11	0.03	-4.45	0.00	0.00	0.0	1.84	5.82	0.00	0.25	0.00	1.63	0.00	2.83	4.4	3
Davit4	Davit4:0	Origin	0.00	11.83	0.03	0.25	-79.60	0.00	0.0	-2.74	5.84	-0.00	-0.17	15.65	0.00	0.00	15.82	24.3	1
Davit4	#Davit4:0	End	5.00	11.92	0.03	1.15	-50.38	0.00	0.0	-2.74	5.84	-0.00	-0.21	15.27	0.00	0.00	15.48	23.8	1
Davit4	#Davit4:0	Origin	5.00	11.92	0.03	1.15	-50.38	0.00	0.0	-2.70	5.64	-0.00	-0.21	15.27	0.00	0.00	15.48	23.8	1
Davit4	#Davit4:1	End	9.52	11.97	0.03	1.74	-24.86	0.00	0.0	-2.70	5.64	-0.00	-0.26	12.34	0.00	0.00	12.60	19.4	1
Davit4	#Davit4:1	Origin	9.52	11.97	0.03	1.74	-24.86	0.00	0.0	-2.66	5.49	-0.00	-0.26	12.34	0.00	0.00	12.60	19.4	1
Davit4	Davit4:End	End	14.05	12.00	0.03	2.13	-0.00	0.00	0.0	-2.66	5.49	-0.00	-0.36	0.00	1.54	0.00	2.69	4.1	3
Davit5	Davit5:0	Origin	0.00	7.57	0.02	-0.40	-84.56	-0.00	-0.0	1.75	6.22	0.00	0.11	16.63	0.00	0.00	16.73	25.7	1
Davit5	#Davit5:0	End	5.00	7.64	0.02	-1.39	-53.48	-0.00	-0.0	1.75	6.22	0.00	0.13	16.21	0.00	0.00	16.35	25.1	1
Davit5	#Davit5:0	Origin	5.00	7.64	0.02	-1.39	-53.48	-0.00	-0.0	1.79	5.99	0.00	0.14	16.21	0.00	0.00	16.35	25.2	1
Davit5	#Davit5:1	End	9.52	7.72	0.02	-2.52	-26.37	-0.00	-0.0	1.79	5.99	0.00	0.17	13.09	0.00	0.00	13.27	20.4	1
Davit5	#Davit5:1	Origin	9.52	7.72	0.02	-2.52	-26.37	-0.00	0.0	1.82	5.83	0.00	0.18	13.09	0.00	0.00	13.27	20.4	1
Davit5	Davit5:End	End	14.05	7.82	0.02	-3.87	0.00	0.00	0.0	1.82	5.83	0.00	0.24	0.00	1.63	0.00	2.84	4.4	3
Davit6	Davit6:0	Origin	0.00	7.57	0.02	0.27	-79.72	0.00	0.0	-2.73	5.85	-0.00	-0.17	15.67	0.00	0.00	15.84	24.4	1
Davit6	#Davit6:0	End	5.00	7.63	0.02	0.99	-50.46	0.00	0.0	-2.73	5.85	-0.00	-0.21	15.29	0.00	0.00	15.50	23.8	1
Davit6	#Davit6:0	Origin	5.00	7.63	0.02	0.99	-50.46	0.00	0.0	-2.68	5.65	-0.00	-0.20	15.29	0.00	0.00	15.50	23.8	1
Davit6	#Davit6:1	End	9.52	7.67	0.02	1.41	-24.90	0.00	0.0	-2.68	5.65	-0.00	-0.26	12.36	0.00	0.00	12.62	19.4	1
Davit6	#Davit6:1	Origin	9.52	7.67	0.02	1.41	-24.90	0.00	0.0	-2.65	5.50	-0.00	-0.26	12.36	0.00	0.00	12.62	19.4	1

Davit6 Davit6:End End 14.05 7.69 0.02 1.62 -0.00 0.00 0.0 -2.65 5.50 -0.00 -0.36 0.00 1.54 0.00 2.69 4.1 3

Summary of Clamp Capacities and Usages for Load Case "NESC Extreme Ice w/ Wind":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
Clamp1	6.042	80.00	80.00	7.55
Clamp2	1.408	80.00	80.00	1.76
Clamp3	6.042	80.00	80.00	7.55
Clamp4	1.334	80.00	80.00	1.67
Clamp5	6.042	80.00	80.00	7.55
Clamp6	6.042	80.00	80.00	7.55
Clamp7	6.042	80.00	80.00	7.55
Clamp8	6.042	80.00	80.00	7.55
Clamp9	4.200	80.00	80.00	5.25
Clamp10	0.858	80.00	80.00	1.07
Clamp11	0.858	80.00	80.00	1.07
Clamp12	0.858	80.00	80.00	1.07
Clamp13	0.858	80.00	80.00	1.07
Clamp14	0.858	80.00	80.00	1.07
Clamp15	0.858	80.00	80.00	1.07
Clamp16	0.858	80.00	80.00	1.07
Clamp17	0.858	80.00	80.00	1.07
Clamp18	0.858	80.00	80.00	1.07
Clamp19	0.858	80.00	80.00	1.07
Clamp20	0.858	80.00	80.00	1.07
Clamp21	0.858	80.00	80.00	1.07
Clamp22	0.858	80.00	80.00	1.07
Clamp23	0.858	80.00	80.00	1.07
Clamp24	0.858	80.00	80.00	1.07

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Segment Number	Weight (lbs)
24069	57.79	NESC Extreme Wind	44	51651.3

Base Plate Results by Bend Line:

Pole Label	Load Case	Bend Line #	Start X (ft)	Start Y (ft)	End X (ft)	End Y (ft)	Length (in)	Bending Stress (ksi)	Bolt Mom. Sum (ft-k)	# Bolts Acting	Bolt Max Load (kips)	Min Plate Thickness (in)	Actual Thickness (in)	Usage %
24069	NESC Heavy Wind	1	2.585	2.086	0.657	3.199	26.715	12.340	56.089	5	62.874	1.587	3.500	20.57
24069	NESC Heavy Wind	2	3.199	0.657	2.086	2.585	26.715	7.617	34.624	5	49.954	1.247	3.500	12.70
24069	NESC Heavy Wind	3	3.099	-1.047	3.099	1.047	25.117	1.205	5.151	2	19.769	0.496	3.500	2.01
24069	NESC Heavy Wind	4	2.086	-2.585	3.199	-0.657	26.715	5.911	26.868	5	-42.121	1.099	3.500	9.85
24069	NESC Heavy Wind	5	0.657	-3.199	2.585	-2.086	26.715	10.576	48.071	5	-54.746	1.469	3.500	17.63
24069	NESC Heavy Wind	6	-1.047	-3.099	1.047	-3.099	25.117	4.125	17.629	2	-54.746	0.918	3.500	6.88
24069	NESC Heavy Wind	7	-2.585	-2.086	-0.657	-3.199	26.715	10.493	47.692	5	-54.550	1.464	3.500	17.49
24069	NESC Heavy Wind	8	-3.199	-0.657	-2.086	-2.585	26.715	5.770	26.226	5	-41.630	1.085	3.500	9.62
24069	NESC Heavy Wind	9	-3.099	1.047	-3.099	-1.047	25.117	1.205	5.151	2	20.493	0.496	3.500	2.01
24069	NESC Heavy Wind	10	-2.086	2.585	-3.199	0.657	26.715	7.759	35.265	5	50.445	1.259	3.500	12.93
24069	NESC Heavy Wind	11	-0.657	3.199	-2.585	2.086	26.715	12.423	56.468	5	63.071	1.593	3.500	20.71
24069	NESC Heavy Wind	12	1.047	3.099	-1.047	3.099	25.117	4.754	20.314	2	63.071	0.985	3.500	7.92
24069	NESC Heavy Wind	13	1.813	2.836	0.677	3.140	14.112	8.124	19.505	3	62.874	1.288	3.500	13.54
24069	NESC Heavy Wind	14	2.854	1.683	1.683	2.854	19.877	6.662	22.531	4	55.448	1.166	3.500	11.10
24069	NESC Heavy Wind	15	3.140	0.677	2.836	1.813	14.112	3.208	7.703	3	36.355	0.809	3.500	5.35
24069	NESC Heavy Wind	16	2.836	-1.813	3.140	-0.677	14.112	2.197	5.276	3	-28.665	0.670	3.500	3.66
24069	NESC Heavy Wind	17	1.683	-2.854	2.854	-1.683	19.877	5.545	18.753	4	-47.524	1.064	3.500	9.24
24069	NESC Heavy Wind	18	0.677	-3.140	1.813	-2.836	14.112	7.053	16.934	3	-54.746	1.200	3.500	11.75
24069	NESC Heavy Wind	19	-1.813	-2.836	-0.677	-3.140	14.112	7.020	16.854	3	-54.550	1.197	3.500	11.70
24069	NESC Heavy Wind	20	-2.854	-1.683	-1.683	-2.854	19.877	5.470	18.498	4	-47.124	1.057	3.500	9.12
24069	NESC Heavy Wind	21	-3.140	-0.677	-2.836	-1.813	14.112	2.104	5.052	3	-28.031	0.655	3.500	3.51
24069	NESC Heavy Wind	22	-2.836	1.813	-3.140	0.677	14.112	3.302	7.927	3	36.989	0.821	3.500	5.50
24069	NESC Heavy Wind	23	-1.683	2.854	-2.854	1.683	19.877	6.737	22.785	4	55.849	1.173	3.500	11.23
24069	NESC Heavy Wind	24	-0.677	3.140	-1.813	2.836	14.112	8.157	19.585	3	63.071	1.291	3.500	13.60
24069	NESC Extreme Wind	1	2.585	2.086	0.657	3.199	26.715	26.177	118.980	5	134.061	2.312	3.500	43.63
24069	NESC Extreme Wind	2	3.199	0.657	2.086	2.585	26.715	15.654	71.150	5	105.408	1.788	3.500	26.09
24069	NESC Extreme Wind	3	3.099	-1.047	3.099	1.047	25.117	2.700	11.540	2	38.015	0.743	3.500	4.50
24069	NESC Extreme Wind	4	2.086	-2.585	3.199	-0.657	26.715	14.654	66.607	5	-100.866	1.730	3.500	24.42
24069	NESC Extreme Wind	5	0.657	-3.199	2.585	-2.086	26.715	25.162	114.367	5	-129.441	2.267	3.500	41.94
24069	NESC Extreme Wind	6	-1.047	-3.099	1.047	-3.099	25.117	9.769	41.747	2	-129.441	1.412	3.500	16.28
24069	NESC Extreme Wind	7	-2.585	-2.086	-0.657	-3.199	26.715	25.140	114.267	5	-129.389	2.266	3.500	41.90
24069	NESC Extreme Wind	8	-3.199	-0.657	-2.086	-2.585	26.715	14.617	66.437	5	-100.736	1.728	3.500	24.36
24069	NESC Extreme Wind	9	-3.099	1.047	-3.099	-1.047	25.117	2.700	11.540	2	38.206	0.743	3.500	4.50
24069	NESC Extreme Wind	10	-2.086	2.585	-3.199	0.657	26.715	15.691	71.320	5	105.537	1.790	3.500	26.15
24069	NESC Extreme Wind	11	-0.657	3.199	-2.585	2.086	26.715	26.199	119.080	5	134.113	2.313	3.500	43.66
24069	NESC Extreme Wind	12	1.047	3.099	-1.047	3.099	25.117	10.122	43.254	2	134.113	1.438	3.500	16.87
24069	NESC Extreme Wind	13	1.813	2.836	0.677	3.140	14.112	17.305	41.550	3	134.061	1.880	3.500	28.84
24069	NESC Extreme Wind	14	2.854	1.683	1.683	2.854	19.877	13.998	47.341	4	117.626	1.691	3.500	23.33
24069	NESC Extreme Wind	15	3.140	0.677	2.836	1.813	14.112	6.352	15.252	3	75.083	1.139	3.500	10.59
24069	NESC Extreme Wind	16	2.836	-1.813	3.140	-0.677	14.112	5.757	13.824	3	-70.579	1.084	3.500	9.60
24069	NESC Extreme Wind	17	1.683	-2.854	2.854	-1.683	19.877	13.349	45.145	4	-113.060	1.651	3.500	22.25

