QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
QCDevelopment9068@gmail.com

April 11, 2016

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T)
525 Overland Drive, Orange, CT 06477
N 41-17-21.7
W 73-00-03.9

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 130-foot level of the existing 130-foot Utility Structure at 525 Overland Drive, Orange, CT. The tower is owned by Eversource. The property is owned by Thomas and Frances Castiello. AT&T now intends to replace three (3) of its existing antennas with three (3) new Quintel antennas. These antennas would be installed at the 130-foot level of the structure. AT&T also intends to replace three (3) CCI TMAs with six (6) new Kaelus TMAs for a total of twelve (12) TMAs.

This facility was approved by the Connecticut Siting Council, Petition No. 1043 on December 12, 2012. This approval included no condition(s) that could feasibly be violated by this modification. This modification therefore complies with the aforementioned 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 Selectman for the Town of Orange, as well as the property and structure 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 modifications 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 modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

For the foregoing reasons, AT&T 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).

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,

Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: James Zeoli - as elected official (via e-mail)
Eversource - as structure owner (via e-mail)
Thomas and Frances Castiello – as property owner

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
*Other Carriers**							0.00%
AT&T GSM	2	500	130	0.0234	880	0.5867	0.40%
AT&T UMTS	2	500	130	0.0234	1900	1.0000	0.23%
AT&T LTE	1	500	130	0.0117	740	0.4667	0.25%
Site Total							0.88%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0.00%
AT&T LTE	2	1791	130	0.0838	2300	1.0000	0.84%
AT&T LTE	2	1104	130	0.0516	734	0.4893	1.06%
AT&T LTE	2	2203	130	0.1030	1900	1.0000	1.03%
AT&T UMTS	2	419	130	0.0196	880	0.5867	0.33%
AT&T UMTS	2	817	130	0.0382	1900	1.0000	0.38%
Site Total							3.64%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Note: Proposed Loading may also include corrections to certain Existing Loading values

EVERSOURCE
ENERGY

107 Selden Street
Berlin, CT 06037
(860) 665-6926
michael.green@eversource.com

March 29, 2016

Mr. Tim Burks
Senior Site Acquisition Manager- New England
SAI Communications, Consultant for
AT&T Mobility (a/k/a New Cingular Wireless PCS, LLC)
500 Enterprise Drive
Rocky Hill, CT 06067

Re: Site Permitting Authorization
525 Overland Drive, Orange, CT
Telecommunications Site

Dear Mr. Burks:

Authorization is hereby given to New Cingular Wireless PCS, LLC (New Cingular), its employees and its duly authorized agents and independent contractors (hereinafter collectively referred to as "New Cingular"), to apply for any and all local municipal, state and federal licenses, permits and approvals, including but not limited to Connecticut Siting Council, building permits, zoning variances, zoning special exceptions, site plan and subdivision approvals, driveway, wetlands and terrain alteration permits, which are or may be necessary or required for New Cingular to construct, operate and maintain a wireless communications system (PCS System), and/or antenna site on the following property over which The Connecticut Light & Power Company (CL&P) has easement rights:

CL&P Structure #2837, AT&T CT2343 (FA #10152334)
525 Overland Drive
Orange, Connecticut

The foregoing authorization is given subject to the following conditions:

1. This authorization shall be nonexclusive. Nothing herein shall prevent or restrict CL&P from authorizing any other person or entity to apply for any similar licenses, permits or approvals to construct, operate and maintain any other communication system or facility of any type on the property at any time.

2. This authorization shall not obligate CL&P to pay for or reimburse any costs or expenses or to provide any assistance of any kind in connection with any applications, or bind or obligate CL&P to agree or be responsible for any on-site or off-site improvements, development restrictions, impact fees or assessments, capital improvement charges, bonds or other security, or any other fee, assessment, charge or expense imposed or required as a condition of any license, permit or approval. New Cingular shall be solely and fully responsible for all fees, charges costs and expenses of any kind in connection with any applications. CL&P agrees to reasonably cooperate with New Cingular in signing such applications or other similar documents as may be required in order for New Cingular to apply for any license, permit or approval.

3. This authorization shall not be deemed or construed to grant or transfer to New Cingular any interest in the property, whatsoever, and shall not in any respect obligate or require CL&P to sell, lease or license the Property to New Cingular or otherwise allow New Cingular to use or occupy the property for any purpose, regardless of whether any licenses, permits and approvals applied for by New Cingular for the property are granted. New

Cingular understands and acknowledges that any and all applications filed by New Cingular for the property at New Cingular's sole risk and without any enforceable expectation that the property will be made available for New Cingular's use.

4. New Cingular shall be required to supply to CL&P, free of charge and contemporaneous with New Cingular's filing of same, a complete copy of any and all applications, plans, reports and other public filings made by New Cingular with any local, municipal, state or federal governmental or regulatory officer, agency board, bureau, commission or other person or body for any licenses, permits or approvals for the property, and to keep CL&P fully informed on a regular basis of the status of New Cingualr's applications.

5. This authorization shall automatically expire six (6) months after the date of this letter, unless extended in writing by mutual agreement of CL&P and New Cingular.

Very truly yours,

Michael J. Green, Senior Real Estate Analyst
Transmission & Distribution ROW & Survey Engineering

AGREED TO ON BEHALF OF New Cingular Wireless PCS, LLC

By: Timothy M. Burke
Duly Authorized

Date: 3-30-2016

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

March 14, 2016

Mr. Tim Burks
AT&T Wireless.
500 Enterprise Drive
Rocky Hill, CT 06067

RE: AT&T Antenna Site, CT2343, 525 Overland Dr, Orange CT, structure 24063.

Dear Mr. Burks:

Based on our reviews of the site drawings, the structural analysis provided by Centek Engineering and, and the foundation analyses performed by Centek Engineering, we have reviewed for acceptance this modification

Since there are no outstanding structural or site related issues to resolve at this time, please contact Mr. Green (860-665-6933) to complete the lease amendment issues.

Sincerely,

Robert Gray
Transmission Line Engineering

ref: 15267.006 - CT2343 - LTE3C CD - Rev 1_16.03.11 (S&S).pdf
15267.006 - CT2343 Structural Analysis Rev1 16.02.23.pdf

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Pole

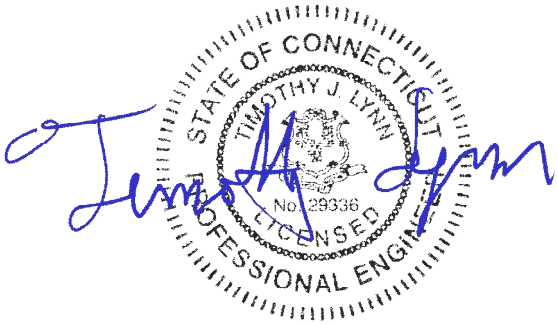
AT&T Site Ref: CT2343

Eversource Structure No. 24063
120' Electric Transmission Pole

525 Overland Drive
Orange, CT

CENTEK Project No. 15267.006

~~Date: February 4, 2016~~
Rev 1: February 23, 2016



Prepared for:
AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

Introduction

The purpose of this report is to analyze the existing mast and 120' utility pole located at 525 Overland Drive in Orange, CT for the proposed AT&T Mobility antenna upgrade.

The existing/proposed loads consist of the following:

- AT&T MOBILITY (Existing to Remain):
  Antennas: Six (6) Andrew SBNH-1D6565B panel antennas and six (6) CCI DTMABP7819VG12A TMA's mounted on T-Arms with a RAD center elevation of 130-ft above grade.
  Coax Cables: Eighteen (18) 1-5/8" ∅ coax cables running on the exterior of the pole as indicated in section 4 of this report.
  Mast: 12" Sch. 80 pipe (O.D. = 12.75") x 28-ft long conforming to ASTM A53 Gr. B (Fy = 35 ksi).
- AT&T MOBILITY (Existing to Remove):
  Antennas: Three (3) Andrew SBNH-1D6565B panel antennas and three (3) CCI DTMABP7819VG12A TMA's mounted on T-Arms with a RAD center elevation of 130-ft above grade.
- **AT&T (Proposed):**
  Antennas: Three (3) Quintel QS66512-3 panel antennas and six (6) Kaelus TMA2117F00V1-1 TMAs mounted on T-Arms with a RAD center elevation of 130-ft above grade.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the exterior of the CL&P pole as indicated in section 4 of this report.

Primary assumptions used in the analysis

- Allowable steel stresses are defined by AISC-ASD 9th edition for analysis of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 72, "Design of Steel Transmission Pole Structures Second Edition", 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.
- Pipe mast will be properly installed and maintained.
- 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.
- Pipe mast and utility pole will be in plumb condition.
- Utility pole was properly installed and maintained and all 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 existing *Mast* was independently completed using the current version of RISA-3D computer program licensed to CENTEK Engineering, Inc.

The existing mast consisting of a 12" Sch. 80 pipe conforming to ASTM A53 Gr. B (Fy = 35 ksi) connected at two points to the existing pole was analyzed for its ability to resist loads prescribed by the TIA/EIA standard. Section 5 of this report details these gravity and lateral wind loads. NESC prescribed loads were also applied to the mast in order to obtain reactions needed for analyzing the utility pole structure. These loads are developed in Section 7 of this report. Load cases and combinations used in RISA-3D for TIA/EIA loading and for NESC/NU loading are listed in report Sections 6 and 8, respectively.

An envelope solution was first made to determine maximum and minimum forces, stresses, and deflections to confirm the selected section as adequate. Additional analyses were then made to determine the NESC forces to be applied to the CL&P pole structure.

The RISA-3D program contains a library of all AISC shapes and corresponding section properties are computed and applied directly within the program. The program's Steel Code Check option was also utilized. The forces calculated in RISA-3D using NESC guidelines were then applied to the utility pole using PLS-Pole. Maximum usage for the pole was calculated considering the additional forces from the mast and associated appurtenances.

D e s i g n B a s i s

Our analysis was performed in accordance with TIA/EIA-222-F-1996, ASCE Manual No. 72 – "Design of Steel Transmission Pole Structures Second Edition", NESC C2-2007 and Northeast Utilities Design Criteria.

- 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 C2-2007 ~ Construction Grade B, and ASCE Manual No. 72.

  Load cases considered:

  Load Case 1: NESC Heavy
  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 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, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

- MAST ASSEMBLY ANALYSIS

  Mast, appurtenances and connections to the utility pole were analyzed and designed in accordance with the NU Design Criteria Table, TIA/EIA-222-F, and AISC-ASD standards.

  Load cases considered:

  Load Case 1:
  Wind Speed……... 85 mph [2]
  Radial Ice Thickness…..……. 0”

  Load Case 2:
  Wind Pressure..……. 75% of 85 mph wind pressure
  Radial Ice Thickness…..…….. 0.5”

  Note 2: Per NU Mast Design Criteria Exception 1.

R e s u l t s

- MAST ASSEMBLY

  The existing mast was determined to be structurally **adequate**.

Member	Stress Ratio (% of capacity)	Result
12” Sch. 80 pipe x 28-ft long	74.2% [1]	**PASS**
Bottom Bracket Bolts	95.0% [2]	**PASS**

Note 1 – 1/3 Increase in allowable stress used for mast.
Note 2 – 1/3 increase in allowable stress not used for mast connection.

- 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. 72, “Design of Steel Transmission Pole Structures Second Edition”, for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 9 of this report. The analysis results are summarized as follows:

  A maximum usage of **58.21%** 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 5	0’-22.75’ (AGL)	58.21%	**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	33.50%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of a 7.5-ft ∅ x 28-ft long reinforced concrete caisson. The base of the tower is connected to the foundation by means of (32) 2.25"∅, ASTM A615 Gr. 75 anchor bolts embedded approximately 8-ft into the concrete foundation structure. Foundation information was obtained from NUSCO drawing # 01229-60001.