24069	NESC Extreme Wind	18	0.677	-3.140	1.813	-2.836	14.112	16.694	40.083	3	-129.441	1.846	3.500	27.82
24069	NESC Extreme Wind	19	-1.813	-2.836	-0.677	-3.140	14.112	16.686	40.062	3	-129.389	1.846	3.500	27.81
24069	NESC Extreme Wind	20	-2.854	-1.683	-1.683	-2.854	19.877	13.329	45.078	4	-112.954	1.650	3.500	22.22
24069	NESC Extreme Wind	21	-3.140	-0.677	-2.836	-1.813	14.112	5.733	13.764	3	-70.411	1.082	3.500	9.55
24069	NESC Extreme Wind	22	-2.836	1.813	-3.140	0.677	14.112	6.377	15.311	3	75.251	1.141	3.500	10.63
24069	NESC Extreme Wind	23	-1.683	2.854	-2.854	1.683	19.877	14.018	47.409	4	117.732	1.692	3.500	23.36
24069	NESC Extreme Wind	24	-0.677	3.140	-1.813	2.836	14.112	17.314	41.571	3	134.113	1.880	3.500	28.86
24069	NESC Extreme Ice w/ Wind	1	2.585	2.086	0.657	3.199	26.715	9.683	44.012	5	49.296	1.406	3.500	16.14
24069	NESC Extreme Ice w/ Wind	2	3.199	0.657	2.086	2.585	26.715	5.992	27.233	5	39.224	1.106	3.500	9.99
24069	NESC Extreme Ice w/ Wind	3	3.099	-1.047	3.099	1.047	25.117	0.945	4.039	2	15.603	0.439	3.500	1.58
24069	NESC Extreme Ice w/ Wind	4	2.086	-2.585	3.199	-0.657	26.715	4.615	20.977	5	-32.965	0.971	3.500	7.69
24069	NESC Extreme Ice w/ Wind	5	0.657	-3.199	2.585	-2.086	26.715	8.284	37.652	5	-42.920	1.300	3.500	13.81
24069	NESC Extreme Ice w/ Wind	6	-1.047	-3.099	1.047	-3.099	25.117	3.237	13.833	2	-42.920	0.813	3.500	5.39
24069	NESC Extreme Ice w/ Wind	7	-2.585	-2.086	-0.657	-3.199	26.715	8.251	37.501	5	-42.842	1.298	3.500	13.75
24069	NESC Extreme Ice w/ Wind	8	-3.199	-0.657	-2.086	-2.585	26.715	4.559	20.722	5	-32.770	0.965	3.500	7.60
24069	NESC Extreme Ice w/ Wind	9	-3.099	1.047	-3.099	-1.047	25.117	0.945	4.039	2	15.891	0.439	3.500	1.58
24069	NESC Extreme Ice w/ Wind	10	-2.086	2.585	-3.199	0.657	26.715	6.048	27.488	5	39.419	1.111	3.500	10.08
24069	NESC Extreme Ice w/ Wind	11	-0.657	3.199	-2.585	2.086	26.715	9.716	44.162	5	49.374	1.408	3.500	16.19
24069	NESC Extreme Ice w/ Wind	12	1.047	3.099	-1.047	3.099	25.117	3.724	15.915	2	49.374	0.872	3.500	6.21
24069	NESC Extreme Ice w/ Wind	13	1.813	2.836	0.677	3.140	14.112	6.371	15.296	3	49.296	1.140	3.500	10.62
24069	NESC Extreme Ice w/ Wind	14	2.854	1.683	1.683	2.854	19.877	5.233	17.696	4	43.514	1.034	3.500	8.72
24069	NESC Extreme Ice w/ Wind	15	3.140	0.677	2.836	1.813	14.112	2.529	6.071	3	28.589	0.718	3.500	4.21
24069	NESC Extreme Ice w/ Wind	16	2.836	-1.813	3.140	-0.677	14.112	1.710	4.105	3	-22.387	0.591	3.500	2.85
24069	NESC Extreme Ice w/ Wind	17	1.683	-2.854	2.854	-1.683	19.877	4.338	14.671	4	-37.219	0.941	3.500	7.23
24069	NESC Extreme Ice w/ Wind	18	0.677	-3.140	1.813	-2.836	14.112	5.528	13.272	3	-42.920	1.062	3.500	9.21
24069	NESC Extreme Ice w/ Wind	19	-1.813	-2.836	-0.677	-3.140	14.112	5.515	13.241	3	-42.842	1.061	3.500	9.19
24069	NESC Extreme Ice w/ Wind	20	-2.854	-1.683	-2.854	1.683	19.877	4.308	14.570	4	-37.059	0.938	3.500	7.18
24069	NESC Extreme Ice w/ Wind	21	-3.140	-0.677	-2.836	-1.813	14.112	1.672	4.015	3	-22.135	0.584	3.500	2.79
24069	NESC Extreme Ice w/ Wind	22	-2.836	1.813	-3.140	0.677	14.112	2.566	6.160	3	28.842	0.724	3.500	4.28
24069	NESC Extreme Ice w/ Wind	23	-1.683	2.854	-2.854	1.683	19.877	5.263	17.797	4	43.673	1.037	3.500	8.77
24069	NESC Extreme Ice w/ Wind	24	-0.677	3.140	-1.813	2.836	14.112	6.384	15.328	3	49.374	1.142	3.500	10.64

Summary of Tubular Davit Usages:

Tubular Label	Davit Usage %	Maximum	Load Case	Segment Number	Weight (lbs)

Davit1	30.31	NESC Heavy Wind		1	1014.2
Davit2	28.03	NESC Heavy Wind		1	1014.2
Davit3	28.28	NESC Heavy Wind		1	566.2
Davit4	26.64	NESC Heavy Wind		1	566.2
Davit5	28.32	NESC Heavy Wind		1	566.2
Davit6	26.69	NESC Heavy Wind		1	566.2

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type

NESC Heavy Wind	30.31	Davit1 Tubular Davit	
NESC Extreme Wind	57.79	24069 Steel Pole	
NESC Extreme Ice w/ Wind	28.13	Davit1 Tubular Davit	

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Segment Number
NESC Heavy Wind	27.02	24069	44
NESC Extreme Wind	57.79	24069	44
NESC Extreme Ice w/ Wind	21.16	24069	44

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Bending Moment (ft-k)	Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Heavy Wind	24069	11	26.715	133.189	3292.509	-20.275	12.423	56.468	5	63.071	1.593	20.71
NESC Extreme Wind	24069	11	26.715	74.747	7376.119	-5.366	26.199	119.080	5	134.113	2.313	43.66
NESC Extreme Ice w/ Wind	24069	11	26.715	103.269	2581.386	-8.062	9.716	44.162	5	49.374	1.408	16.19

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Segment Number
NESC Heavy Wind	30.31	Davit1	1
NESC Extreme Wind	14.54	Davit1	1
NESC Extreme Ice w/ Wind	28.13	Davit1	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
Clamp1	Clamp	8.27	NESC Heavy Wind	0.0
Clamp2	Clamp	1.76	NESC Extreme Ice w/ Wind	0.0
Clamp3	Clamp	8.27	NESC Heavy Wind	0.0
Clamp4	Clamp	1.67	NESC Extreme Ice w/ Wind	0.0
Clamp5	Clamp	8.27	NESC Heavy Wind	0.0
Clamp6	Clamp	8.27	NESC Heavy Wind	0.0
Clamp7	Clamp	8.27	NESC Heavy Wind	0.0
Clamp8	Clamp	8.27	NESC Heavy Wind	0.0
Clamp9	Clamp	8.74	NESC Extreme Wind	0.0
Clamp10	Clamp	1.17	NESC Heavy Wind	0.0
Clamp11	Clamp	1.17	NESC Heavy Wind	0.0
Clamp12	Clamp	1.17	NESC Heavy Wind	0.0
Clamp13	Clamp	1.17	NESC Heavy Wind	0.0
Clamp14	Clamp	1.17	NESC Heavy Wind	0.0
Clamp15	Clamp	1.17	NESC Heavy Wind	0.0
Clamp16	Clamp	1.17	NESC Heavy Wind	0.0
Clamp17	Clamp	1.17	NESC Heavy Wind	0.0
Clamp18	Clamp	1.17	NESC Heavy Wind	0.0
Clamp19	Clamp	1.17	NESC Heavy Wind	0.0
Clamp20	Clamp	1.17	NESC Heavy Wind	0.0
Clamp21	Clamp	1.17	NESC Heavy Wind	0.0
Clamp22	Clamp	1.17	NESC Heavy Wind	0.0
Clamp23	Clamp	1.17	NESC Heavy Wind	0.0
Clamp24	Clamp	1.17	NESC Heavy Wind	0.0

Loads At Insulator Attachments For All Load Cases:

	Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
	NESC Heavy Wind	Clamp1	Clamp	Davit1:V	0.000	2.554	6.101	6.614
	NESC Heavy Wind	Clamp2	Clamp	Davit1:T	0.000	0.826	1.069	1.351
	NESC Heavy Wind	Clamp3	Clamp	Davit2:V	0.000	2.554	6.101	6.614
	NESC Heavy Wind	Clamp4	Clamp	Davit2:T	0.000	0.770	1.016	1.275
	NESC Heavy Wind	Clamp5	Clamp	Davit3:End	0.000	2.554	6.101	6.614
	NESC Heavy Wind	Clamp6	Clamp	Davit4:End	0.000	2.554	6.101	6.614
	NESC Heavy Wind	Clamp7	Clamp	Davit5:End	0.000	2.554	6.101	6.614
	NESC Heavy Wind	Clamp8	Clamp	Davit6:End	0.000	2.554	6.101	6.614
	NESC Heavy Wind	Clamp9	Clamp	24069:TMobile	0.000	1.546	5.160	5.387
	NESC Heavy Wind	Clamp10	Clamp	24069:WVG D1	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp11	Clamp	24069:WVG D2	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp12	Clamp	24069:WVG D3	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp13	Clamp	24069:WVG D4	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp14	Clamp	24069:WVG D5	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp15	Clamp	24069:WVG D6	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp16	Clamp	24069:WVG D7	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp17	Clamp	24069:WVG D8	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp18	Clamp	24069:WVG D9	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp19	Clamp	24069:WVG D10	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp20	Clamp	24069:WVG D11	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp21	Clamp	24069:WVG D12	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp22	Clamp	24069:WVG D13	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp23	Clamp	24069:WVG D14	0.000	0.172	0.920	0.936
	NESC Heavy Wind	Clamp24	Clamp	24069:WVG D15	0.000	0.172	0.920	0.936
	NESC Extreme Wind	Clamp1	Clamp	Davit1:V	0.000	5.422	2.807	6.106
	NESC Extreme Wind	Clamp2	Clamp	Davit1:T	0.000	1.117	0.318	1.161
	NESC Extreme Wind	Clamp3	Clamp	Davit2:V	0.000	5.422	2.807	6.106
	NESC Extreme Wind	Clamp4	Clamp	Davit2:T	0.000	0.917	0.324	0.973
	NESC Extreme Wind	Clamp5	Clamp	Davit3:End	0.000	5.422	2.807	6.106
	NESC Extreme Wind	Clamp6	Clamp	Davit4:End	0.000	5.422	2.807	6.106
	NESC Extreme Wind	Clamp7	Clamp	Davit5:End	0.000	5.422	2.807	6.106
	NESC Extreme Wind	Clamp8	Clamp	Davit6:End	0.000	5.422	2.807	6.106
	NESC Extreme Wind	Clamp9	Clamp	24069:TMobile	0.000	6.475	2.634	6.990
	NESC Extreme Wind	Clamp10	Clamp	24069:WVG D1	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp11	Clamp	24069:WVG D2	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp12	Clamp	24069:WVG D3	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp13	Clamp	24069:WVG D4	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp14	Clamp	24069:WVG D5	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp15	Clamp	24069:WVG D6	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp16	Clamp	24069:WVG D7	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp17	Clamp	24069:WVG D8	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp18	Clamp	24069:WVG D9	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp19	Clamp	24069:WVG D10	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp20	Clamp	24069:WVG D11	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp21	Clamp	24069:WVG D12	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp22	Clamp	24069:WVG D13	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp23	Clamp	24069:WVG D14	0.000	0.570	0.250	0.622
	NESC Extreme Wind	Clamp24	Clamp	24069:WVG D15	0.000	0.570	0.250	0.622
	NESC Extreme Ice w/ Wind	Clamp1	Clamp	Davit1:V	0.000	2.158	5.644	6.042
	NESC Extreme Ice w/ Wind	Clamp2	Clamp	Davit1:T	0.000	0.762	1.184	1.408
	NESC Extreme Ice w/ Wind	Clamp3	Clamp	Davit2:V	0.000	2.158	5.644	6.042
	NESC Extreme Ice w/ Wind	Clamp4	Clamp	Davit2:T	0.000	0.722	1.122	1.334