BASE REACTIONS:

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

Load Case	Shear	Axial	Moment
NESC Heavy Wind	26.97 kips	136.01 kips	2520.93 ft-kips
NESC Extreme Wind	64.18 kips	79.10 kips	5863.11 ft-kips
NESC Extreme Ice w/ Wind	20.94 kips	111.77 kips	1989.98 ft-kips

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

ANCHOR BOLTS:

The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	53.4%	**PASS**

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Proposed Loading (1)	Result
Reinforced Concrete Caisson	Moment Capacity	58.5% (2)	**PASS**
	Lateral Deflection	1.28 in.(3) (4)	**PASS**

Note 1: 10% increase to PLS base reactions used in foundation analysis per OTRM 051.
Note 2: Lateral deflection limited to L/100 per OTRM 059 Rev 4 dated 2/01/10. (L/100 = 28*12/100=3.36-in)

Conclusion

This analysis shows that the subject utility pole **is adequate** to support the proposed AT&T equipment upgrade.

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

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 ~ RISA-3D

RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids
- Versatile general truss generator
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking
- Saved selections to quickly recall desired selections
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files
- Export DXF, SDNF and ProSteel 3D files

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis
- Physical member modeling that does not require members to be broken up at intermediate joints
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress and design
- Automatic Top of Member offset modeling
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements
- 1-Way members, for tension only bracing, slipping, etc.

- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape
- Inactive members, plates, and diaphragms allows you to quickly remove parts of structures from consideration
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamic scrolling stops right where you want
- Plot & print virtually everything with color coding & labeling
- Rotate, zoom, pan, scroll and snap views
- Saved views to quickly restore frequent or desired views
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete, hot rolled steel, cold formed steel and wood
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000,EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location
- Saved solutions quickly restore analysis and design results.

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

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ LPILE PLUS

LPILE Plus is a special purpose program based on rational procedures for analyzing a pile under lateral loading. The program computes deflection, shear, bending moment, and soil response with respect to depth in nonlinear soils. Components of the stiffness matrix at the pile head may be computed internally by the program to help the users in their super-structure analysis. Several pile lengths may be automatically checked by the program in order to help the user produce a design with an optimum pile penetration.

Soil behavior is modeled with p-y curves internally generated by the computer program following published recommendations for various types of soils; alternatively, the user can manually introduce other p-y curves. Special procedures are programmed for developing p-y curves for layered soils and for rocks.

Several types of pile-head boundary conditions may be selected, and the properties of the pile can also vary as a function of depth. LPILE Plus has capabilities to compute the ultimate-moment capacity of a pile's section and can provide design information for rebar arrangement. The user may optionally ask the program to generate and take into account nonlinear values of flexural stiffness (EI) which are generated internally based on specified pile dimensions, material properties, and cracked/uncracked concrete behavior.

A single, user-friendly interface written for the Microsoft Windows© environment is provided for the preparation of input, analytical run, and for the graphical observation of data contained in the output file. The program has been written in 32-bit programming codes for compatibility with the latest versions of the Microsoft Windows operating system. The program produces plain-text input and output files that may be observed and/or edited for their inclusion in project reports.

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/EIA-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 C2-2007 (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.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA/EIA Standard 222 with two exceptions:

1. An 85 mph extreme wind speed shall be used for locations in all counties throughout the NU system.
2. The allowable stress increase of TIA Section 3.1.1.1 is allowed for mast section, but is disallowed for the mast to CL&P structure connection.
3. The combined wind and ice condition shall consider ½" radial ice in combination with the wind load (0.75 Wi) as specified in TIA section 2.3.16.

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.

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 (.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	1.00	1.00	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole (on two faces)	-----	4	1.00	1.00	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
High Wind Condtion	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	Use NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading 1.25 x Gust Response Factor Height above ground level based on top of Mast/Antenna					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading Height above ground level based on top of Tower/Pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
NESC Extreme Ice with Wind Conditon*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250D: Extreme Ice with Wind Loading 4PSF Wind Load 1.25 x Gust Response Factor Height above ground level based on top of Mast/Antenna					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250D: Extreme Ice with Wind Loading 4PSF Wind Load Height above ground level based on top of Tower/Pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
		* Only for Structures Installed after 2007						

Shape Factor Criteria shall be per TIA Shape Factors.

2) STEP 2 - The electric transmission structure analysis and evaluation shall be performed in accordance with NESC requirements and shall include the mast and antenna loads determined from NESC applied loading conditions (not TIA/EIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "NU 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 NU).

c) Electric Transmission Structure

i) The loads from the wireless communication equipment components based on NESC and NU 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

iii) When Coaxial Cables are mounted along side 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	1.3

d) The uniform loadings and factors specified for the above components in Attachment A, "NU 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 NU will provide these loads).

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

PLS-CADD Version 11.16x64 10:25:52 AM Wednesday, September 28, 2011
Northeast Utilities System
Project Name: 'c:\cps\pls-cadd\prj-dev\xyz files\peaserd_eastdevon_final_pls.DON'
Line Title: '345-kV/115-kV 3827, 1640, 1685, 1776, 1497, & 1350'

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

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 %
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 TOWER			
13	24	Tower High Wind	All TOWER			
14	1	Broken SW NA+	Non-DeadEnd TOWER	1:1:Ahead # Broken Subconductors		1
15	1	Broken SW NA-	Non-DeadEnd TOWER	1:1:Ahead # Broken Subconductors		1
16	1	Cond SW NA+	Non-DeadEnd TOWER	2:1:Ahead # Broken Subconductors		1
17	1	Cond SW NA-	Non-DeadEnd TOWER	2:1:Ahead # Broken Subconductors		1
18	1	Deadend Tower NA	DeadEnd TOWER	Ahead Spans # Broken Subconductors		1
19	1	Deadend Tower NA	DeadEnd TOWER	Ahead Spans # Broken Subconductors		1
20	25	UI Havey Ice Tow	All TOWER			
21	25	UI Havey Ice Tow	All TOWER			

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 147.8322 (deg) measured clockwise from North.

Str. No.	Str. Name	LC #	WC #	Load Case Description	Set No.	Phase No.	Attach. Joint Labels	Back span Cable Name	Len. (ft)	Azi. (deg)	Horiz. Load (lbs/ft)	Vert. Load (lbs/ft)	Horiz. Tension (lbs)	Ahead span Cable Name	Len. (ft)	Azi. (deg)	Horiz. Load (lbs/ft)	Vert. Load (lbs/ft)	Horiz. Tension (lbs)
24063	33-cdcsp-01-uwx.120	1	1	NESC Heavy NA+	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.35	1.70	10156	brugg_86ay62acs-2c_345_tight.wir	708	270	1.35	1.70	10155
24063	33-cdcsp-01-uwx.120	1	1		2	1	X1	lapwing_tight.wir	459	90	2.09	4.56	45159	lapwing_tight.wir	708	270	2.09	4.56	45156
24063	33-cdcsp-01-uwx.120	1	1		3	1	Y1	lapwing_tight.wir	459	90	2.09	4.56	45159	lapwing_tight.wir	708	270	2.09	4.56	45156
24063	33-cdcsp-01-uwx.120	1	1		4	1	Z1	lapwing_tight.wir	459	90	2.09	4.56	45159	lapwing_tight.wir	708	270	2.09	4.56	45156
24063	33-cdcsp-01-uwx.120	1	1		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.26	1.61	9773	19#10_alumoweld_tight.wir	708	270	1.26	1.61	9772
24063	33-cdcsp-01-uwx.120	1	1		6	1	X2	lapwing_tight.wir	459	90	2.09	4.56	45168	lapwing_tight.wir	708	270	2.09	4.56	45166
24063	33-cdcsp-01-uwx.120	1	1		7	1	Y2	lapwing_tight.wir	459	90	2.09	4.56	45168	lapwing_tight.wir	708	270	2.09	4.56	45166
24063	33-cdcsp-01-uwx.120	1	1		8	1	Z2	lapwing_tight.wir	459	90	2.09	4.56	45168	lapwing_tight.wir	708	270	2.09	4.56	45166
24063	33-cdcsp-01-uwx.120	2	1	NESC Heavy NA-	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.35	1.70	10156	brugg_86ay62acs-2c_345_tight.wir	708	270	1.35	1.70	10155
24063	33-cdcsp-01-uwx.120	2	1		2	1	X1	lapwing_tight.wir	459	90	2.09	4.56	45159	lapwing_tight.wir	708	270	2.09	4.56	45156
24063	33-cdcsp-01-uwx.120	2	1		3	1	Y1	lapwing_tight.wir	459	90	2.09	4.56	45159	lapwing_tight.wir	708	270	2.09	4.56	45156
24063	33-cdcsp-01-uwx.120	2	1		4	1	Z1	lapwing_tight.wir	459	90	2.09	4.56	45159	lapwing_tight.wir	708	270	2.09	4.56	45156
24063	33-cdcsp-01-uwx.120	2	1		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.26	1.61	9773	19#10_alumoweld_tight.wir	708	270	1.26	1.61	9772
24063	33-cdcsp-01-uwx.120	2	1		6	1	X2	lapwing_tight.wir	459	90	2.09	4.56	45168	lapwing_tight.wir	708	270	2.09	4.56	45166
24063	33-cdcsp-01-uwx.120	2	1		7	1	Y2	lapwing_tight.wir	459	90	2.09	4.56	45168	lapwing_tight.wir	708	270	2.09	4.56	45166
24063	33-cdcsp-01-uwx.120	2	1		8	1	Z2	lapwing_tight.wir	459	90	2.09	4.56	45168	lapwing_tight.wir	708	270	2.09	4.56	45166
24063	33-cdcsp-01-uwx.120	3	1	NESC Uplift NA+	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.35	1.13	10156	brugg_86ay62acs-2c_345_tight.wir	708	270	1.35	1.13	10155
24063	33-cdcsp-01-uwx.120	3	1		2	1	X1	lapwing_tight.wir	459	90	2.09	3.04	45159	lapwing_tight.wir	708	270	2.09	3.04	45156
24063	33-cdcsp-01-uwx.120	3	1		3	1	Y1	lapwing_tight.wir	459	90	2.09	3.04	45159	lapwing_tight.wir	708	270	2.09	3.04	45156
24063	33-cdcsp-01-uwx.120	3	1		4	1	Z1	lapwing_tight.wir	459	90	2.09	3.04	45159	lapwing_tight.wir	708	270	2.09	3.04	45156
24063	33-cdcsp-01-uwx.120	3	1		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.26	1.08	9773	19#10_alumoweld_tight.wir	708	270	1.26	1.08	9772
24063	33-cdcsp-01-uwx.120	3	1		6	1	X2	lapwing_tight.wir	459	90	2.09	3.04	45168	lapwing_tight.wir	708	270	2.09	3.04	45166
24063	33-cdcsp-01-uwx.120	3	1		7	1	Y2	lapwing_tight.wir	459	90	2.09	3.04	45168	lapwing_tight.wir	708	270	2.09	3.04	45166
24063	33-cdcsp-01-uwx.120	3	1		8	1	Z2	lapwing_tight.wir	459	90	2.09	3.04	45168	lapwing_tight.wir	708	270	2.09	3.04	45166
24063	33-cdcsp-01-uwx.120	4	1	NESC Uplift NA-	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.35	1.13	10156	brugg_86ay62acs-2c_345_tight.wir	708	270	1.35	1.13	10155
24063	33-cdcsp-01-uwx.120	4	1		2	1	X1	lapwing_tight.wir	459	90	2.09	3.04	45159	lapwing_tight.wir	708	270	2.09	3.04	45156
24063	33-cdcsp-01-uwx.120	4	1		3	1	Y1	lapwing_tight.wir	459	90	2.09	3.04	45159	lapwing_tight.wir	708	270	2.09	3.04	45156
24063	33-cdcsp-01-uwx.120	4	1		4	1	Z1	lapwing_tight.wir	459	90	2.09	3.04	45159	lapwing_tight.wir	708	270	2.09	3.04	45156
24063	33-cdcsp-01-uwx.120	4	1		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.26	1.08	9773	19#10_alumoweld_tight.wir	708	270	1.26	1.08	9772
24063	33-cdcsp-01-uwx.120	4	1		6	1	X2	lapwing_tight.wir	459	90	2.09	3.04	45168	lapwing_tight.wir	708	270	2.09	3.04	45166
24063	33-cdcsp-01-uwx.120	4	1		7	1	Y2	lapwing_tight.wir	459	90	2.09	3.04	45168	lapwing_tight.wir	708	270	2.09	3.04	45166
24063	33-cdcsp-01-uwx.120	4	1		8	1	Z2	lapwing_tight.wir	459	90	2.09	3.04	45168	lapwing_tight.wir	708	270	2.09	3.04	45166