NESC Extreme Ice w/ Wind	Clamp5	Clamp	Davit3:End	0.000	2.158	5.644	6.042
NESC Extreme Ice w/ Wind	Clamp6	Clamp	Davit4:End	0.000	2.158	5.644	6.042
NESC Extreme Ice w/ Wind	Clamp7	Clamp	Davit5:End	0.000	2.158	5.644	6.042
NESC Extreme Ice w/ Wind	Clamp8	Clamp	Davit6:End	0.000	2.158	5.644	6.042
NESC Extreme Ice w/ Wind	Clamp9	Clamp	24069:TMobile	0.000	1.244	4.012	4.200
NESC Extreme Ice w/ Wind	Clamp10	Clamp	24069:WVG D1	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp11	Clamp	24069:WVG D2	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp12	Clamp	24069:WVG D3	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp13	Clamp	24069:WVG D4	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp14	Clamp	24069:WVG D5	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp15	Clamp	24069:WVG D6	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp16	Clamp	24069:WVG D7	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp17	Clamp	24069:WVG D8	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp18	Clamp	24069:WVG D9	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp19	Clamp	24069:WVG D10	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp20	Clamp	24069:WVG D11	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp21	Clamp	24069:WVG D12	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp22	Clamp	24069:WVG D13	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp23	Clamp	24069:WVG D14	0.000	0.114	0.850	0.858
NESC Extreme Ice w/ Wind	Clamp24	Clamp	24069:WVG D15	0.000	0.114	0.850	0.858

Overturning Moments For User Input Concentrated Loads:

Moments are static equivalents based on central axis of 0,0 (i.e. a single pole).

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Heavy Wind	21.046	0.000	57.651	2435.040	-0.000	-0.000
NESC Extreme Wind	49.591	0.000	23.868	5709.796	-0.000	-0.000
NESC Extreme Ice w/ Wind	17.386	0.000	52.932	2031.728	-0.000	-0.000

*** Weight of structure (lbs):
 Weight of Tubular Davit Arms: 4293.2
 Weight of Steel Poles: 51651.3
 Total: 55944.5

*** End of Report

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force = $T_{Max} := 134\text{-kips}$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use ASTM A615 Grade 75

Number of Anchor Bolts = $N := 32$ (User Input)

Bolt "Column" Distance = $l := 3.0\text{-in}$ (User Input)

Bolt Ultimate Strength = $F_u := 100\text{-ksi}$ (User Input)

Bolt Yield Strength = $F_y := 75\text{-ksi}$ (User Input)

Bolt Modulus = $E := 29000\text{-ksi}$ (User Input)

Diameter of Anchor Bolts = $D := 2.25\text{-in}$ (User Input)

Threads per Inch = $n := 4.5$ (User Input)

Anchor Bolt Analysis:

Calculated Anchor Bolt Properties:

$$\text{NetArea of Bolt} = A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743\text{-in}}{n} \right)^2 = 3.248\text{-in}^2$$

Bolt Tension Check:

$$\text{Allowable Tensile Force (NetArea)} = T_{ALL.Net} := 1.0 \cdot (A_n \cdot F_y) = 243.576\text{-kips}$$

$$\text{Bolt Tension \% of Capacity} = \frac{T_{Max}}{T_{ALL.Net}} = 55.01\%$$

$$\text{Condition1} = \text{if} \left(\frac{T_{Max}}{T_{ALL.Net}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Condition1 = "OK"

Subject:

CAISSON FOUNDATION - POLE # 24069

Location:

Orange, CT

Rev. 0: 9/5/18

Prepared by: TJL Checked by: C.F.C.
 Job No. 18058.96

Caisson Foundation:

Input Data:

Shear Force =	$S := 72.1 \cdot 1.1 \text{ k} = 79.3 \text{ k}$	USER INPUT-FROM PLS-Pole
Overturning Moment =	$M := 7376.1 \cdot 1.1 \text{ ft} \cdot \text{k} = 8114 \cdot \text{ft} \cdot \text{k}$	USER INPUT-FROM PLS-Pole
Applied Axial Load =	$A1 := 80.4 \cdot 1.1 \text{ k} = 88.4 \text{ k}$	USER INPUT-FROM PLS-Pole
Bending Moment =	$M_u := 8525 \text{ ft} \cdot \text{k}$	USER INPUT-FROM LPILE
Moment Capacity =	$M_n := 17935 \text{ ft} \cdot \text{k}$	USER INPUT-FROM LPILE
Foundation Diameter =	$d := 9.0 \text{ ft}$	USER INPUT
Overall Length of Caisson =	$L_c := 33.0 \text{ ft}$	USER INPUT
Depth From Top of Caisson to Grade =	$L_{\text{pag}} := 1.0 \text{ ft}$	USER INPUT
Number of Rebar =	$n := 50$	USER INPUT
Area of Rebar =	$A_r := 1.56 \text{ in}^2$	USER INPUT
Rebar Yield Strength =	$f_y := 60 \text{ ksi}$	USER INPUT
Concrete Comp Strength =	$f_c := 4.0 \text{ ksi}$	USER INPUT

Check Moment Capacity

Factor of Safety =	$FS := \frac{0.9 M_n}{M_u} = 1.9$
Factor of Safety Required =	$FS_{\text{reqd}} := 1.0$
	$FOS_{\text{Check}} := \text{if}(FS \geq FS_{\text{reqd}}, "OK", "NO GOOD")$
	FOSCheck = "OK"

24069 Caisson Analysis.lpo

LPILE Plus for Windows, Version 5.0 (5.0.47)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

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This program is licensed to:

TJL
Centek Engineering

Files Used for Analysis

Path to file locations: J:\Jobs\1805800.WI\96_CTNH025A\05_Structural\Backup
Documentation\Calcs\Foundation\
Name of input data file: 24069 Caisson Analysis.lpd
Name of output file: 24069 Caisson Analysis.lpo
Name of plot output file: 24069 Caisson Analysis.lpp
Name of runtime file: 24069 Caisson Analysis.lpr

Time and Date of Analysis

Date: September 5, 2018 Time: 10:57:00

Problem Title

18058.96 - CTNH025A/ 24069

Program Options

Units Used in Computations - US Customary Units: Inches, Pounds

Basic Program Options:

Analysis Type 3:

- Computation of Nonlinear Bending Stiffness and Ultimate Bending Moment Capacity with Pile Response Computed Using Nonlinear EI

Computation Options:

- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- Analysis includes computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:

- Number of pile increments = 100
- Maximum number of iterations allowed = 100
- Deflection tolerance for convergence = 1.0000E-04 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:

- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 8

Pile Structural Properties and Geometry

Pile Length = 396.00 in

Depth of ground surface below top of pile = 12.00 in

Slope angle of ground surface = 0.00 deg.

Structural properties of pile defined using 2 points

Point No.	Point Depth in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	108.00000	6678285.	9161.0000	3600000.
2	396.0000	108.00000	6678285.	9161.0000	3600000.

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness

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that the above values of moment of inertia and modulus of are not used for any computations other than total stress due to combined axial loading and bending.

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 12.000 in
Distance from top of pile to bottom of layer = 36.000 in
p-y subgrade modulus k for top of soil layer = 30.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 30.000 lbs/in**3

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 36.000 in
Distance from top of pile to bottom of layer = 528.000 in
p-y subgrade modulus k for top of soil layer = 125.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 125.000 lbs/in**3

(Depth of lowest layer extends 132.00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Effective unit weight of soil with depth defined using 4 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	12.00	0.06400
2	36.00	0.06400
3	36.00	0.03900
4	528.00	0.03900

Shear Strength of Soils

Shear strength parameters with depth defined using 4 points

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Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	12.000	0.00000	20.00	-----	-----
2	36.000	0.00000	20.00	-----	-----
3	36.000	0.00000	36.00	-----	-----
4	528.000	0.00000	36.00	-----	-----

Notes:

- (1) Cohesion = uniaxial compressive strength for rock materials.
- (2) Values of E50 are reported for clay strata.
- (3) Default values will be generated for E50 when input values are 0.
- (4) RQD and k_rm are reported only for weak rock strata.

Loading Type

Static loading criteria was used for computation of p-y curves.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)

Shear force at pile head = 79300.000 lbs

Bending moment at pile head = 97368000.000 in-lbs

Axial load at pile head = 88400.000 lbs

Non-zero moment at pile head for this load case indicates the pile-head may rotate under the applied pile-head loading, but is not a free-head (zero moment) condition.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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Number of sections = 1

Pile Section No. 1

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 108.0000 in

Material Properties:

Compressive Strength of Concrete = 4.000 kip/in**2
 Yield Stress of Reinforcement = 60. kip/in**2
 Modulus of Elasticity of Reinforcement = 29000. kip/in**2
 Number of Reinforcing Bars = 50
 Area of Single Bar = 1.56000 in**2
 Number of Rows of Reinforcing Bars = 25
 Area of Steel = 78.000 in**2
 Area of Shaft = 9160.884 in**2
 Percentage of Steel Reinforcement = 0.851 percent
 Cover Thickness (edge to bar center) = 4.705 in

Unfactored Axial Squash Load Capacity = 35561.81 kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
-----	-----	-----
1	3.120	49.198
2	3.120	48.422
3	3.120	46.882
4	3.120	44.603
5	3.120	41.621
6	3.120	37.982
7	3.120	33.745
8	3.120	28.975
9	3.120	23.748
10	3.120	18.147
11	3.120	12.259
12	3.120	6.178
13	3.120	0.000
14	3.120	-6.178
15	3.120	-12.259
16	3.120	-18.147
17	3.120	-23.748
18	3.120	-28.975

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19	3.120	-33.745
20	3.120	-37.982
21	3.120	-41.621
22	3.120	-44.603
23	3.120	-46.882
24	3.120	-48.422
25	3.120	-49.198

Axial Thrust Force = 88400.00 lbs

Bending Max. Steel Moment Stress in-lbs psi	Bending Stiffness lb-in ²	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches	Max. Concrete Stress psi

13489089. 789.05341	2.697818E+13	5.000000E-07	0.00002961	59.21974880	105.21651
26857674. 1505.41724	2.685767E+13	0.00000100	0.00005671	56.71321160	199.94218
40105460. 2221.23623	2.673697E+13	0.00000150	0.00008380	55.86517435	293.22092
53239167. 2939.21439	2.661958E+13	0.00000200	0.00011096	55.47838265	385.37495
66250069. 3655.56800	2.650003E+13	0.00000250	0.00013806	55.22390002	475.95265
66250069. 6412.01689	2.208336E+13	0.00000300	0.00008849	29.49638397	304.82564
66250069. 7525.41294	1.892859E+13	0.00000350	0.00010170	29.05572814	348.92747
66250069. 8631.38942	1.656252E+13	0.00000400	0.00011516	28.78919810	393.58782
66250069. 9745.45692	1.472224E+13	0.00000450	0.00012834	28.51989681	436.97179
66250069. 10859.08235	1.325001E+13	0.00000500	0.00014154	28.30750448	480.09183
66250069. 11972.26311	1.204547E+13	0.00000550	0.00015475	28.13651687	522.94710
66250069. 13084.99751	1.104168E+13	0.00000600	0.00016798	27.99659246	565.53666
66250069. 14197.28122	1.019232E+13	0.00000650	0.00018122	27.88058585	607.85986
66250069. 15309.11203	9.464296E+12	0.00000700	0.00019448	27.78338259	649.91577
66250069. 16420.48758	8.833343E+12	0.00000750	0.00020776	27.70123297	691.70349

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66250069.	8.281259E+12	0.00000800	0.00022105	27.63132709	733.22219
17531.40491					
66250069.	7.794126E+12	0.00000850	0.00023436	27.57152134	774.47114
18641.85984					
66250069.	7.361119E+12	0.00000900	0.00024768	27.52013880	815.44932
19751.85067					
66250069.	6.973691E+12	0.00000950	0.00026102	27.47585982	856.15585
20861.37457					
66250069.	6.625007E+12	0.00001000	0.00027438	27.43763512	896.59001
21970.42681					
66250069.	6.309530E+12	0.00001050	0.00028775	27.40460211	936.75067
23079.00670					
66250069.	6.022734E+12	0.00001100	0.00030114	27.37606877	976.63712
24187.10916					
66267159.	5.762362E+12	0.00001150	0.00031454	27.35145575	1016.24840
25294.73166					
69004491.	5.750374E+12	0.00001200	0.00032796	27.33028346	1055.58362
26401.87055					
71738893.	5.739111E+12	0.00001250	0.00034140	27.31214315	1094.64169
27508.52436					
74470360.	5.728489E+12	0.00001300	0.00035486	27.29669684	1133.42179
28614.68859					
77198881.	5.718436E+12	0.00001350	0.00036833	27.28365487	1171.92303
29720.35947					
79924433.	5.708888E+12	0.00001400	0.00038182	27.27276617	1210.14438
30825.53433					
82647008.	5.699794E+12	0.00001450	0.00039533	27.26381832	1248.08497
31930.20884					
85366577.	5.691105E+12	0.00001500	0.00040885	27.25662142	1285.74367
33034.38118					
88083126.	5.682782E+12	0.00001550	0.00042239	27.25101453	1323.11953
34138.04751					
90796650.	5.674791E+12	0.00001600	0.00043595	27.24685925	1360.21170
35241.20290					
93507128.	5.667099E+12	0.00001650	0.00044953	27.24403006	1397.01913
36343.84426					
96214531.	5.659678E+12	0.00001700	0.00046312	27.24241430	1433.54067
37445.96945					
98918843.	5.652505E+12	0.00001750	0.00047673	27.24191540	1469.77530
38547.57468					
1.016201E+08	5.645559E+12	0.00001800	0.00049036	27.24245292	1505.72228
39648.65337					
1.043182E+08	5.638820E+12	0.00001850	0.00050401	27.24394315	1541.38021
40749.20534					
1.070131E+08	5.632270E+12	0.00001900	0.00051768	27.24632174	1576.74825
41849.22462					
1.097049E+08	5.625894E+12	0.00001950	0.00053137	27.24952430	1611.82519
42948.70896					
1.150790E+08	5.613610E+12	0.00002050	0.00055879	27.25819534	1681.10191

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45146.05192					
1.204402E+08	5.601871E+12	0.00002150	0.00058630	27.26957005	1749.20129
47341.20622					
1.257884E+08	5.590598E+12	0.00002250	0.00061388	27.28334266	1816.11468
49534.13616					
1.311235E+08	5.579724E+12	0.00002350	0.00064153	27.29925245	1881.83273
51724.81080					
1.364453E+08	5.569194E+12	0.00002450	0.00066927	27.31709021	1946.34634
53913.19285					
1.417535E+08	5.558962E+12	0.00002550	0.00069709	27.33667570	2009.64592
56099.24786					
1.470481E+08	5.548986E+12	0.00002650	0.00072498	27.35785443	2071.72146
58282.94252					
1.522179E+08	5.535197E+12	0.00002750	0.00075277	27.37349707	2132.13541
60000.00000					
1.562911E+08	5.483897E+12	0.00002850	0.00077873	27.32388800	2187.17532
60000.00000					
1.597502E+08	5.415260E+12	0.00002950	0.00080365	27.24244970	2238.78851
60000.00000					
1.628208E+08	5.338387E+12	0.00003050	0.00082791	27.14461237	2287.90087
60000.00000					
1.655442E+08	5.255370E+12	0.00003150	0.00085156	27.03357214	2334.70754
60000.00000					
1.680415E+08	5.170509E+12	0.00003250	0.00087717	26.98997873	2384.42700
60000.00000					
1.703122E+08	5.083946E+12	0.00003350	0.00089973	26.85748941	2427.00434
60000.00000					
1.723605E+08	4.995955E+12	0.00003450	0.00092180	26.71881384	2467.75917
60000.00000					
1.742273E+08	4.907811E+12	0.00003550	0.00094349	26.57710952	2506.92494
60000.00000					
1.760891E+08	4.824359E+12	0.00003650	0.00096522	26.44432086	2545.32683
60000.00000					
1.776307E+08	4.736818E+12	0.00003750	0.00098616	26.29750854	2581.47322
60000.00000					
1.791362E+08	4.652889E+12	0.00003850	0.00100705	26.15712708	2616.75830
60000.00000					
1.806374E+08	4.573100E+12	0.00003950	0.00102798	26.02481478	2651.33078
60000.00000					
1.819718E+08	4.493130E+12	0.00004050	0.00104847	25.88826996	2684.39563
60000.00000					
1.831660E+08	4.413638E+12	0.00004150	0.00106861	25.74957508	2716.12294
60000.00000					
1.843565E+08	4.337800E+12	0.00004250	0.00108877	25.61821872	2747.18586
60000.00000					
1.855432E+08	4.265362E+12	0.00004350	0.00110898	25.49370521	2777.58119
60000.00000					
1.866667E+08	4.194758E+12	0.00004450	0.00112902	25.37120014	2807.00951
60000.00000					

24069 Caisson Analysis.lpo

1.875964E+08	4.122997E+12	0.00004550	0.00114847	25.24110872	2834.85047
60000.00000					
1.892903E+08	4.070758E+12	0.00004650	0.00117180	25.20000011	2867.61655
60000.00000					
1.895590E+08	3.990716E+12	0.00004750	0.00119127	25.07940692	2894.00661
60000.00000					
1.904620E+08	3.927051E+12	0.00004850	0.00121029	24.95443958	2919.10606
60000.00000					
1.913619E+08	3.865898E+12	0.00004950	0.00122934	24.83517247	2943.60999
60000.00000					
1.921329E+08	3.804612E+12	0.00005050	0.00124790	24.71094221	2966.83846
60000.00000					
1.928202E+08	3.744081E+12	0.00005150	0.00126616	24.58559185	2989.07331
60000.00000					
1.935048E+08	3.685806E+12	0.00005250	0.00128444	24.46557158	3010.75820
60000.00000					
1.941869E+08	3.629661E+12	0.00005350	0.00130276	24.35058528	3031.89034
60000.00000					
1.948663E+08	3.575528E+12	0.00005450	0.00132110	24.24035937	3052.46699
60000.00000					
1.955430E+08	3.523298E+12	0.00005550	0.00133947	24.13463956	3072.48533
60000.00000					
1.962172E+08	3.472870E+12	0.00005650	0.00135788	24.03319412	3091.94282
60000.00000					
1.968304E+08	3.423138E+12	0.00005750	0.00137603	23.93089575	3110.53722
60000.00000					
1.973374E+08	3.373288E+12	0.00005850	0.00139370	23.82397217	3128.06436
60000.00000					
1.978420E+08	3.325075E+12	0.00005950	0.00141141	23.72110409	3145.07150
60000.00000					
1.988443E+08	3.233241E+12	0.00006150	0.00144690	23.52675551	3177.51573
60000.00000					
1.994084E+08	3.140290E+12	0.00006350	0.00148590	23.39999861	3210.77983
60000.00000					
2.009616E+08	3.068116E+12	0.00006550	0.00152428	23.27144891	3240.86101
60000.00000					
2.018464E+08	2.990316E+12	0.00006750	0.00155851	23.08909303	3265.35600
60000.00000					
2.025310E+08	2.914115E+12	0.00006950	0.00159159	22.90063781	3287.04190
60000.00000					
2.032083E+08	2.842074E+12	0.00007150	0.00162478	22.72414631	3306.88596
60000.00000					
2.038782E+08	2.773853E+12	0.00007350	0.00165806	22.55866581	3324.87053
60000.00000					
2.045405E+08	2.709146E+12	0.00007550	0.00169145	22.40333372	3340.97708
60000.00000					
2.051953E+08	2.647681E+12	0.00007750	0.00172495	22.25739044	3355.18722
60000.00000					
2.058423E+08	2.589211E+12	0.00007950	0.00175855	22.12013751	3367.48159

24069 Caisson Analysis.lpo

60000.00000					
2.063772E+08	2.532235E+12	0.00008150	0.00179141	21.98044163	3377.58852
60000.00000					
2.068312E+08	2.477020E+12	0.00008350	0.00182376	21.84139270	3385.70101
60000.00000					
2.072784E+08	2.424308E+12	0.00008550	0.00185621	21.71002990	3392.01613
60000.00000					
2.078953E+08	2.375947E+12	0.00008750	0.00189000	21.60000032	3396.65871
60000.00000					
2.083427E+08	2.327852E+12	0.00008950	0.00193310	21.59892207	3399.70855
60000.00000					
2.087367E+08	2.281276E+12	0.00009150	0.00196448	21.46970934	3396.76077
60000.00000					
2.091184E+08	2.236561E+12	0.00009350	0.00199596	21.34712380	3388.91902
60000.00000					
2.094971E+08	2.193687E+12	0.00009550	0.00202754	21.23077279	3390.24083
60000.00000					
2.098725E+08	2.152538E+12	0.00009750	0.00205923	21.12028295	3394.69076
60000.00000					
2.102446E+08	2.113011E+12	0.00009950	0.00209102	21.01531953	3397.80659
60000.00000					
2.105066E+08	2.073956E+12	0.00010150	0.00212159	20.90232879	3399.51512
60000.00000					
2.107491E+08	2.036224E+12	0.00010350	0.00215206	20.79284316	3399.27602
60000.00000					
2.109850E+08	1.999858E+12	0.00010550	0.00218274	20.68946332	3392.59651
60000.00000					
2.112192E+08	1.964829E+12	0.00010750	0.00221350	20.59065396	3385.89643
60000.00000					
2.114515E+08	1.931064E+12	0.00010950	0.00224433	20.49617368	3386.39396
60000.00000					
2.116819E+08	1.898493E+12	0.00011150	0.00227525	20.40579396	3390.96852
60000.00000					
2.119105E+08	1.867053E+12	0.00011350	0.00230624	20.31930882	3394.62069
60000.00000					
2.121372E+08	1.836686E+12	0.00011550	0.00233732	20.23652512	3397.34023
60000.00000					
2.123620E+08	1.807336E+12	0.00011750	0.00236848	20.15726262	3399.11671
60000.00000					
2.125848E+08	1.778953E+12	0.00011950	0.00239972	20.08135396	3399.93946
60000.00000					
2.128025E+08	1.751461E+12	0.00012150	0.00243115	20.00944930	3396.16105
60000.00000					
2.130170E+08	1.724834E+12	0.00012350	0.00246269	19.94083411	3390.20399
60000.00000					
2.132303E+08	1.699046E+12	0.00012550	0.00249430	19.87490004	3384.23054
60000.00000					
2.134424E+08	1.674058E+12	0.00012750	0.00252597	19.81152159	3378.94415
60000.00000					