24063	33-cdcsp-01-uwx.120	5	4	NESC Ext Wind NA	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.83	0.48	6344	brugg_86ay62acs-2c_345_tight.wir	708	270	1.83	0.48	6339
24063	33-cdcsp-01-uwx.120	5	4		2	1	X1	lapwing_tight.wir	459	90	4.43	1.97	30015	lapwing_tight.wir	708	270	4.43	1.97	29995
24063	33-cdcsp-01-uwx.120	5	4		3	1	Y1	lapwing_tight.wir	459	90	4.43	1.97	30015	lapwing_tight.wir	708	270	4.43	1.97	29995
24063	33-cdcsp-01-uwx.120	5	4		4	1	Z1	lapwing_tight.wir	459	90	4.43	1.97	30015	lapwing_tight.wir	708	270	4.43	1.97	29995
24063	33-cdcsp-01-uwx.120	5	4		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.50	0.49	5716	19#10_alumoweld_tight.wir	708	270	1.50	0.49	5712
24063	33-cdcsp-01-uwx.120	5	4		6	1	X2	lapwing_tight.wir	459	90	4.43	1.97	30065	lapwing_tight.wir	708	270	4.43	1.97	30044
24063	33-cdcsp-01-uwx.120	5	4		7	1	Y2	lapwing_tight.wir	459	90	4.43	1.97	30065	lapwing_tight.wir	708	270	4.43	1.97	30044
24063	33-cdcsp-01-uwx.120	5	4		8	1	Z2	lapwing_tight.wir	459	90	4.43	1.97	30065	lapwing_tight.wir	708	270	4.43	1.97	30044
24063	33-cdcsp-01-uwx.120	6	4	NESC Ext Wind NA	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.83	0.48	6344	brugg_86ay62acs-2c_345_tight.wir	708	270	1.83	0.48	6339
24063	33-cdcsp-01-uwx.120	6	4		2	1	X1	lapwing_tight.wir	459	90	4.43	1.97	30015	lapwing_tight.wir	708	270	4.43	1.97	29995
24063	33-cdcsp-01-uwx.120	6	4		3	1	Y1	lapwing_tight.wir	459	90	4.43	1.97	30015	lapwing_tight.wir	708	270	4.43	1.97	29995
24063	33-cdcsp-01-uwx.120	6	4		4	1	Z1	lapwing_tight.wir	459	90	4.43	1.97	30015	lapwing_tight.wir	708	270	4.43	1.97	29995
24063	33-cdcsp-01-uwx.120	6	4		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.50	0.49	5716	19#10_alumoweld_tight.wir	708	270	1.50	0.49	5712
24063	33-cdcsp-01-uwx.120	6	4		6	1	X2	lapwing_tight.wir	459	90	4.43	1.97	30065	lapwing_tight.wir	708	270	4.43	1.97	30044
24063	33-cdcsp-01-uwx.120	6	4		7	1	Y2	lapwing_tight.wir	459	90	4.43	1.97	30065	lapwing_tight.wir	708	270	4.43	1.97	30044
24063	33-cdcsp-01-uwx.120	6	4		8	1	Z2	lapwing_tight.wir	459	90	4.43	1.97	30065	lapwing_tight.wir	708	270	4.43	1.97	30044
24063	33-cdcsp-01-uwx.120	7	1	NESC Ins NA+	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	0.54	1.13	6155	brugg_86ay62acs-2c_345_tight.wir	708	270	0.54	1.13	6154
24063	33-cdcsp-01-uwx.120	7	1		2	1	X1	lapwing_tight.wir	459	90	0.83	3.04	27369	lapwing_tight.wir	708	270	0.83	3.04	27367
24063	33-cdcsp-01-uwx.120	7	1		3	1	Y1	lapwing_tight.wir	459	90	0.83	3.04	27369	lapwing_tight.wir	708	270	0.83	3.04	27367
24063	33-cdcsp-01-uwx.120	7	1		4	1	Z1	lapwing_tight.wir	459	90	0.83	3.04	27369	lapwing_tight.wir	708	270	0.83	3.04	27367
24063	33-cdcsp-01-uwx.120	7	1		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	0.50	1.08	5923	19#10_alumoweld_tight.wir	708	270	0.50	1.08	5922
24063	33-cdcsp-01-uwx.120	7	1		6	1	X2	lapwing_tight.wir	459	90	0.83	3.04	27375	lapwing_tight.wir	708	270	0.83	3.04	27373
24063	33-cdcsp-01-uwx.120	7	1		7	1	Y2	lapwing_tight.wir	459	90	0.83	3.04	27375	lapwing_tight.wir	708	270	0.83	3.04	27373
24063	33-cdcsp-01-uwx.120	7	1		8	1	Z2	lapwing_tight.wir	459	90	0.83	3.04	27375	lapwing_tight.wir	708	270	0.83	3.04	27373
24063	33-cdcsp-01-uwx.120	8	1	NESC Ins NA-	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	0.54	1.13	6155	brugg_86ay62acs-2c_345_tight.wir	708	270	0.54	1.13	6154
24063	33-cdcsp-01-uwx.120	8	1		2	1	X1	lapwing_tight.wir	459	90	0.83	3.04	27369	lapwing_tight.wir	708	270	0.83	3.04	27367
24063	33-cdcsp-01-uwx.120	8	1		3	1	Y1	lapwing_tight.wir	459	90	0.83	3.04	27369	lapwing_tight.wir	708	270	0.83	3.04	27367
24063	33-cdcsp-01-uwx.120	8	1		4	1	Z1	lapwing_tight.wir	459	90	0.83	3.04	27369	lapwing_tight.wir	708	270	0.83	3.04	27367
24063	33-cdcsp-01-uwx.120	8	1		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	0.50	1.08	5923	19#10_alumoweld_tight.wir	708	270	0.50	1.08	5922
24063	33-cdcsp-01-uwx.120	8	1		6	1	X2	lapwing_tight.wir	459	90	0.83	3.04	27375	lapwing_tight.wir	708	270	0.83	3.04	27373
24063	33-cdcsp-01-uwx.120	8	1		7	1	Y2	lapwing_tight.wir	459	90	0.83	3.04	27375	lapwing_tight.wir	708	270	0.83	3.04	27373
24063	33-cdcsp-01-uwx.120	8	1		8	1	Z2	lapwing_tight.wir	459	90	0.83	3.04	27375	lapwing_tight.wir	708	270	0.83	3.04	27373
24063	33-cdcsp-01-uwx.120	9	5	ASCE Ice/Wind NA	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.24	1.89	7462	brugg_86ay62acs-2c_345_tight.wir	708	270	1.24	1.89	7461
24063	33-cdcsp-01-uwx.120	9	5		2	1	X1	lapwing_tight.wir	459	90	1.76	4.28	31255	lapwing_tight.wir	708	270	1.76	4.28	31251
24063	33-cdcsp-01-uwx.120	9	5		3	1	Y1	lapwing_tight.wir	459	90	1.76	4.28	31255	lapwing_tight.wir	708	270	1.76	4.28	31251
24063	33-cdcsp-01-uwx.120	9	5		4	1	Z1	lapwing_tight.wir	459	90	1.76	4.28	31255	lapwing_tight.wir	708	270	1.76	4.28	31251
24063	33-cdcsp-01-uwx.120	9	5		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.18	1.79	7236	19#10_alumoweld_tight.wir	708	270	1.18	1.79	7234
24063	33-cdcsp-01-uwx.120	9	5		6	1	X2	lapwing_tight.wir	459	90	1.76	4.28	31304	lapwing_tight.wir	708	270	1.76	4.28	31301
24063	33-cdcsp-01-uwx.120	9	5		7	1	Y2	lapwing_tight.wir	459	90	1.76	4.28	31304	lapwing_tight.wir	708	270	1.76	4.28	31301
24063	33-cdcsp-01-uwx.120	9	5		8	1	Z2	lapwing_tight.wir	459	90	1.76	4.28	31304	lapwing_tight.wir	708	270	1.76	4.28	31301
24063	33-cdcsp-01-uwx.120	10	5	ASCE Ice/Wind NA	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	1.24	1.89	7462	brugg_86ay62acs-2c_345_tight.wir	708	270	1.24	1.89	7461
24063	33-cdcsp-01-uwx.120	10	5		2	1	X1	lapwing_tight.wir	459	90	1.76	4.28	31255	lapwing_tight.wir	708	270	1.76	4.28	31251
24063	33-cdcsp-01-uwx.120	10	5		3	1	Y1	lapwing_tight.wir	459	90	1.76	4.28	31255	lapwing_tight.wir	708	270	1.76	4.28	31251
24063	33-cdcsp-01-uwx.120	10	5		4	1	Z1	lapwing_tight.wir	459	90	1.76	4.28	31255	lapwing_tight.wir	708	270	1.76	4.28	31251
24063	33-cdcsp-01-uwx.120	10	5		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	1.18	1.79	7236	19#10_alumoweld_tight.wir	708	270	1.18	1.79	7234
24063	33-cdcsp-01-uwx.120	10	5		6	1	X2	lapwing_tight.wir	459	90	1.76	4.28	31304	lapwing_tight.wir	708	270	1.76	4.28	31301
24063	33-cdcsp-01-uwx.120	10	5		7	1	Y2	lapwing_tight.wir	459	90	1.76	4.28	31304	lapwing_tight.wir	708	270	1.76	4.28	31301
24063	33-cdcsp-01-uwx.120	10	5		8	1	Z2	lapwing_tight.wir	459	90	1.76	4.28	31304	lapwing_tight.wir	708	270	1.76	4.28	31301
24063	33-cdcsp-01-uwx.120	11	18	NU Ice	1	1	TL:SW	brugg_86ay62acs-2c_345_tight.wir	459	90	0.00	2.70	8737	brugg_86ay62acs-2c_345_tight.wir	708	270	0.00	2.70	8737
24063	33-cdcsp-01-uwx.120	11	18		2	1	X1	lapwing_tight.wir	459	90	0.00	5.40	38032	lapwing_tight.wir	708	270	0.00	5.40	38032
24063	33-cdcsp-01-uwx.120	11	18		3	1	Y1	lapwing_tight.wir	459	90	0.00	5.40	38032	lapwing_tight.wir	708	270	0.00	5.40	38032
24063	33-cdcsp-01-uwx.120	11	18		4	1	Z1	lapwing_tight.wir	459	90	0.00	5.40	38032	lapwing_tight.wir	708	270	0.00	5.40	38032
24063	33-cdcsp-01-uwx.120	11	18		5	1	TR:SW	19#10_alumoweld_tight.wir	459	90	0.00	2.56	8429	19#10_alumoweld_tight.wir	708	270	0.00	2.56	8429
24063	33-cdcsp-01-uwx.120	11	18		6	1	X2	lapwing_tight.wir	459	90	0.00	5.40	38081	lapwing_tight.wir	708	270	0.00	5.40	38081
24063	33-cdcsp-01-uwx.120	11	18		7	1	Y2	lapwing_tight.wir	459	90	0.00	5.40	38081	lapwing_tight.wir	708	270	0.00	5.40	38081
24063	33-cdcsp-01-uwx.120	11	18		8	1	Z2	lapwing_tight.wir	459	90	0.00	5.40	38081	lapwing_tight.wir	708	270	0.00	5.40	38081