24069 Caisson Analysis.lpo

2.134424E+08	1.648204E+12	0.00012950	0.00256410	19.79999882	3385.61682
60000.00000					
2.134424E+08	1.623136E+12	0.00013150	0.00260370	19.79999882	3391.29425
60000.00000					
2.141035E+08	1.603771E+12	0.00013350	0.00264089	19.78198403	3395.23198
60000.00000					
2.142206E+08	1.580964E+12	0.00013550	0.00266987	19.70386738	3397.20171
60000.00000					
2.143370E+08	1.558814E+12	0.00013750	0.00269891	19.62841254	3398.65355
60000.00000					
2.144526E+08	1.537295E+12	0.00013950	0.00272799	19.55550689	3399.58240
60000.00000					
2.146521E+08	1.495833E+12	0.00014350	0.00278774	19.42674798	3396.34859
60000.00000					
2.148345E+08	1.456505E+12	0.00014750	0.00284840	19.31115979	3386.97957
60000.00000					
2.150150E+08	1.419241E+12	0.00015150	0.00290922	19.20276529	3377.56691
60000.00000					
2.151616E+08	1.383676E+12	0.00015550	0.00297183	19.11147469	3375.85202
60000.00000					
2.153013E+08	1.349851E+12	0.00015950	0.00303489	19.02752262	3384.33343
60000.00000					
2.154383E+08	1.317666E+12	0.00016350	0.00309816	18.94899398	3391.02737
60000.00000					
2.155727E+08	1.287001E+12	0.00016750	0.00316165	18.87553471	3395.89583
60000.00000					
2.157045E+08	1.257752E+12	0.00017150	0.00322537	18.80683261	3398.89921
60000.00000					
2.158334E+08	1.229820E+12	0.00017550	0.00328932	18.74259156	3399.99583
60000.00000					
2.159382E+08	1.202998E+12	0.00017950	0.00335393	18.68482322	3392.04495
60000.00000					
2.159552E+08	1.176867E+12	0.00018350	0.00341755	18.62424499	3383.79483
60000.00000					
2.159710E+08	1.151845E+12	0.00018750	0.00348132	18.56702060	3375.50660
60000.00000					
2.159857E+08	1.127863E+12	0.00019150	0.00354523	18.51295048	3367.17972
60000.00000					
2.159991E+08	1.104855E+12	0.00019550	0.00360929	18.46185762	3362.63367
60000.00000					
2.160113E+08	1.082763E+12	0.00019950	0.00367351	18.41358429	3371.42935
60000.00000					
2.160222E+08	1.061534E+12	0.00020350	0.00373788	18.36797923	3379.09121
60000.00000					
2.160318E+08	1.041117E+12	0.00020750	0.00380242	18.32490402	3385.59736
60000.00000					

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 215224.00216
in-kip

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 Computed Values of Load Distribution and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (Pile-head Condition Type 1)
 Specified shear force at pile head = 79300.000 lbs
 Specified moment at pile head = 97368000.000 in-lbs
 Specified axial load at pile head = 88400.000 lbs

Depth Es*h X F/L in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Flx. Rig. EI lbs-in**2	Soil Res. p lbs/in
0.000	1.090	9.74E+07	79300.	-0.006342	796.958	5.66E+12	0.000
0.000							
31.680	0.897535	9.99E+07	75480.	-0.005789	817.214	5.65E+12	-386.436
1704.986							
63.360	0.723077	1.02E+08	40852.	-0.005223	833.153	5.64E+12	-1677.385
9186.358							
95.040	0.566700	1.02E+08	-28244.	-0.004649	835.574	5.64E+12	-2669.689
18655.							
126.720	0.428445	9.98E+07	-1.26E+05	-0.004081	816.439	5.65E+12	-3484.624
32207.							
158.400	0.307859	9.39E+07	-2.46E+05	-0.003537	769.166	5.67E+12	-4043.134
52007.							
190.080	0.203851	8.41E+07	-3.79E+05	-0.003039	689.327	5.70E+12	-4240.192
82370.							
221.760	0.114593	7.01E+07	-4.93E+05	-0.002610	576.728	5.75E+12	-2881.193
99566.							
253.440	0.034751	5.33E+07	-5.57E+05	-0.002480	441.006	2.66E+13	-1011.359
1.15E+05							
285.120	-0.042936	3.56E+07	-5.52E+05	-0.002428	297.451	2.68E+13	1419.584
1.31E+05							
316.800	-0.119284	1.93E+07	-4.61E+05	-0.002396	165.792	2.69E+13	4416.218
1.47E+05							
348.480	-0.194897	7.24E+06	-2.96E+05	-0.002380	68.229	2.70E+13	5626.864
1.14E+05							
380.160	-0.270224	8.33E+05	-1.05E+05	-0.002376	16.386	2.70E+13	6434.676
94297.							

Please note that because this analysis makes computations of ultimate moment

24069 Caisson Analysis.lpo

capacity and pile response using nonlinear bending stiffness that the above values of total stress due to combined axial stress and bending may not be representative of actual conditions.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection = 1.08972711 in
 Computed slope at pile head = -0.00634175
 Maximum bending moment = 1.022932E+08 lbs-in
 Maximum shear force = -563632.17439 lbs
 Depth of maximum bending moment = 83.16000000 in
 Depth of maximum shear force = 269.28000 in
 Number of iterations = 58
 Number of zero deflection points = 1

Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

Type 1 = Shear and Moment, y = pile-head displacement in
 Type 2 = Shear and Slope, M = Pile-head Moment lbs-in
 Type 3 = Shear and Rot. Stiffness, V = Pile-head Shear Force lbs
 Type 4 = Deflection and Moment, S = Pile-head Slope, radians
 Type 5 = Deflection and Slope, R = Rot. Stiffness of Pile-head in-lbs/rad

Load Type	Pile-Head Condition 1	Pile-Head Condition 2	Axial Load lbs	Pile-Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
1	V= 79300.	M= 9.74E+07	88400.0000	1.0897	1.0229E+08	-563632.

Computed Pile-head Stiffness Matrix Members K22, K23, K32, K33 for Superstructure

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Top y in	Shear React. lbs	Mom. React. in-lbs	K22 lbs/in	K32 in-lbs/in
0.00230103	7930.00012	1671390.	3446276.	7.263646E+08
0.00692680	23871.67866	5031385.	3446276.	7.263646E+08
0.01097872	37835.71550	7974556.	3446276.	7.263646E+08
0.01385361	47743.35731	10062770.	3446276.	7.263646E+08
0.01608354	55428.32134	11682514.	3446276.	7.263646E+08
0.01790553	61707.39416	13005941.	3446276.	7.263646E+08
0.01944625	67016.27457	14124828.	3446232.	7.263524E+08
0.02078167	71615.03597	15093873.	3446067.	7.263069E+08
0.02196016	75671.43100	15948499.	3445851.	7.262470E+08
0.02301471	79300.00000	16712898.	3445623.	7.261834E+08

Top Rota. rad	Shear React. lbs	Mom. React. in-lbs	K23 lbs/rad	K33 in-lbs/rad
0.00004909	35655.97842	9736800.	7.263646E+08	1.983529E+11
0.00014810	107349.71209	29310689.	7.248365E+08	1.979088E+11
0.00023541	170184.09231	46456342.	7.229317E+08	1.973437E+11
0.00029766	214785.54664	58621377.	7.215721E+08	1.969385E+11
0.00034705	249395.93147	68057311.	7.186192E+08	1.961030E+11
0.00041300	277901.51664	75767031.	6.728922E+08	1.834572E+11
0.00084520	309496.50139	82285506.	3.661804E+08	9.735600E+10
0.00100316	335598.67805	87932066.	3.345408E+08	8.765489E+10
0.00114239	359714.29580	92912685.	3.148793E+08	8.133201E+10
0.00125303	381072.46060	97368000.	3.041212E+08	7.770615E+10

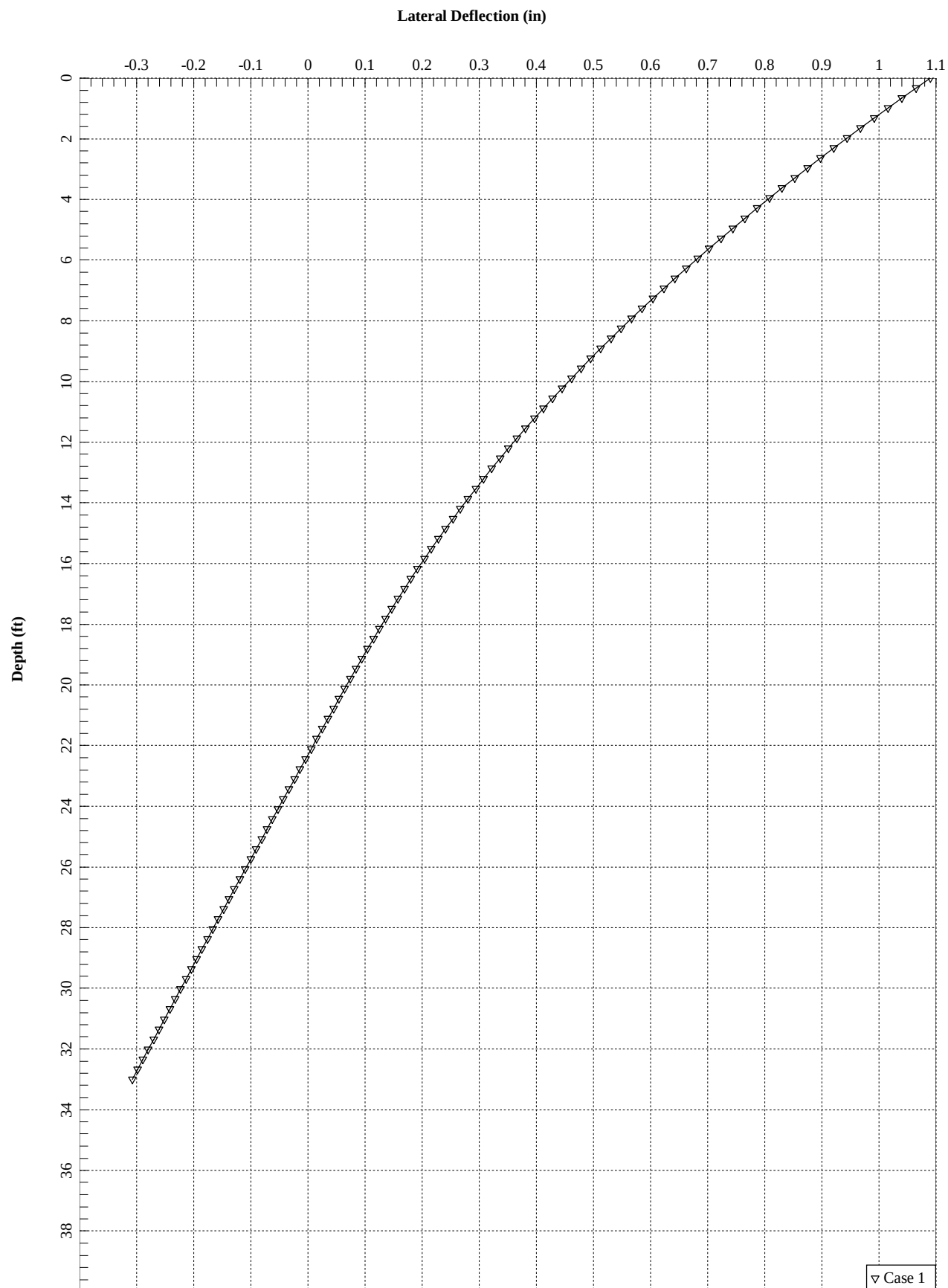
K22 = abs(Shear Reaction/Top y)