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-- Vert. (lbs)	Trans. (lbs)	Long. (lbs)	-Loads from ahead span- Vert. (lbs)	Trans. (lbs)	Long. (lbs)	Warnings
24063	33-cdcsp-01-uwx.120	1	1	NESC Heavy NA+	1	1	TL:SW	582	310	10156	962	480	10155	
24063	33-cdcsp-01-uwx.120	1	1		2	1	X1	3061	960	45159	5041	1483	45156	
24063	33-cdcsp-01-uwx.120	1	1		3	1	Y1	3061	960	45159	5041	1483	45156	
24063	33-cdcsp-01-uwx.120	1	1		4	1	Z1	3061	960	45159	5041	1483	45156	
24063	33-cdcsp-01-uwx.120	1	1		5	1	TR:SW	554	289	9773	915	447	9772	
24063	33-cdcsp-01-uwx.120	1	1		6	1	X2	3061	960	45168	5041	1483	45166	
24063	33-cdcsp-01-uwx.120	1	1		7	1	Y2	3061	960	45168	5041	1483	45166	
24063	33-cdcsp-01-uwx.120	1	1		8	1	Z2	3061	960	45168	5041	1483	45166	
24063	33-cdcsp-01-uwx.120	2	1	NESC Heavy NA-	1	1	TL:SW	582	-310	10156	962	-480	10155	
24063	33-cdcsp-01-uwx.120	2	1		2	1	X1	3061	-960	45159	5041	-1483	45156	
24063	33-cdcsp-01-uwx.120	2	1		3	1	Y1	3061	-960	45159	5041	-1483	45156	
24063	33-cdcsp-01-uwx.120	2	1		4	1	Z1	3061	-960	45159	5041	-1483	45156	
24063	33-cdcsp-01-uwx.120	2	1		5	1	TR:SW	554	-289	9773	915	-447	9772	
24063	33-cdcsp-01-uwx.120	2	1		6	1	X2	3061	-960	45168	5041	-1483	45166	
24063	33-cdcsp-01-uwx.120	2	1		7	1	Y2	3061	-960	45168	5041	-1483	45166	
24063	33-cdcsp-01-uwx.120	2	1		8	1	Z2	3061	-960	45168	5041	-1483	45166	
24063	33-cdcsp-01-uwx.120	3	1	NESC Uplift NA+	1	1	TL:SW	388	310	10156	641	480	10155	
24063	33-cdcsp-01-uwx.120	3	1		2	1	X1	2040	960	45159	3361	1483	45156	
24063	33-cdcsp-01-uwx.120	3	1		3	1	Y1	2040	960	45159	3361	1483	45156	
24063	33-cdcsp-01-uwx.120	3	1		4	1	Z1	2040	960	45159	3361	1483	45156	
24063	33-cdcsp-01-uwx.120	3	1		5	1	TR:SW	369	289	9773	610	447	9772	

24063	33-cdcsp-01-uwx.120	3	1		6	1	X2	2040	960	45168	3361	1483	45166
24063	33-cdcsp-01-uwx.120	3	1		7	1	Y2	2040	960	45168	3361	1483	45166
24063	33-cdcsp-01-uwx.120	3	1		8	1	Z2	2040	960	45168	3361	1483	45166
24063	33-cdcsp-01-uwx.120	4	1	NESC Uplift NA-	1	1	TL:SW	388	-310	10156	641	-480	10155
24063	33-cdcsp-01-uwx.120	4	1		2	1	X1	2040	-960	45159	3361	-1483	45156
24063	33-cdcsp-01-uwx.120	4	1		3	1	Y1	2040	-960	45159	3361	-1483	45156
24063	33-cdcsp-01-uwx.120	4	1		4	1	Z1	2040	-960	45159	3361	-1483	45156
24063	33-cdcsp-01-uwx.120	4	1		5	1	TR:SW	369	-289	9773	610	-447	9772
24063	33-cdcsp-01-uwx.120	4	1		6	1	X2	2040	-960	45168	3361	-1483	45166
24063	33-cdcsp-01-uwx.120	4	1		7	1	Y2	2040	-960	45168	3361	-1483	45166
24063	33-cdcsp-01-uwx.120	4	1		8	1	Z2	2040	-960	45168	3361	-1483	45166
24063	33-cdcsp-01-uwx.120	5	4	NESC Ext Wind NA	1	1	TL:SW	274	420	6344	475	648	6339
24063	33-cdcsp-01-uwx.120	5	4		2	1	X1	1679	2036	30015	2843	3148	29995
24063	33-cdcsp-01-uwx.120	5	4		3	1	Y1	1679	2036	30015	2843	3148	29995
24063	33-cdcsp-01-uwx.120	5	4		4	1	Z1	1679	2036	30015	2843	3148	29995
24063	33-cdcsp-01-uwx.120	5	4		5	1	TR:SW	261	344	5716	450	532	5712
24063	33-cdcsp-01-uwx.120	5	4		6	1	X2	1680	2036	30065	2846	3148	30044
24063	33-cdcsp-01-uwx.120	5	4		7	1	Y2	1680	2036	30065	2846	3148	30044
24063	33-cdcsp-01-uwx.120	5	4		8	1	Z2	1680	2036	30065	2846	3148	30044
24063	33-cdcsp-01-uwx.120	6	4	NESC Ext Wind NA	1	1	TL:SW	274	-420	6344	475	-648	6339
24063	33-cdcsp-01-uwx.120	6	4		2	1	X1	1679	-2036	30015	2843	-3148	29995
24063	33-cdcsp-01-uwx.120	6	4		3	1	Y1	1679	-2036	30015	2843	-3148	29995
24063	33-cdcsp-01-uwx.120	6	4		4	1	Z1	1679	-2036	30015	2843	-3148	29995
24063	33-cdcsp-01-uwx.120	6	4		5	1	TR:SW	261	-344	5716	450	-532	5712
24063	33-cdcsp-01-uwx.120	6	4		6	1	X2	1680	-2036	30065	2846	-3148	30044
24063	33-cdcsp-01-uwx.120	6	4		7	1	Y2	1680	-2036	30065	2846	-3148	30044
24063	33-cdcsp-01-uwx.120	6	4		8	1	Z2	1680	-2036	30065	2846	-3148	30044
24063	33-cdcsp-01-uwx.120	7	1	NESC Ins NA+	1	1	TL:SW	388	124	6155	641	192	6154
24063	33-cdcsp-01-uwx.120	7	1		2	1	X1	2040	384	27369	3361	593	27367
24063	33-cdcsp-01-uwx.120	7	1		3	1	Y1	2040	384	27369	3361	593	27367
24063	33-cdcsp-01-uwx.120	7	1		4	1	Z1	2040	384	27369	3361	593	27367
24063	33-cdcsp-01-uwx.120	7	1		5	1	TR:SW	369	116	5923	610	179	5922
24063	33-cdcsp-01-uwx.120	7	1		6	1	X2	2040	384	27375	3361	593	27373
24063	33-cdcsp-01-uwx.120	7	1		7	1	Y2	2040	384	27375	3361	593	27373
24063	33-cdcsp-01-uwx.120	7	1		8	1	Z2	2040	384	27375	3361	593	27373
24063	33-cdcsp-01-uwx.120	8	1	NESC Ins NA-	1	1	TL:SW	388	-124	6155	641	-192	6154
24063	33-cdcsp-01-uwx.120	8	1		2	1	X1	2040	-384	27369	3361	-593	27367
24063	33-cdcsp-01-uwx.120	8	1		3	1	Y1	2040	-384	27369	3361	-593	27367
24063	33-cdcsp-01-uwx.120	8	1		4	1	Z1	2040	-384	27369	3361	-593	27367
24063	33-cdcsp-01-uwx.120	8	1		5	1	TR:SW	369	-116	5923	610	-179	5922
24063	33-cdcsp-01-uwx.120	8	1		6	1	X2	2040	-384	27375	3361	-593	27373
24063	33-cdcsp-01-uwx.120	8	1		7	1	Y2	2040	-384	27375	3361	-593	27373
24063	33-cdcsp-01-uwx.120	8	1		8	1	Z2	2040	-384	27375	3361	-593	27373
24063	33-cdcsp-01-uwx.120	9	5	ASCE Ice/Wind NA	1	1	TL:SW	626	286	7462	1029	442	7461
24063	33-cdcsp-01-uwx.120	9	5		2	1	X1	2775	811	31255	4549	1254	31251
24063	33-cdcsp-01-uwx.120	9	5		3	1	Y1	2775	811	31255	4549	1254	31251
24063	33-cdcsp-01-uwx.120	9	5		4	1	Z1	2775	811	31255	4549	1254	31251
24063	33-cdcsp-01-uwx.120	9	5		5	1	TR:SW	597	271	7236	983	419	7234
24063	33-cdcsp-01-uwx.120	9	5		6	1	X2	2776	811	31304	4552	1254	31301
24063	33-cdcsp-01-uwx.120	9	5		7	1	Y2	2776	811	31304	4552	1254	31301
24063	33-cdcsp-01-uwx.120	9	5		8	1	Z2	2776	811	31304	4552	1254	31301
24063	33-cdcsp-01-uwx.120	10	5	ASCE Ice/Wind NA	1	1	TL:SW	626	-286	7462	1029	-442	7461
24063	33-cdcsp-01-uwx.120	10	5		2	1	X1	2775	-811	31255	4549	-1254	31251
24063	33-cdcsp-01-uwx.120	10	5		3	1	Y1	2775	-811	31255	4549	-1254	31251
24063	33-cdcsp-01-uwx.120	10	5		4	1	Z1	2775	-811	31255	4549	-1254	31251
24063	33-cdcsp-01-uwx.120	10	5		5	1	TR:SW	597	-271	7236	983	-419	7234
24063	33-cdcsp-01-uwx.120	10	5		6	1	X2	2776	-811	31304	4552	-1254	31301
24063	33-cdcsp-01-uwx.120	10	5		7	1	Y2	2776	-811	31304	4552	-1254	31301
24063	33-cdcsp-01-uwx.120	10	5		8	1	Z2	2776	-811	31304	4552	-1254	31301
24063	33-cdcsp-01-uwx.120	11	18	NU Ice	1	1	TL:SW	845	0	8737	1379	0	8737
24063	33-cdcsp-01-uwx.120	11	18		2	1	X1	3461	0	38032	5666	0	38032
24063	33-cdcsp-01-uwx.120	11	18		3	1	Y1	3461	0	38032	5666	0	38032
24063	33-cdcsp-01-uwx.120	11	18		4	1	Z1	3461	0	38032	5666	0	38032
24063	33-cdcsp-01-uwx.120	11	18		5	1	TR:SW	805	0	8429	1315	0	8429
24063	33-cdcsp-01-uwx.120	11	18		6	1	X2	3462	0	38081	5669	0	38081
24063	33-cdcsp-01-uwx.120	11	18		7	1	Y2	3462	0	38081	5669	0	38081
24063	33-cdcsp-01-uwx.120	11	18		8	1	Z2	3462	0	38081	5669	0	38081

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 Labels	Structure Loads Vert. (lbs)	Structure Loads Trans. (lbs)	Structure Loads Long. (lbs)	Loads from back span- Vert. (lbs)	Loads from back span- Trans. (lbs)	Loads from back span- Long. (lbs)	Loads from ahead span- Vert. (lbs)	Loads from ahead span- Trans. (lbs)	Loads from ahead span- Long. (lbs)	Warnings
24063	33-cdcsp-01-uwx.120	1	1	NESC Heavy NA+	1	1	TL:SW	1544	790	2	582	310	10156	962	480	-10155	
24063	33-cdcsp-01-uwx.120	1	1		2	1	X1	8477	2443	3	3248	960	45159	5229	1483	-45156	
24063	33-cdcsp-01-uwx.120	1	1		3	1	Y1	8477	2443	3	3248	960	45159	5229	1483	-45156	
24063	33-cdcsp-01-uwx.120	1	1		4	1	Z1	8477	2443	3	3248	960	45159	5229	1483	-45156	
24063	33-cdcsp-01-uwx.120	1	1		5	1	TR:SW	1468	736	1	554	289	9773	915	447	-9772	
24063	33-cdcsp-01-uwx.120	1	1		6	1	X2	8477	2443	3	3248	960	45168	5229	1483	-45166	
24063	33-cdcsp-01-uwx.120	1	1		7	1	Y2	8477	2443	3	3248	960	45168	5229	1483	-45166	
24063	33-cdcsp-01-uwx.120	1	1		8	1	Z2	8477	2443	3	3248	960	45168	5229	1483	-45166	
24063	33-cdcsp-01-uwx.120	2	1	NESC Heavy NA-	1	1	TL:SW	1544	-790	2	582	-310	10156	962	-480	-10155	
24063	33-cdcsp-01-uwx.120	2	1		2	1	X1	8477	-2443	3	3248	-960	45159	5229	-1483	-45156	
24063	33-cdcsp-01-uwx.120	2	1		3	1	Y1	8477	-2443	3	3248	-960	45159	5229	-1483	-45156	

24063	33-cdcsp-01-uwx.120	2	1		4	1	Z1	8477	-2443	3	3248	-960	45159	5229	-1483	-45156
24063	33-cdcsp-01-uwx.120	2	1		5	1	TR:SW	1468	-736	1	554	-289	9773	915	-447	-9772
24063	33-cdcsp-01-uwx.120	2	1		6	1	X2	8477	-2443	3	3248	-960	45168	5229	-1483	-45166
24063	33-cdcsp-01-uwx.120	2	1		7	1	Y2	8477	-2443	3	3248	-960	45168	5229	-1483	-45166
24063	33-cdcsp-01-uwx.120	2	1		8	1	Z2	8477	-2443	3	3248	-960	45168	5229	-1483	-45166
24063	33-cdcsp-01-uwx.120	3	1	NESC Uplift NA+	1	1	TL:SW	1029	790	2	388	310	10156	641	480	-10155
24063	33-cdcsp-01-uwx.120	3	1		2	1	X1	5651	2443	3	2165	960	45159	3486	1483	-45156
24063	33-cdcsp-01-uwx.120	3	1		3	1	Y1	5651	2443	3	2165	960	45159	3486	1483	-45156
24063	33-cdcsp-01-uwx.120	3	1		4	1	Z1	5651	2443	3	2165	960	45159	3486	1483	-45156
24063	33-cdcsp-01-uwx.120	3	1		5	1	TR:SW	979	736	1	369	289	9773	610	447	-9772
24063	33-cdcsp-01-uwx.120	3	1		6	1	X2	5651	2443	3	2165	960	45168	3486	1483	-45166
24063	33-cdcsp-01-uwx.120	3	1		7	1	Y2	5651	2443	3	2165	960	45168	3486	1483	-45166
24063	33-cdcsp-01-uwx.120	3	1		8	1	Z2	5651	2443	3	2165	960	45168	3486	1483	-45166
24063	33-cdcsp-01-uwx.120	4	1	NESC Uplift NA-	1	1	TL:SW	1029	-790	2	388	-310	10156	641	-480	-10155
24063	33-cdcsp-01-uwx.120	4	1		2	1	X1	5651	-2443	3	2165	-960	45159	3486	-1483	-45156
24063	33-cdcsp-01-uwx.120	4	1		3	1	Y1	5651	-2443	3	2165	-960	45159	3486	-1483	-45156
24063	33-cdcsp-01-uwx.120	4	1		4	1	Z1	5651	-2443	3	2165	-960	45159	3486	-1483	-45156
24063	33-cdcsp-01-uwx.120	4	1		5	1	TR:SW	979	-736	1	369	-289	9773	610	-447	-9772
24063	33-cdcsp-01-uwx.120	4	1		6	1	X2	5651	-2443	3	2165	-960	45168	3486	-1483	-45166
24063	33-cdcsp-01-uwx.120	4	1		7	1	Y2	5651	-2443	3	2165	-960	45168	3486	-1483	-45166
24063	33-cdcsp-01-uwx.120	4	1		8	1	Z2	5651	-2443	3	2165	-960	45168	3486	-1483	-45166
24063	33-cdcsp-01-uwx.120	5	4	NESC Ext Wind NA	1	1	TL:SW	749	1068	5	274	420	6344	475	648	-6339
24063	33-cdcsp-01-uwx.120	5	4		2	1	X1	4797	5184	21	1817	2036	30015	2981	3148	-29995
24063	33-cdcsp-01-uwx.120	5	4		3	1	Y1	4797	5184	21	1817	2036	30015	2981	3148	-29995
24063	33-cdcsp-01-uwx.120	5	4		4	1	Z1	4797	5184	21	1817	2036	30015	2981	3148	-29995
24063	33-cdcsp-01-uwx.120	5	4		5	1	TR:SW	710	877	4	261	344	5716	450	532	-5712
24063	33-cdcsp-01-uwx.120	5	4		6	1	X2	4801	5184	21	1818	2036	30065	2983	3148	-30044
24063	33-cdcsp-01-uwx.120	5	4		7	1	Y2	4801	5184	21	1818	2036	30065	2983	3148	-30044
24063	33-cdcsp-01-uwx.120	5	4		8	1	Z2	4801	5184	21	1818	2036	30065	2983	3148	-30044
24063	33-cdcsp-01-uwx.120	6	4	NESC Ext Wind NA	1	1	TL:SW	749	-1068	5	274	-420	6344	475	-648	-6339
24063	33-cdcsp-01-uwx.120	6	4		2	1	X1	4797	-5184	21	1817	-2036	30015	2981	-3148	-29995
24063	33-cdcsp-01-uwx.120	6	4		3	1	Y1	4797	-5184	21	1817	-2036	30015	2981	-3148	-29995
24063	33-cdcsp-01-uwx.120	6	4		4	1	Z1	4797	-5184	21	1817	-2036	30015	2981	-3148	-29995
24063	33-cdcsp-01-uwx.120	6	4		5	1	TR:SW	710	-877	4	261	-344	5716	450	-532	-5712
24063	33-cdcsp-01-uwx.120	6	4		6	1	X2	4801	-5184	21	1818	-2036	30065	2983	-3148	-30044
24063	33-cdcsp-01-uwx.120	6	4		7	1	Y2	4801	-5184	21	1818	-2036	30065	2983	-3148	-30044
24063	33-cdcsp-01-uwx.120	6	4		8	1	Z2	4801	-5184	21	1818	-2036	30065	2983	-3148	-30044
24063	33-cdcsp-01-uwx.120	7	1	NESC Ins NA+	1	1	TL:SW	1029	316	1	388	124	6155	641	192	-6154
24063	33-cdcsp-01-uwx.120	7	1		2	1	X1	5651	977	2	2165	384	27369	3486	593	-27367
24063	33-cdcsp-01-uwx.120	7	1		3	1	Y1	5651	977	2	2165	384	27369	3486	593	-27367
24063	33-cdcsp-01-uwx.120	7	1		4	1	Z1	5651	977	2	2165	384	27369	3486	593	-27367
24063	33-cdcsp-01-uwx.120	7	1		5	1	TR:SW	979	294	1	369	116	5923	610	179	-5922
24063	33-cdcsp-01-uwx.120	7	1		6	1	X2	5651	977	2	2165	384	27375	3486	593	-27373
24063	33-cdcsp-01-uwx.120	7	1		7	1	Y2	5651	977	2	2165	384	27375	3486	593	-27373
24063	33-cdcsp-01-uwx.120	8	1		8	1	Z2	5651	977	2	2165	384	27375	3486	593	-27373
24063	33-cdcsp-01-uwx.120	8	1	NESC Ins NA-	1	1	TL:SW	1029	-316	1	388	-124	6155	641	-192	-6154
24063	33-cdcsp-01-uwx.120	8	1		2	1	X1	5651	-977	2	2165	-384	27369	3486	-593	-27367
24063	33-cdcsp-01-uwx.120	8	1		3	1	Y1	5651	-977	2	2165	-384	27369	3486	-593	-27367
24063	33-cdcsp-01-uwx.120	8	1		4	1	Z1	5651	-977	2	2165	-384	27369	3486	-593	-27367
24063	33-cdcsp-01-uwx.120	8	1		5	1	TR:SW	979	-294	1	369	-116	5923	610	-179	-5922
24063	33-cdcsp-01-uwx.120	8	1		6	1	X2	5651	-977	2	2165	-384	27375	3486	-593	-27373
24063	33-cdcsp-01-uwx.120	8	1		7	1	Y2	5651	-977	2	2165	-384	27375	3486	-593	-27373
24063	33-cdcsp-01-uwx.120	8	1		8	1	Z2	5651	-977	2	2165	-384	27375	3486	-593	-27373
24063	33-cdcsp-01-uwx.120	9	5	ASCE Ice/Wind NA	1	1	TL:SW	1655	728	2	626	286	7462	1029	442	-7461
24063	33-cdcsp-01-uwx.120	9	5		2	1	X1	7599	2064	4	2912	811	31255	4687	1254	-31251
24063	33-cdcsp-01-uwx.120	9	5		3	1	Y1	7599	2064	4	2912	811	31255	4687	1254	-31251
24063	33-cdcsp-01-uwx.120	9	5		4	1	Z1	7599	2064	4	2912	811	31255	4687	1254	-31251
24063	33-cdcsp-01-uwx.120	9	5		5	1	TR:SW	1579	690	2	597	271	7236	983	419	-7234
24063	33-cdcsp-01-uwx.120	9	5		6	1	X2	7603	2064	4	2914	811	31304	4689	1254	-31301
24063	33-cdcsp-01-uwx.120	9	5		7	1	Y2	7603	2064	4	2914	811	31304	4689	1254	-31301
24063	33-cdcsp-01-uwx.120	9	5		8	1	Z2	7603	2064	4	2914	811	31304	4689	1254	-31301
24063	33-cdcsp-01-uwx.120	10	5	ASCE Ice/Wind NA	1	1	TL:SW	1655	-728	2	626	-286	7462	1029	-442	-7461
24063	33-cdcsp-01-uwx.120	10	5		2	1	X1	7599	-2064	4	2912	-811	31255	4687	-1254	-31251
24063	33-cdcsp-01-uwx.120	10	5		3	1	Y1	7599	-2064	4	2912	-811	31255	4687	-1254	-31251
24063	33-cdcsp-01-uwx.120	10	5		4	1	Z1	7599	-2064	4	2912	-811	31255	4687	-1254	-31251
24063	33-cdcsp-01-uwx.120	10	5		5	1	TR:SW	1579	-690	2	597	-271	7236	983	-419	-7234
24063	33-cdcsp-01-uwx.120	10	5		6	1	X2	7603	-2064	4	2914	-811	31304	4689	-1254	-31301
24063	33-cdcsp-01-uwx.120	10	5		7	1	Y2	7603	-2064	4	2914	-811	31304	4689	-1254	-31301
24063	33-cdcsp-01-uwx.120	10	5		8	1	Z2	7603	-2064	4	2914	-811	31304	4689	-1254	-31301
24063	33-cdcsp-01-uwx.120	11	18	NU Ice	1	1	TL:SW	2224	0	0	845	0	8737	1379	0	-8737
24063	33-cdcsp-01-uwx.120	11	18		2	1	X1	9403	0	-0	3599	0	38032	5804	0	-38032
24063	33-cdcsp-01-uwx.120	11	18		3	1	Y1	9403	0	0	3599	0	38032	5804	0	-38032
24063	33-cdcsp-01-uwx.120	11	18		4	1	Z1	9403	0	0	3599	0	38032	5804	0	-38032
24063	33-cdcsp-01-uwx.120	11	18		5	1	TR:SW	2120	0	0	805	0	8429	1315	0	-8429
24063	33-cdcsp-01-uwx.120	11	18		6	1	X2	9406	0	0	3600	0	38081	5806	0	-38081
24063	33-cdcsp-01-uwx.120	11	18		7	1	Y2	9406	0	0	3600	0	38081	5806	0	-38081
24063	33-cdcsp-01-uwx.120	11	18		8	1	Z2	9406	0	0	3600	0	38081	5806	0	-38081