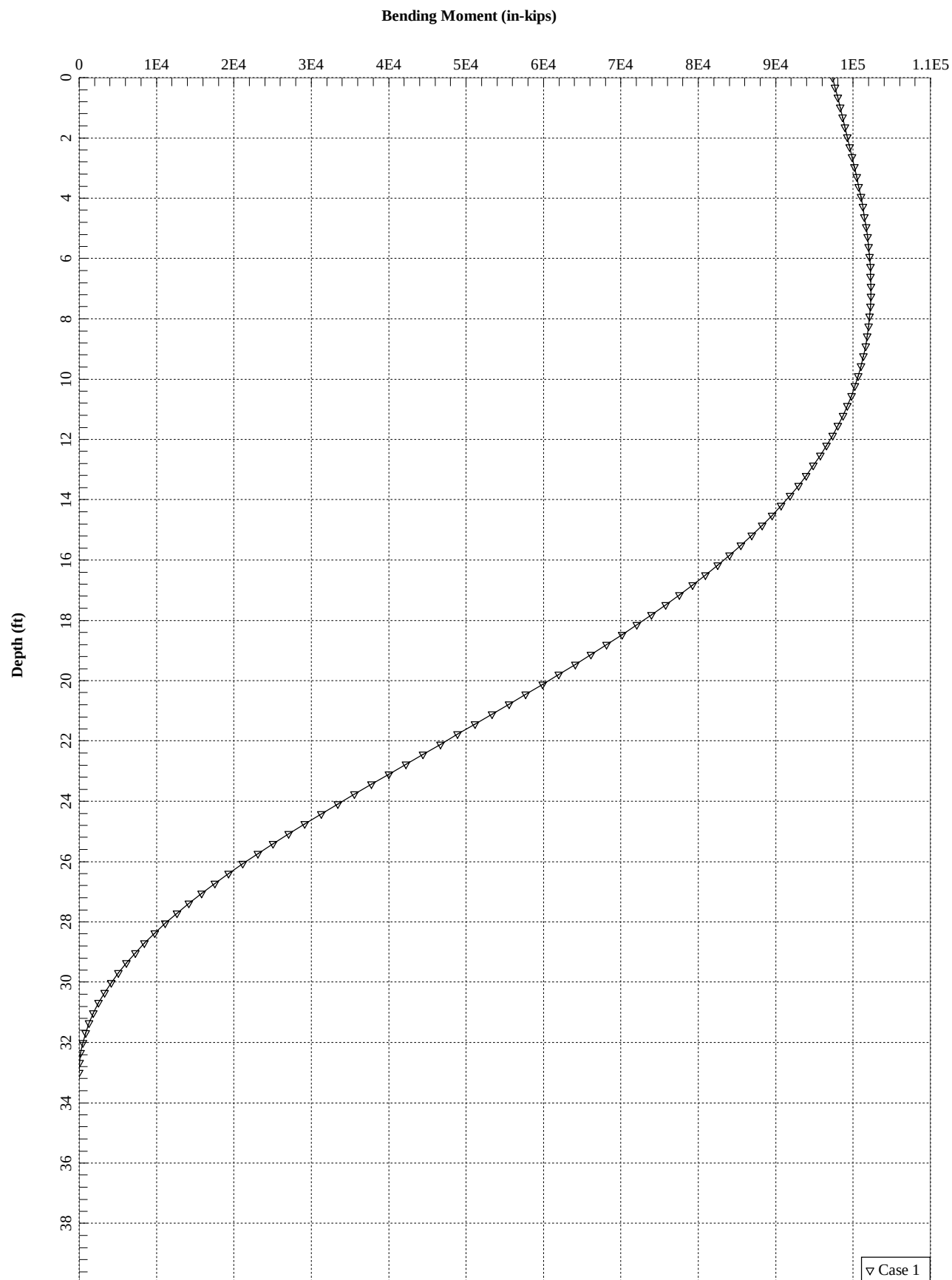
K23 = abs(Shear Reaction/Top Rotation)

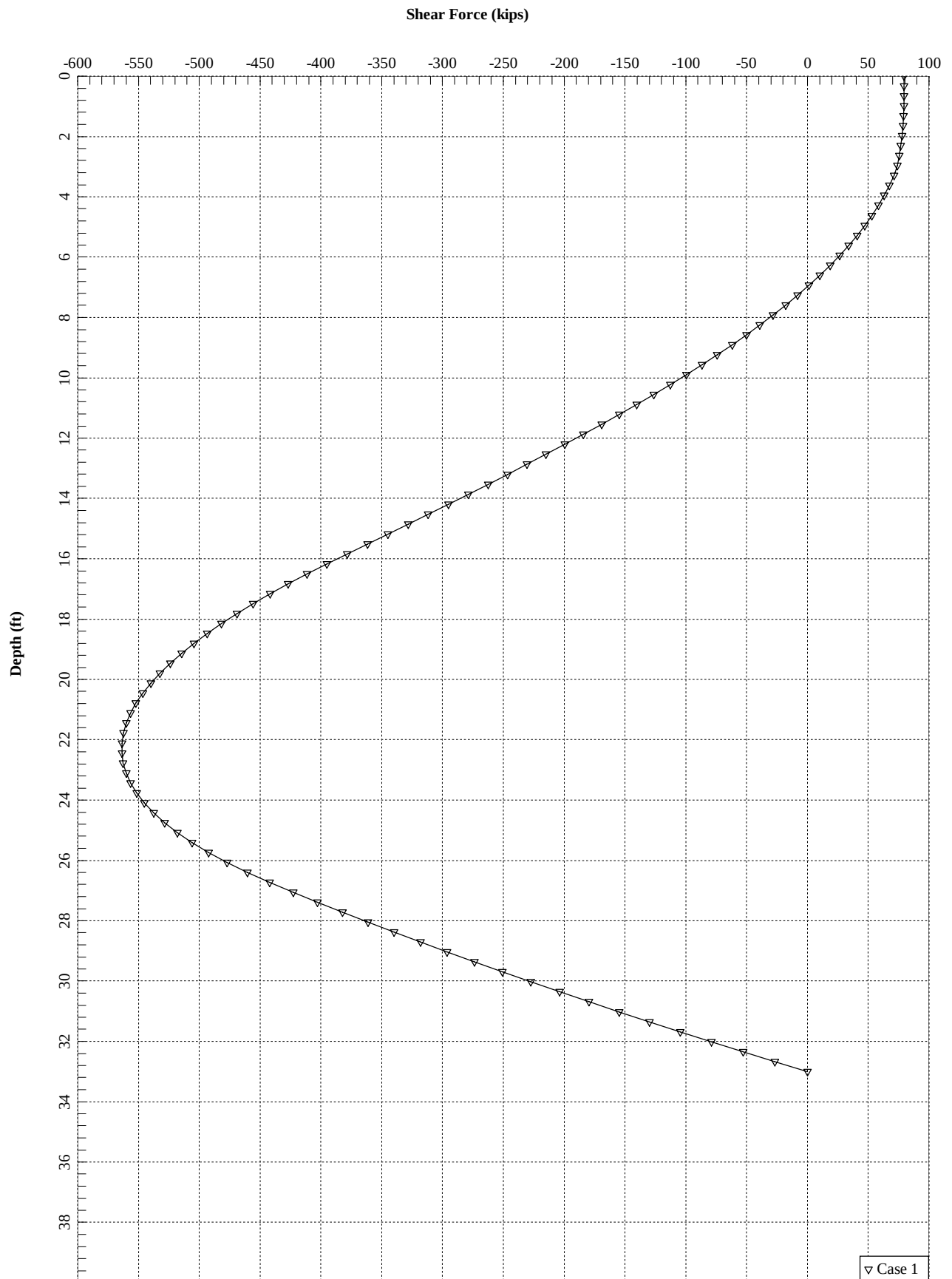
K32 = abs(Moment Reaction/Top y)

K33 = abs(Moment Reaction/Top Rotation)

The analysis ended normally.







RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
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CTNH025A_L600_2.1_draft

Section 1 - Site Information

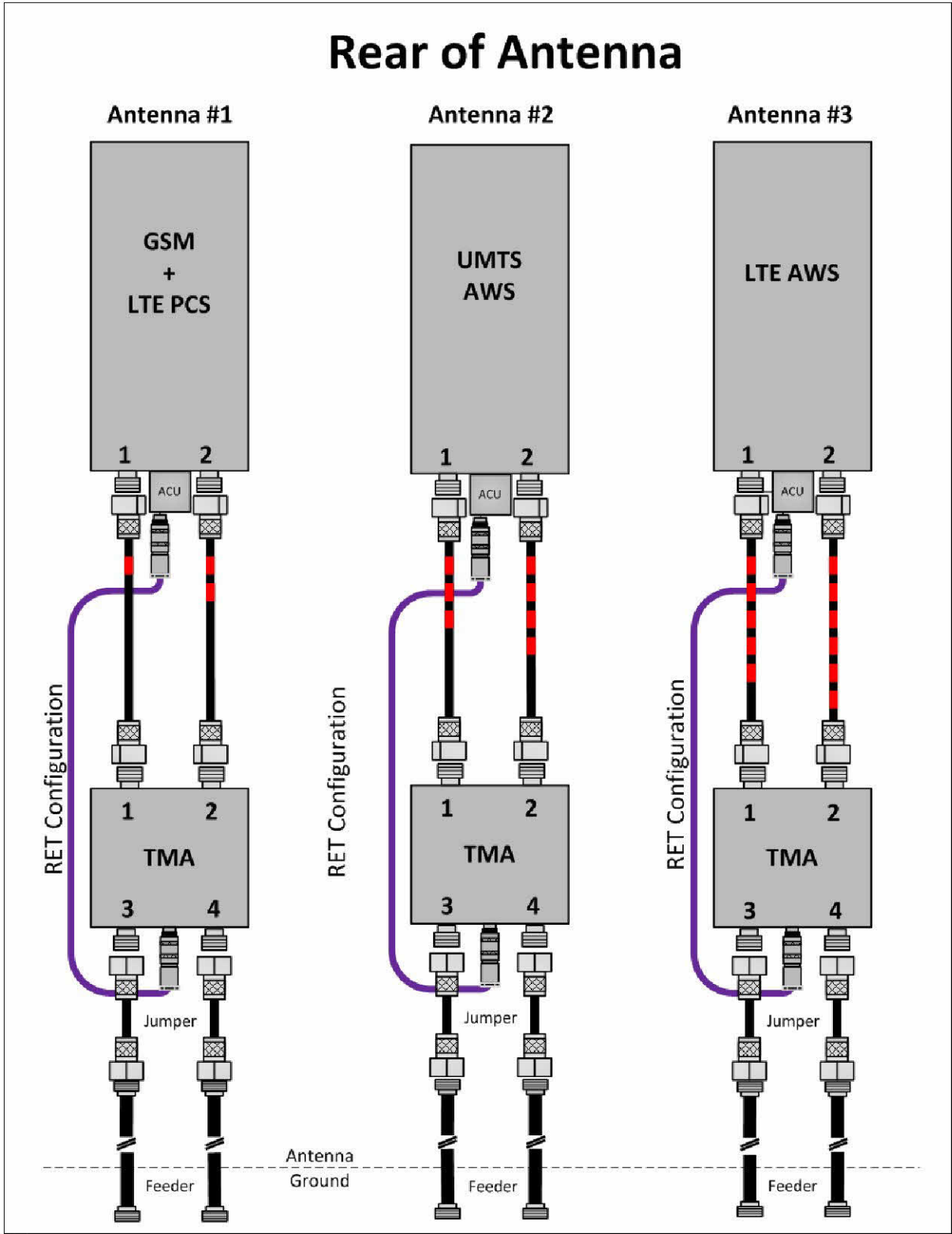
Site ID: CTNH025A	Site Name: CT11218Replace-Orange	Latitude: 41.2947833300
Status: Draft	Site Class: Utility Lattice Tower	Longitude: -72.9909500000
Version: 2.1	Site Type: Structure Non Building	Address: 263 Bittersweet Road
Project Type: L600	Solution Type:	City, State: Orange, CT
Approved: Not Approved	Plan Year:	Region: NORTHEAST
Approved By: Not Approved	Market: CONNECTICUT	
Last Modified: 5/15/2018 12:33:13 PM	Vendor: Ericsson	
Last Modified By: GSM1900\SCLEMONS	Landlord: CL&P	