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

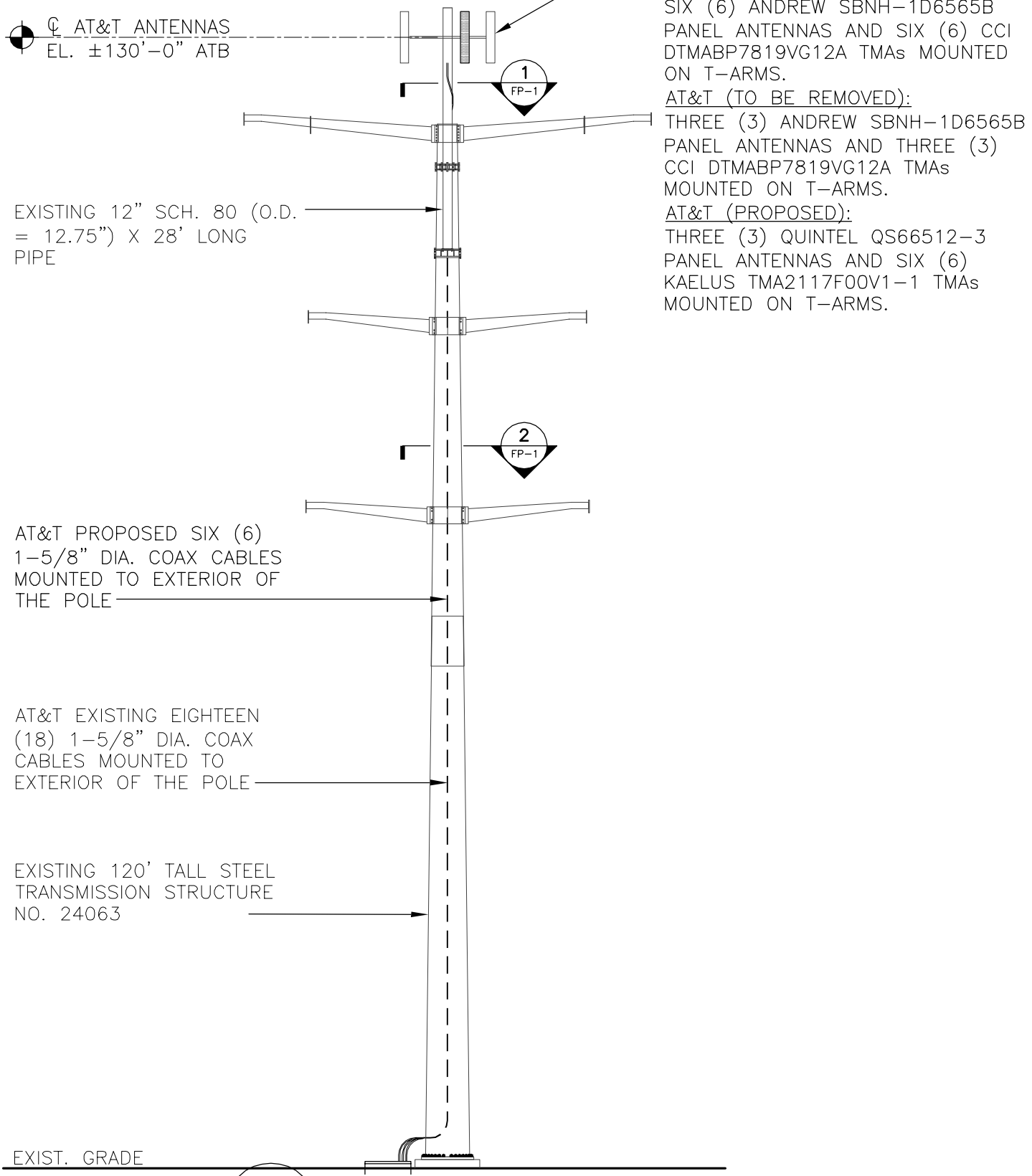
Note: not applicable to guyed structures or frames. These approximate values do not include nonlinear (P-delta) effects or wind on pole. ??

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)
24063	33-cdcsp-01-uwx.120	1	1	NESC Heavy NA+	53.873	16.184	0.019	16.184	1603.269	1.879	1603.270

24063	33-cdcsp-01-uwx.120	2	1	NESC Heavy NA-	53.873	-16.184	0.019	16.184	-1606.647	1.879	1606.649
24063	33-cdcsp-01-uwx.120	3	1	NESC Uplift NA+	35.915	16.184	0.019	16.184	1603.832	1.879	1603.833
24063	33-cdcsp-01-uwx.120	4	1	NESC Uplift NA-	35.915	-16.184	0.019	16.184	-1606.084	1.879	1606.085
24063	33-cdcsp-01-uwx.120	5	4	NESC Ext Wind NA	30.255	33.050	0.133	33.050	3249.858	13.098	3249.884
24063	33-cdcsp-01-uwx.120	6	4	NESC Ext Wind NA	30.255	-33.050	0.133	33.050	-3251.257	13.098	3251.284
24063	33-cdcsp-01-uwx.120	7	1	NESC Ins NA+	35.915	6.474	0.011	6.474	640.857	1.139	640.858
24063	33-cdcsp-01-uwx.120	8	1	NESC Ins NA-	35.915	-6.474	0.011	6.474	-643.109	1.139	643.111
24063	33-cdcsp-01-uwx.120	9	5	ASCE Ice/Wind NA	48.840	13.805	0.026	13.805	1370.138	2.612	1370.140
24063	33-cdcsp-01-uwx.120	10	5	ASCE Ice/Wind NA	48.840	-13.805	0.026	13.805	-1373.218	2.612	1373.220
24063	33-cdcsp-01-uwx.120	11	18	NU Ice	60.771	0.000	-0.000	0.000	-2.180	-0.000	2.180

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
24063	33-cdcsp-01-uwx.120	1	1	NESC Heavy NA+	10.0	0.0	
24063	33-cdcsp-01-uwx.120	2	1	NESC Heavy NA-	-10.0	-0.0	
24063	33-cdcsp-01-uwx.120	3	1	NESC Uplift NA+	10.0	0.0	
24063	33-cdcsp-01-uwx.120	4	1	NESC Uplift NA-	-10.0	-0.0	
24063	33-cdcsp-01-uwx.120	5	4	NESC Ext Wind NA	35.3	0.0	
24063	33-cdcsp-01-uwx.120	6	4	NESC Ext Wind NA	-35.3	-0.0	
24063	33-cdcsp-01-uwx.120	7	1	NESC Ins NA+	4.0	0.0	
24063	33-cdcsp-01-uwx.120	8	1	NESC Ins NA-	-4.0	-0.0	
24063	33-cdcsp-01-uwx.120	9	5	ASCE Ice/Wind NA	7.0	0.0	
24063	33-cdcsp-01-uwx.120	10	5	ASCE Ice/Wind NA	-7.0	-0.0	
24063	33-cdcsp-01-uwx.120	11	18	NU Ice	0.0	0.0	



1 / EL-1 **TOWER & MAST ELEVATION**

SCALE: NOT TO SCALE

REVISIONS		
00	2/4/16	CONSTRUCTION

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CT2343
ORANGE OVERLAND DR
EVERSOURCE 24063

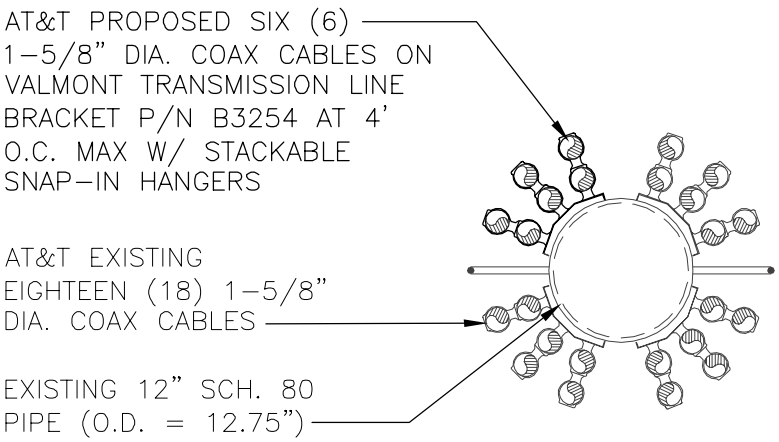
525 OVERLAND DRIVE
ORANGE, CT 06477

PROJECT NO:	15267.006
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	2/4/16

TOWER AND MAST ELEVATION

EL-1

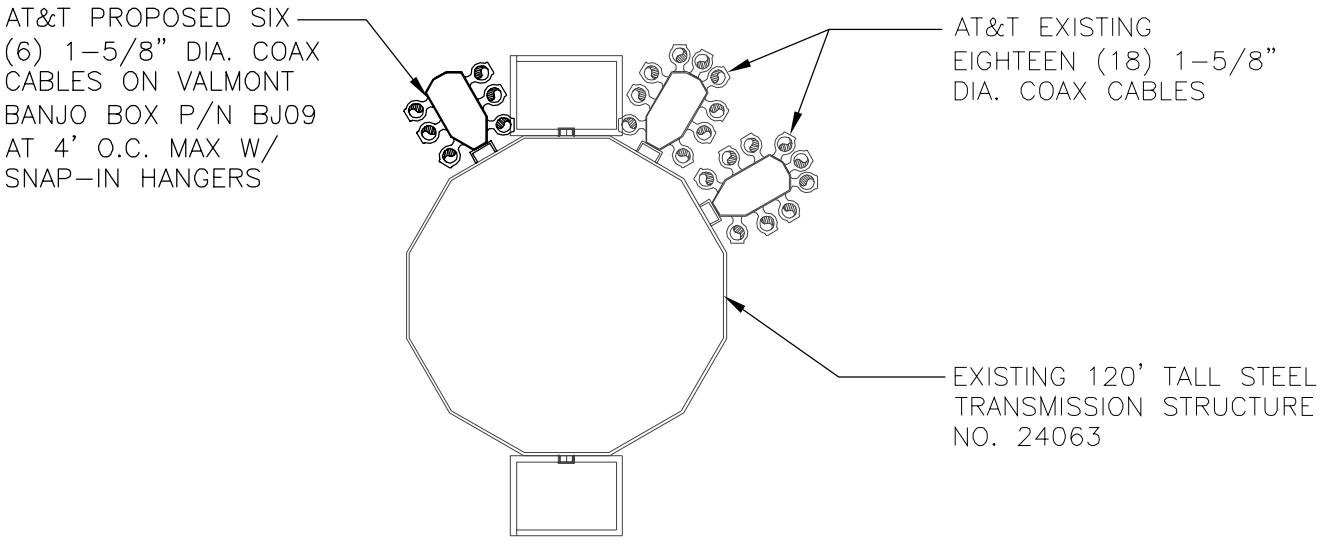
DWG. 1 OF 2



ABOVE TOP OF TOWER

1 / FP-1 **COAX CABLE PLAN**

SCALE: 3/4" = 1'-0"



2 / FP-1 **COAX CABLE PLAN**

SCALE: 1/2" = 1'-0"

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00	2/4/16	CONSTRUCTION

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FEEDLINE PLAN

FP-1

DWG. 2 OF 2

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

Rev. 0: 2/4/16

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 15267.006

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA/EIA

Wind Speeds

Basic Wind Speed: $V := 85$ mph (User Input per NU Mast Design Criteria Exception 1)

Basic Wind Speed with Ice: $V_i := 74$ mph (User Input per TIA/EIA-222-F Section 2.3.16)

Heights above ground level, z

Mast: $z_{mast} := 119$ ft (User Input)

AT&T: $z_{att} := 130$ ft (User Input)

Mount: $z_{mnt} := 130$ ft (User Input)

Coax: $z_{coax} := 125$ ft (User Input)

Exposure Coefficients, kz

(per TIA/EIA-222-F Section 2.3.3)

Mast: $Kz_{mast} := \left(\frac{z_{mast}}{33}\right)^{\frac{2}{7}} = 1.443$

AT&T: $Kz_{att} := \left(\frac{z_{att}}{33}\right)^{\frac{2}{7}} = 1.48$

Mount: $Kz_{mnt} := \left(\frac{z_{mnt}}{33}\right)^{\frac{2}{7}} = 1.48$

Coax: $Kz_{coax} := \left(\frac{z_{coax}}{33}\right)^{\frac{2}{7}} = 1.463$

Velocity Pressure without ice, qz

(per TIA/EIA-222-F Section 2.3.3)

Mast: $qz_{mast} := 0.00256 \cdot Kz_{mast} \cdot V^2 = 26.683$

AT&T: $qz_{att} := 0.00256 \cdot Kz_{att} \cdot V^2 = 27.365$

Mount: $qz_{mnt} := 0.00256 \cdot Kz_{mnt} \cdot V^2 = 27.365$

Coax: $qz_{coax} := 0.00256 \cdot Kz_{coax} \cdot V^2 = 27.06$

Velocity Pressure with ice, qzICE

(per TIA/EIA-222-F Section 2.3.3)

Mast: $qzICE_{mast} := 0.00256 \cdot Kz_{mast} \cdot V_i^2 = 20.223$

AT&T: $qzICE_{att} := 0.00256 \cdot Kz_{att} \cdot V_i^2 = 20.741$

Mount: $qzICE_{mnt} := 0.00256 \cdot Kz_{mnt} \cdot V_i^2 = 20.741$

Coax: $qzICE_{coax} := 0.00256 \cdot Kz_{coax} \cdot V_i^2 = 20.51$

TIA/EIA Common Factors:

Gust Response Factor = $G_H := 1.69$ (User Input per TIA/EIA-222-F Section 2.3.4)

Radial Ice Thickness = $Ir := 0.50$ in (User Input per TIA/EIA-222-F Section 2.3.1)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

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Subject:	Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Development of Wind & Ice Load on PCS Mast (per TIA/EIA-222-F-1996 Criteria)

Mast Data: (Pipe 12.0" SCH. 80) (User Input)

Mast Shape = Round (User Input)

Mast Diameter = $D_{mast} := 12.75$ in (User Input)

Mast Length = $L_{mast} := 28$ ft (User Input)

Mast Thickness = $t_{mast} := 0.5$ in (User Input)

Mast Aspect Ratio = $Ar_{mast} := \frac{12 L_{mast}}{D_{mast}} = 26.4$

Mast Force Coefficient = $Ca_{mast} = 1.2$ (per TIA/EIA-222-F Table 3)

Wind Load (without ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Mast Projected Surface Area = $A_{mast} := \frac{D_{mast}}{12} = 1.063$ sf/ft

Total Mast Wind Force = $qz_{mast} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 57$ plf **BLC 5**

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot Ir)}{12} = 1.146$ sf/ft

Total Mast Wind Force w/ Ice = $qzICE_{mast} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 47$ plf **BLC 4**

Gravity Loads (without ice)

Weight of the mast = Self Weight **(Computed internally by Risa-3D)** plf **BLC 1**

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + Ir \cdot 2)^2 - D_{mast}^2\right] = 20.8$ sq in

Weight of Ice on Mast = $W_{ICEmast} := Id \cdot \frac{Ai_{mast}}{144} = 8$ plf **BLC 3**

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

Rev. 0: 2/4/16

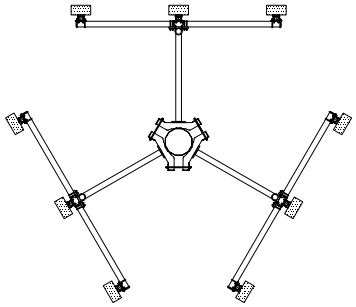
Prepared by: T.J.L. Checked by: C.F.C.
Job No. 15267.006

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Andrew SBNH-1D6565B			
Antenna Shape =	Round		(User Input)	
Antenna Height =	$L_{ant} := 72.72$	in	(User Input)	
Antenna Width =	$W_{ant} := 11.95$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 47.4$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 6$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 6.1$			
Antenna Force Coefficient =	$Ca_{ant} = 1.4$		(per TIA/EIA-222-F-1996 Table 3)	



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to All Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 36.2$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{att} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 2344$	lbs	**BLC 5**

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to All Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 6.6$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 39.8$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qzICE_{att} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 1952$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 284$	lbs	**BLC 2**

Gravity Loads (ice only)

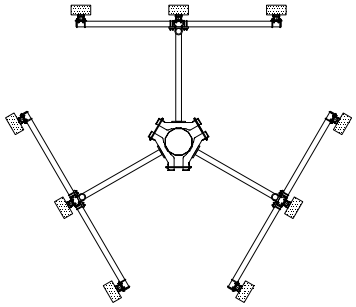
Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6170$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1)(T_{ant} + 1) - V_{ant} = 1563$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 51$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 304$	lbs	**BLC 3**

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Quintel QS66512-3		
Antenna Shape =	Round		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 12$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 112$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 6.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.4$		(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to All Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 18$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{att} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 1165$	lbs	**BLC 5**

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to All Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 6.6$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.8$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qzICE_{att} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 970$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 336$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8294$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1)(T_{ant} + 1) - V_{ant} = 1765$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 57$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 172$	lbs	**BLC 3**

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

Rev. 0: 2/4/16

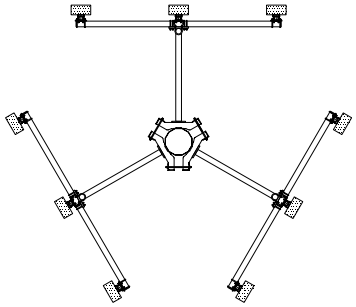
Prepared by: T.J.L. Checked by: C.F.C.
Job No. 15267.006

Development of Wind & Ice Load on TMAs

(per TIA/EIA-222-F-1996 Criteria)

TMA Data:

TMA Model =	CCI DTMABP7819VG12A			
TMA Shape =	Flat		(User Input)	
TMA Height =	$L_{tma} := 14.25$	in	(User Input)	
TMA Width =	$W_{tma} := 11.46$	in	(User Input)	
TMA Thickness =	$T_{tma} := 4.17$	in	(User Input)	
TMA Weight =	$WT_{tma} := 20$	lbs	(User Input)	
Number of TMAs =	$N_{tma} := 6$		(User Input)	
TMA Aspect Ratio =	$Ar_{tma} := \frac{L_{tma}}{W_{tma}} = 1.2$			
TMA Force Coefficient =	$Ca_{tma} = 1.4$		(per TIA/EIA-222-F-1996 Table 3)	



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to ALL TMAs Simultaneously

Surface Area for One TMA =	$SA_{tma} := \frac{L_{tma} \cdot W_{tma}}{144} = 1.1$	sf	
TMA Projected Surface Area =	$A_{tma} := SA_{tma} \cdot N_{tma} = 6.8$	sf	
Total TMA Wind Force =	$F_{tma} := qz_{att} \cdot G_H \cdot Ca_{tma} \cdot A_{tma} = 441$	lbs	**BLC 5**

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to ALL TMAs Simultaneously

Surface Area for One TMA w/ Ice =	$SA_{ICEtma} := \frac{(L_{tma} + 1) \cdot (W_{tma} + 1)}{144} = 1.3$	sf	
TMA Projected Surface Area w/ Ice =	$A_{ICEtma} := SA_{ICEtma} \cdot N_{tma} = 7.9$	sf	
Total TMA Wind Force w/ Ice =	$Fi_{tma} := qzICE_{att} \cdot G_H \cdot Ca_{tma} \cdot A_{ICEtma} = 389$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All TMAs =	$WT_{tma} \cdot N_{tma} = 120$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each TMA =	$V_{tma} := L_{tma} \cdot W_{tma} \cdot T_{tma} = 681$	cu in	
Volume of Ice on Each TMA =	$V_{ice} := (L_{tma} + 1)(W_{tma} + 1) \cdot (T_{tma} + 1) - V_{tma} = 301$	cu in	
Weight of Ice on Each TMA =	$W_{ICEtma} := \frac{V_{ice}}{1728} \cdot Id = 10$	lbs	
Weight of Ice on All TMAs =	$W_{ICEtma} \cdot N_{tma} = 59$	lbs	**BLC 3**

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

Rev. 0: 2/4/16

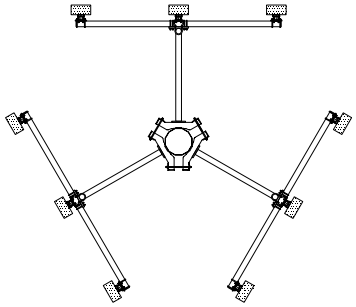
Prepared by: T.J.L. Checked by: C.F.C.
Job No. 15267.006

Development of Wind & Ice Load on TMAs

(per TIA/EIA-222-F-1996 Criteria)

TMA Data:

TMA Model =	Kaelus TMA2117F00V1-1		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{tma} := 8.46$	in	(User Input)
TMA Width =	$W_{tma} := 11.81$	in	(User Input)
TMA Thickness =	$T_{tma} := 4.21$	in	(User Input)
TMA Weight =	$WT_{tma} := 18$	lbs	(User Input)
Number of TMAs =	$N_{tma} := 6$		(User Input)
TMA Aspect Ratio =	$Ar_{tma} := \frac{L_{tma}}{W_{tma}} = 0.7$		
TMA Force Coefficient =	$Ca_{tma} = 1.4$		(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to ALL TMAs Simultaneously

Surface Area for One TMA =	$SA_{tma} := \frac{L_{tma} \cdot W_{tma}}{144} = 0.7$	sf	
TMA Projected Surface Area =	$A_{tma} := SA_{tma} \cdot N_{tma} = 4.2$	sf	
Total TMA Wind Force =	$F_{tma} := qz_{att} \cdot G_H \cdot Ca_{tma} \cdot A_{tma} = 270$	lbs	**BLC 5**

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Assumes Maximum Possible Wind Pressure Applied to ALL TMAs Simultaneously

Surface Area for One TMA w/ Ice =	$SA_{ICEtma} := \frac{(L_{tma} + 1) \cdot (W_{tma} + 1)}{144} = 0.8$	sf	
TMA Projected Surface Area w/ Ice =	$A_{ICEtma} := SA_{ICEtma} \cdot N_{tma} = 5$	sf	
Total TMA Wind Force w/ Ice =	$Fi_{tma} := qzICE_{att} \cdot G_H \cdot Ca_{tma} \cdot A_{ICEtma} = 248$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All TMAs =	$WT_{tma} \cdot N_{tma} = 108$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each TMA =	$V_{tma} := L_{tma} \cdot W_{tma} \cdot T_{tma} = 421$	cu in	
Volume of Ice on Each TMA =	$V_{ice} := (L_{tma} + 1)(W_{tma} + 1) \cdot (T_{tma} + 1) - V_{tma} = 211$	cu in	
Weight of Ice on Each TMA =	$W_{ICEtma} := \frac{V_{ice}}{1728} \cdot Id = 7$	lbs	
Weight of Ice on All TMAs =	$W_{ICEtma} \cdot N_{tma} = 41$	lbs	**BLC 3**