RAN Template: 67D94B Outdoor			AL Template: 67D94B_1DP+1QP+1OP		
Sector Count: 3	Antenna Count: 6	Coax Line Count: 12	TMA Count: 6	RRU Count: 0	

Section 2 - Existing Template Images

94A_3DP U19 shutdown.png

Rear of Antenna



Notes:

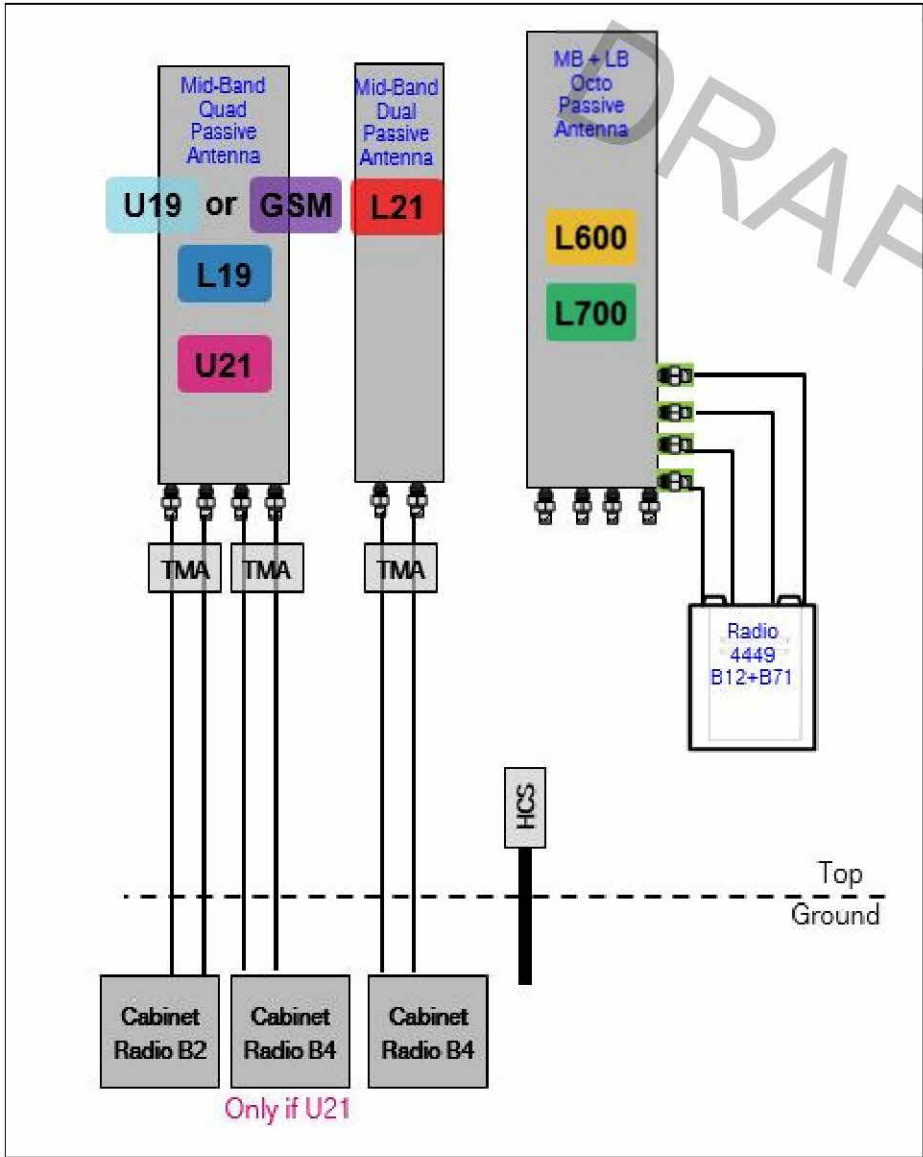
94A U19 Shutdown Outdoor.png

**Ethernet, CPRI, T1 and Sync and GPS Cabling
(No RF Connections)**



Section 3 - Proposed Template Images

67D94B_1DP+1QP+10P.JPG



Notes:

Section 4 - Siteplan Images

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

DRAFT

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
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CTNH025A_L600_2.1_draft

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 94A U19 Shutdown Outdoor

Enclosure	1
Enclosure Type	RBS 6102
Baseband	DUG20 G1900 BB 5216 L2100 L1900 DUW30 U2100 DUW30 U1900
Radio	RUS01 B2 (x3) U1900 G1900 RUS01 B2 (x3) L1900 RUS01 B4 (x3) U2100 RUS01 B4 (x3) L2100

Proposed RAN Equipment

Template: 67D94B Outdoor

Enclosure	1
Enclosure Type	RBS 6102
Baseband	BB 5216 L2100 L1900 L700 L600 DUW30 U2100 DUG20 G1900 DUW30 U1900
Hybrid Cable System	DC Power Cable Reel 6AWG 500M 40-80M (x3)
Multiplexer	XMU
Radio	RUS01 B2 (x3) L1900 RUS01 B2 (x3) U1900 L1900 RUS01 B4 (x6) L2100

RAN Scope of Work:

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
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Section 6 - A&L Equipment

Existing Template: 94A_3DP U19 shutdown
Proposed Template: 67D94B_1DP+1QP+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro		
Antenna	1		
Antenna Model	Andrew - TMZXXX-6516-A3M (Hex)		
Azimuth	60		
M. Tilt	0		
Height	157		
Ports	P1	P2	P3
Active Tech.	U1900 L1900 G1900	U2100 L2100	
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	7	7	
Cables	1-5/8" Coax - 250 ft. (x2)	1-5/8" Coax - 250 ft. (x2)	
TMA's	Generic Twin Style 1A - PCS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners			
Radio			
Sector Equipment			
Unconnected Equipment:			
Scope of Work:			

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
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CTNH025A_L600_2.1_draft

Sector 1 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1			2			
Antenna Model	Andrew - TMZXXX-6516-A3M (Hex)			RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	60			60			
M. Tilt	0			0			
Height	157			157			
Ports	P1	P2	P3	P4	P5	P6	P7
Active Tech.	U1900 L1900 G1900	U2100 L2100				L700 L600	L700 L600
Dark Tech.							
Restricted Tech.							
Decomm. Tech.							
E. Tilt	7	7				2	2
Cables	1-5/8" Coax - 250 ft. (x2) Coax Jumper (x2)	1-5/8" Coax - 250 ft. (x2) Coax Jumper (x2)				Coax Jumper (x2) CABLE 1 5/8IN FOAM PREMIUM - 250 ft. (x2)	Coax Jumper (x2) CABLE 1 5/8IN FOAM PREMIUM - 250 ft. (x2)
TMA's	Generic Twin Style 1A - PCS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)					
Diplexers / Combiners							
Radio						Radio 4449 B71+B12 (At Cabinet)	
Sector Equipment							
Unconnected Equipment:							
Scope of Work:							

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
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CTNH025A_L600_2.1_draft

Sector 2 (Existing) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	1		
Antenna Model	Andrew - TMZXXX-6516-A3M (Hex)		
Azimuth	180		
M. Tilt	0		
Height	157		
Ports	P1	P2	P3
Active Tech.	U1900 L1900 G1900	U2100 L2100	
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	7	7	
Cables	1-5/8" Coax - 250 ft. (x2)	1-5/8" Coax - 250 ft. (x2)	
TMA's	Generic Twin Style 1A - PCS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners			
Radio			
Sector Equipment			
Unconnected Equipment:			
Scope of Work:			

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
--	--	---

CTNH025A_L600_2.1_draft

Sector 2 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1			2			
Antenna Model	Andrew - TMZXXX-6516-A3M (Hex)			RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	180			180			
M. Tilt	0			0			
Height	157			157			
Ports	P1	P2	P3	P4	P5	P6	P7
Active Tech.	U1900 L1900 G1900	U2100 L2100				L700 L600	L700 L600
Dark Tech.							
Restricted Tech.							
Decomm. Tech.							
E. Tilt	7	7				2	2
Cables	1-5/8" Coax - 250 ft. (x2) Coax Jumper (x2)	1-5/8" Coax - 250 ft. (x2) Coax Jumper (x2)				Coax Jumper (x2) CABLE 1 5/8IN FOAM PREMIUM - 250 ft. (x2)	Coax Jumper (x2) CABLE 1 5/8IN FOAM PREMIUM - 250 ft. (x2)
TMA's	Generic Twin Style 1A - PCS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)					
Diplexers / Combiners							
Radio						Radio 4449 B71+B12 (At Cabinet)	
Sector Equipment							
Unconnected Equipment:							
Scope of Work:							

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
--	--	---

CTNH025A_L600_2.1_draft

Sector 3 (Existing) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	1		
Antenna Model	Andrew - TMZXXX-6516-A3M (Hex)		
Azimuth	300		
M. Tilt	0		
Height	157		
Ports	P1	P2	P3
Active Tech.	U1900 L1900 G1900	U2100 L2100	
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	4	4	
Cables	1-5/8" Coax - 250 ft. (x2)	1-5/8" Coax - 250 ft. (x2)	
TMA's	Generic Twin Style 1A - PCS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners			
Radio			
Sector Equipment			
Unconnected Equipment:			
Scope of Work:			

RAN Template: 67D94B Outdoor	A&L Template: 67D94B_1DP+1QP+1OP	Power System Template: Custom
--	--	---

CTNH025A_L600_2.1_draft

Sector 3 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1			2			
Antenna Model	Andrew - TMZXXX-6516-A3M (Hex)			RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	300			300			
M. Tilt	0			0			
Height	157			157			
Ports	P1	P2	P3	P4	P5	P6	P7
Active Tech.	U1900 L1900 G1900	U2100 L2100				L700 L600	L700 L600
Dark Tech.							
Restricted Tech.							
Decomm. Tech.							
E. Tilt	7	7				2	2
Cables	1-5/8" Coax - 250 ft. (x2) Coax Jumper (x2)	1-5/8" Coax - 250 ft. (x2) Coax Jumper (x2)				Coax Jumper (x2) CABLE 1 5/8IN FOAM PREMIUM - 250 ft. (x2)	Coax Jumper (x2) CABLE 1 5/8IN FOAM PREMIUM - 250 ft. (x2)
TMA's	Generic Twin Style 1A - PCS (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)					
Diplexers / Combiners							
Radio						Radio 4449 B71+B12 (At Cabinet)	
Sector Equipment							
Unconnected Equipment:							
Scope of Work:							

Section 7 - Power Systems Equipment	
Existing Power Systems Equipment	
----- This section is intentionally blank. -----	
Proposed Power Systems Equipment	



Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

FEATURES / BENEFITS

This antenna provides a 8 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600MHz, 700MHz, AWS & PCS applications.



- ➔ 24 Inch Width For Easier Zoning
- ➔ Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure and long lasting quality
- ➔ Superior elevation pattern performance across the entire electrical down tilt range
- ➔ Includes three AISG RET motors - Includes 0.5m AISG jumper for optional diasy chain of two high band RET motors for one single AISG point of high band tilt control.
- ➔ Low band arrays driven by a single RET motor

Technical Features

LOW BAND LEFT ARRAY (617-746 MHZ) [R1]

Frequency Band	MHz	617-698	698-746
Gain	dBi	15.1	15.5
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.4
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	24
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

LOW BAND RIGHT ARRAY (617-746 MHZ) [R2]

Frequency Band	MHz	617-698	698-746
Gain	dBi	14.8	15.1
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.3
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	23
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250



Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

ELECTRICAL SPECIFICATIONS

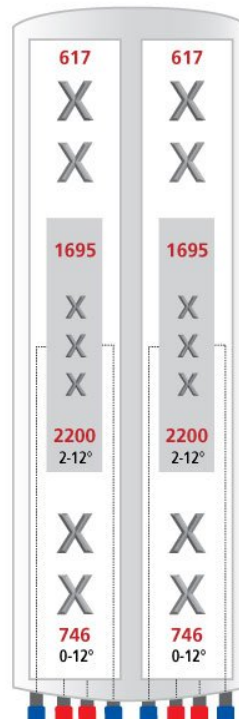
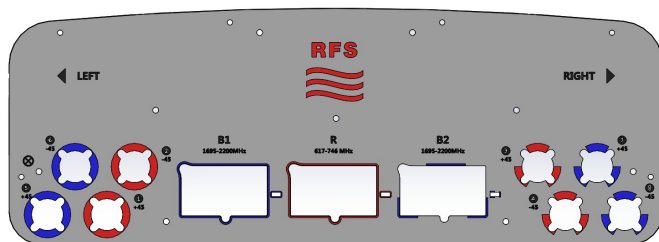
Impedance	Ohm	50.0
Polarization	Deg	±45°

MECHANICAL SPECIFICATIONS

Dimensions - H x W x D	mm (in)	2436 x 609 x 222 (95.9 x 24 x 8.7)
Weight (Antenna Only)	kg (lb)	58 (128)
Weight (Mounting Hardware only)	kg (lb)	11.5 (25.3)
Shipping Weight	kg (lb)	80 (176)
Connector type		8 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female)
Adjustment mechanism		Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator
Mounting Hardware Material		Galvanized steel
Radome Material / Color		Fiber Glass / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Lightning protection		IEC 61000-4-5
Survival/Rated Wind Velocity	km/h	241 (150)
Environmental		ETSI 300-019-2-4 Class 4.1E



ORDERING INFORMATION

Order No.	Configuration	Mounting Hardware	Mounting pipe Diameter	Shipping Weight
APXVAARR24_43-U-NA20	Field Replace RET included (3)	APM40-5E Beam tilt kit (included)	60-120mm	80 Kg

■ ■ ■ **T** ■ ■ ■ Mobile ■

SITE #: CTNH025

SITE NAME: ORANGE NU

EVERSOURCE STRUCTURE #: 24069

SITE ADDRESS

607 HUNTING HILL PLACE

ORANGE, CT 06477

GENERAL NOTES

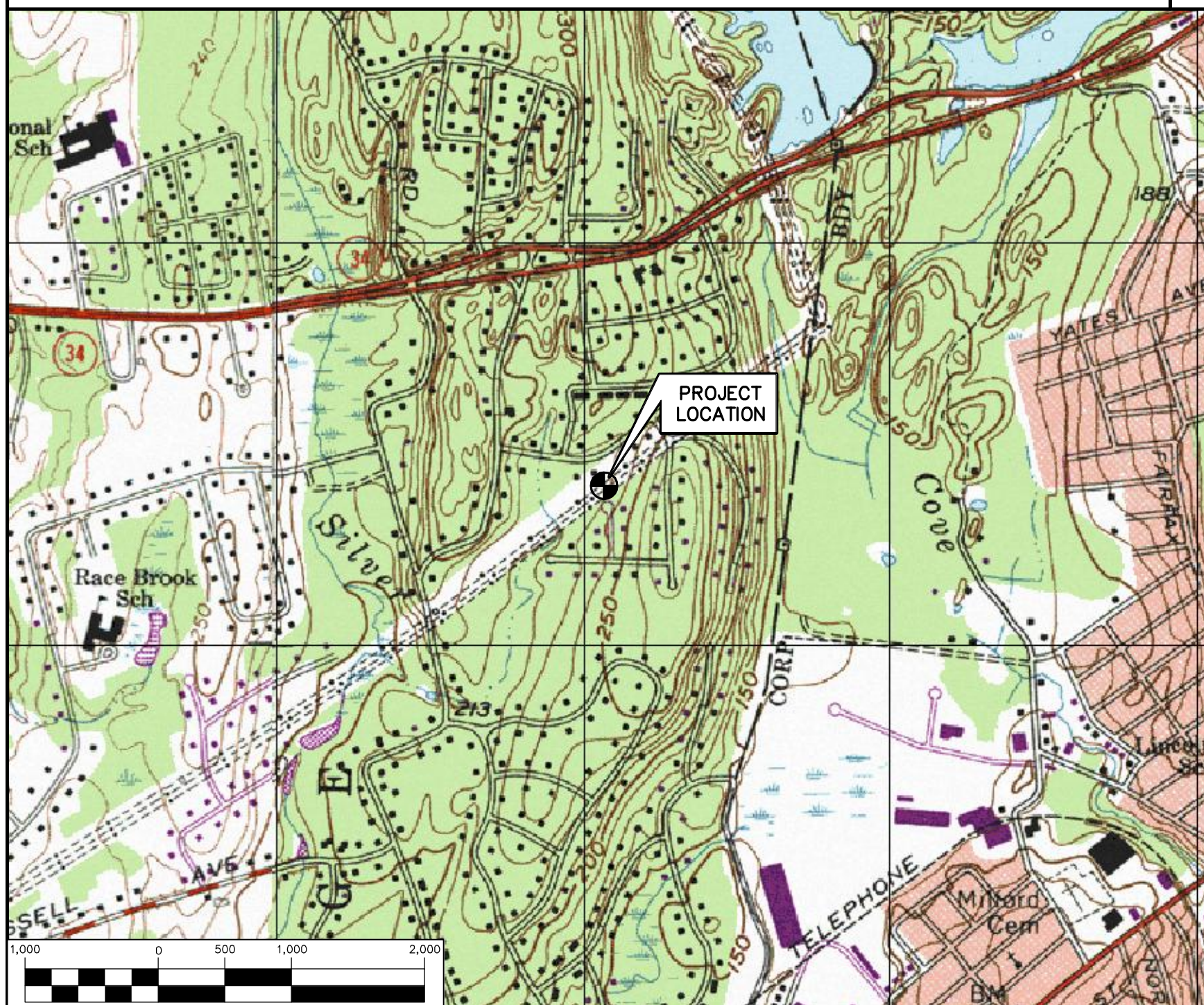
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT STATE SUPPLEMENT, INCLUDING THE EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM:	35 GRIFFIN ROAD SOUTH BLOOMFIELD, CONNECTICUT	TO:	607 HUNTINGS HILL PLACE ORANGE, CONNECTICUT
1.	HEAD SOUTHEAST ON W NEWBERRY RD TOWARD GRIFFIN RD S		<0.1 MI
2.	TURN LEFT ONTO GRIFFIN ROAD S		0.6 MI
3.	TURN RIGHT ONTO DAY HILL RD		3.6 MI
4.	MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD		0.4 MI
5.	MERGE ONTO I-91 S		26.0 MI
6.	TAKE EXIT 17 FOR CT-15S/W CROSS PKWY		22.0 MI
7.	TAKE EXIT 57 TO MERGE ONTO CT-34 E/DERBY AVE/DERBY TURNPIKE TOWARD ORANGE		0.2 MI
8.	MERGE ONTO CT-34 E/DERBY AVE/DERBY TURNPIKE		2.3 MI
9.	TURN RIGHT ONTO CHESTNUT RIDGE RD		0.3 MI
10.	TURN LEFT ONTO BITTERSWEET RD		0.2 MI
11.	TURN RIGHT ONTO HARBORVIEW RD		0.2 MI
12.	TURN RIGHT ONTO HUNTING HILL ROAD		<0.1 MI
13.	TURN RIGHT ONTO HUNTING HILL PLACE		<0.1 MI

VICINITY MAP

SCALE: 1" = 1000'



GENERAL NOTES

- # 1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY T-MOBILE NORTHEAST LLC

SITE INFORMATION

THE SCOPE OF WORK SHALL INCLUDE

1. INSTALLATION OF (3) PANEL ANTENNAS ON A PROPOSED MOUNT.
2. RELOCATION OF (3) PANEL ANTENNAS AND (6) TMAs TO THE PROPOSED MOUNT.
3. INSTALLATION OF (6) COAX CABLES ROUTED ON THE EXTERIOR OF THE POLE.
4. INSTALLATION OF (3) REMOTE RADIO HEADS MOUNTED AT GRADE.

PROJECT SUMMARY

SITE NUMBER: CTHN025

SITE NAME: ORANGE NU

SITE ADDRESS: 607 HUNTING HILL PLACE
ORANGE, CT 06477

TOWER OWNER: EVERSOURCE
56 PROSPECT STREET
HARTFORD, CT 06103

LESSEE: T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

CONTACT PERSON: DAN REID
TRANSCEND WIRELESS
(203) 592-8291

ENGINEER: CENTEK ENGINEERING, INC.
63-2 NORTH BRANFORD RD.
BRANFORD, CT 06405

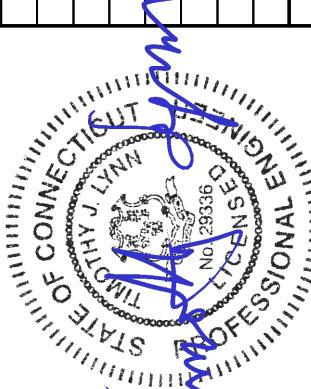
TOWER COORDINATES: LATITUDE 41°-17'-42.26"
LONGITUDE 72°-59'-24.82"
GROUND ELEVATION: ±269' A.M.S.L.

SITE COORDINATES AND GROUND ELEVATION
REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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T-MOBILE NORTHEAST LLC

WIRELESS COMMUNICATIONS FACILITY

ORANGE NU
SITE NO. CTNH025A

507 HUNTING HILL PL

DATE: 9/5/18

SCALE: AS NOTED

JOB NO. 18058.96

TITLE SHEET

T-1

Sheet No. 1 of 4

STRUCTURAL SPECIFICATIONS

DESIGN BASIS:

1. GOVERNING CODE: 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CT STATE BUILDING CODE.
2. ASCE MANUAL NO. 48-11 - "DESIGN OF STEEL TRANSMISSION POLE STRUCTURES", NESC C2-2012 AND NORTHEAST UTILITIES DESIGN CRITERIA.
3. DESIGN CRITERIA

WIND LOAD: (UTILITY POLE & FOUNDATION)
BASIC WIND SPEED (V) = 110 MPH (3-SECOND GUST) BASED ON NESO
C2-2012, SECTION 25 RULE 250C.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH EVERSOURCE.
10. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
11. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
12. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

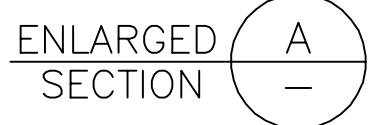
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- # 1 TYPICAL ANTENNA GROUNDING DETAIL



2 TYPICAL RRU GROUNDING DETAIL
C-2 NOT TO SCALE



3 TYPICAL RRH MOUNTING DETAILS



4 PROPOSED ANTENNA DETAIL
C-2 SCALE: NONE



5 PROPOSED RRU DETAIL
C-2 SCALE: NONE