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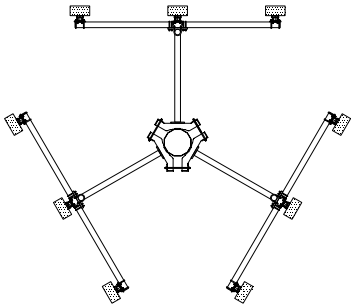
Subject:	Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Development of Wind & Ice Load on Antenna Mounts (per TIA/EIA-222-F-1996 Criteria)

Mount Data:

Mount Type: Valmont 10'-6" T-Arm Co-Location Kit



Mount Shape =	Flat		(User Input)
Mount Area =	$CaA_{mnt} := 33.2$	sq ft	(User Input)
Mount Area w/ Ice =	$CaA_{ICEmnt} := 44.1$	sq ft	(User Input)
Mount Weight =	$WT_{mnt} := 1170$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{ICEmnt} := 1356$	lbs	(User Input)

Wind Load (without ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Total Mount Wind Force = $F_{mnt} := qz_{mnt} \cdot G_H \cdot CaA_{mnt} = 1535$ lbs **BLC 5**

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Total Mount Wind Force = $Fi_{mnt} := qzICE_{mnt} \cdot G_H \cdot CaA_{ICEmnt} = 1546$ lbs **BLC 4**

Gravity Loads (without ice) (per TIA/EIA-222-F-1996)

Weight of All Mounts = $WT_{mnt} = 1170$ lbs **BLC 2**

Gravity Loads (ice only) (per TIA/EIA-222-F-1996)

Weight of Ice on All Mounts = $WT_{ICEmnt} - WT_{mnt} = 186$ lbs **BLC 3**

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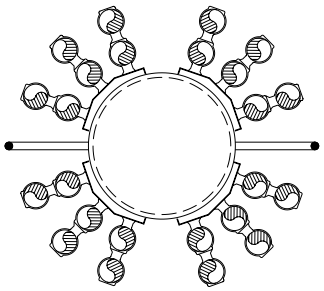
Subject:	Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Development of Wind & Ice Load on Coax Cables — per TIA/EIA-222-F-96 Criteria

Coax Cable Data:

Coax Type = HELIAX 1-5/8"

Shape = Round (User Input)



Coax Outside Diameter = $D_{coax} := 1.98$ in (User Input)

Coax Cable Length = $L_{coax} := 10$ ft (User Input)

Weight of Coax per foot = $Wt_{coax} := 1.04$ plf (User Input)

Total Number of Coax = $N_{coax} := 24$ (User Input)

No. of Coax Projecting Outside Face of PCS Mast = $NP_{coax} := 6$ (User Input)

Coax aspect ratio, $Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 60.6$

Coax Cable Force Factor Coefficient = $Ca_{coax} = 1.2$ TIA/EIA-222-F-96 Table 3

Wind Load (without ice) — per TIA/EIA-222-F-96 Section 2.3.2

Coax projected surface area = $A_{coax} := \frac{NP_{coax} \cdot D_{coax}}{12} = 1$ sf/ft

Total Coax Wind Force = $F_{coax} := qz_{coax} \cdot G_H \cdot Ca_{coax} \cdot A_{coax} = 54$ plf **BLC 5**

Wind Load (with ice) — per TIA/EIA-222-F-96 Section 2.3.2

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{NP_{coax} \cdot (D_{coax} + 2 \cdot Ir)}{12} = 1.5$ sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := qzICE_{coax} \cdot G_H \cdot Ca_{coax} \cdot AICE_{coax} = 62$ plf **BLC 4**

Gravity Loads (without ice)

Weight of all cables w/o ice $WT_{coax} := Wt_{coax} \cdot N_{coax} = 25$ plf **BLC 2**

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot Ir)^2 - D_{coax}^2\right] = 3.9$ sq in

Ice Weight All Coax per foot = $WTi_{coax} := Id \cdot \left(N_{coax} \cdot \frac{Ai_{coax}}{144}\right) = 36$ plf **BLC 3**

CENTEK engineering, INC.	Subject:	Analysis of TIA/EIA Wind and Ice Loads for Analysis of Mast Only		
Consulting Engineers		Tabulated Load Cases		
63-2 North Branford Road	Location:	Orange, CT		
Branford, CT 06405				
Ph. 203-488-0580 / Fax. 203-488-8587	Date: 2/4/16	Prepared by: T.J.L.	Checked by: C.F.C.	Job No. 15267.006

Load Case	Description
1	Self Weight (Mast)
2	Weight of Appurtenances
3	Weight of Ice Only
4	TIA/EIA Wind with Ice
5	TIA/EIA Wind

Footnotes:

CENTEK engineering, INC.
Consulting Engineers
63-2 North Branford Road
Branford, CT 06405
Ph. 203-488-0580 / Fax. 203-488-8587

Subject: **Analysis of TIA/EIA Wind and Ice Loads for Analysis of Mast Only Load Combinations Table**

Location: **Orange, CT**

Date: 2/4/16 Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Load Combination	Description	Envelope Soultion	Wind Factor	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	TIA/EIA Wind + Ice		1		1	1	2	1	3	1	4	1		
2	TIA/EIA Wind		1		1	1	2	1	5	1				

Footnotes:
(1) BLC = Basic Load Case

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Increase Nailing Capacity for Wind?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	No
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 9th: ASD
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Global, Continued

Seismic Code	UBC 1997
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	No
Ct Z	.035
Ct X	.035
T Z (sec)	Not Entered
T X (sec)	Not Entered
R Z	8.5
R X	8.5
Ca	.36
Cv	.54
Nv	1
Occupancy Category	4
Seismic Zone	3
Seismic Detailing Code	ASCE 7-05
Om Z	1
Om X	1
Rho Z	1
Rho X	1

Footing Overturning Safety Factor	1.5
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	0
Footing Concrete f'c (ksi)	3
Footing Concrete Ec (ksi)	4000
Lamda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	3.5
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Design Parameters

	Label	Shape	Leng...	Lbyy[ft]	Lbzz[ft]	Lcomp ...	Lcomp ...	Kyy	Kzz	Cm...	Cm...	Cb	y s...	z s...	Functi...
1	M1	Mast	28												Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast	PIPE_12.0X	Beam	Pipe	A53 Gr. B	Typical	17.5	339	339	678

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	BOTCO...	TOPMA...			Mast	Beam	Pipe	A53 Gr. B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From D...
1	BOTCONNECTION	0	0	0	0	
2	TOPCONNECTION	0	10	0	0	
3	TOPMAST	0	28	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	BOTCONNECTION	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
2	TOPCONNECTION	Reaction		Reaction				

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.284	25
2	M1	Y	-.336	25
3	M1	Y	-.12	25
4	M1	Y	-.108	25
5	M1	Y	-1.17	25

Member Point Loads (BLC 3 : Weight of Ice Only)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.304	25
2	M1	Y	-.172	25
3	M1	Y	-.059	25
4	M1	Y	-.041	25
5	M1	Y	-.186	25

Member Point Loads (BLC 4 : TIA/EIA Wind with Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	1.952	25
2	M1	X	.97	25
3	M1	X	.389	25
4	M1	X	.248	25

Member Point Loads (BLC 4 : TIA/EIA Wind with Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	M1	X	1.546	25

Member Point Loads (BLC 5 : TIA/EIA Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	2.344	25
2	M1	X	1.165	25
3	M1	X	.441	25
4	M1	X	.27	25
5	M1	X	1.535	25

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
No Data to Print ...			

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.025	-.025	15	25

Member Distributed Loads (BLC 3 : Weight of Ice Only)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.008	-.008	0	0
2	M1	Y	-.036	-.036	15	25

Member Distributed Loads (BLC 4 : TIA/EIA Wind with Ice)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.047	.047	0	0
2	M1	X	.062	.062	15	25

Member Distributed Loads (BLC 5 : TIA/EIA Wind)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.057	.057	0	0
2	M1	X	.054	.054	15	25

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Grav...	Joint	Point	Distrib...	Area(...	Surfac...
1	Self Weight (Mast)	None		-1						
2	Weight of Appurtenances	None					5	1		
3	Weight of Ice Only	None					5	2		
4	TIA/EIA Wind with Ice	None					5	2		
5	TIA/EIA Wind	None					5	2		

Load Combinations

	Description	Sol...	PDelta	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
1	TIA/EIA Wind + Ice	Yes			1	1	2	1	3	1	4	1								
2	TIA/EIA Wind	Yes			1	1	2	1	5	1										
3	Self Weight				1	1														

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear...	LC	z Shear...	LC	Torque[...	LC	y-y Mo...	LC	z-z Mo...	LC
1	M1	1	max	5.281	1	-13.003	1	0	1	0	1	0	1	-41.995	1
2			min	3.935	2	-14.496	2	0	1	0	1	0	1	-46.851	2
3		2	max	4.809	1	-13.332	1	0	1	0	1	0	1	56.018	2
4			min	3.519	2	-14.895	2	0	1	0	1	0	1	50.18	1
5		3	max	4.336	1	7.093	2	0	1	0	1	0	1	72.131	2
6			min	3.102	2	6.383	1	0	1	0	1	0	1	64.481	1
7		4	max	3.497	1	6.37	2	0	1	0	1	0	1	24.849	2
8			min	2.535	2	5.682	1	0	1	0	1	0	1	22.068	1
9		5	max	0	1	0	1	0	1	0	1	0	1	0	1
10			min	0	1	0	1	0	1	0	1	0	1	0	1

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	M1	1	max	.302	1	-1.486	1	0	1	10.614	2	-9.514	1	0	1	0	1
2			min	.225	2	-1.657	2	0	1	9.514	1	-10.614	2	0	1	0	1
3		2	max	.275	1	-1.524	1	0	1	-11.368	1	12.691	2	0	1	0	1
4			min	.201	2	-1.702	2	0	1	-12.691	2	11.368	1	0	1	0	1
5		3	max	.248	1	.811	2	0	1	-14.608	1	16.341	2	0	1	0	1
6			min	.177	2	.729	1	0	1	-16.341	2	14.608	1	0	1	0	1
7		4	max	.2	1	.728	2	0	1	-4.999	1	5.629	2	0	1	0	1
8			min	.145	2	.649	1	0	1	-5.629	2	4.999	1	0	1	0	1
9		5	max	0	1	0	1	0	1	0	1	0	1	0	1	0	1
10			min	0	1	0	1	0	1	0	1	0	1	0	1	0	1

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	BOTCONNE...	max	14.496	2	5.281	1	0	1	0	1	0	1	-41.995	1
2		min	13.003	1	3.935	2	0	1	0	1	0	1	-46.851	2
3	TOPCONNE...	max	-20.044	1	0	1	0	1	0	1	0	1	0	1
4		min	-22.387	2	0	1	0	1	0	1	0	1	0	1
5	Totals:	max	-7.041	1	5.281	1	0	1						
6		min	-7.891	2	3.935	2	0	1						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation...	LC	Y Rotation...	LC	Z Rotation...	LC
1	BOTCONNEC...	max	0	1	0	2	0	1	0	1	0	1	0	2
2		min	0	2	0	1	0	1	0	1	0	1	0	1
3	TOPCONNEC...	max	0	2	0	2	0	1	0	1	0	1	-3.487e-3	1
4		min	0	1	-.001	1	0	1	0	1	0	1	-3.893e-3	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation...	LC	Y Rotation...	LC	Z Rotation...	LC
5	TOPMAST	max	2.537	2	-.002	2	0	1	0	1	0	1	-1.306e-2	1
6		min	2.269	1	-.003	1	0	1	0	1	0	1	-1.462e-2	2

Envelope AISC ASD Steel Code Checks

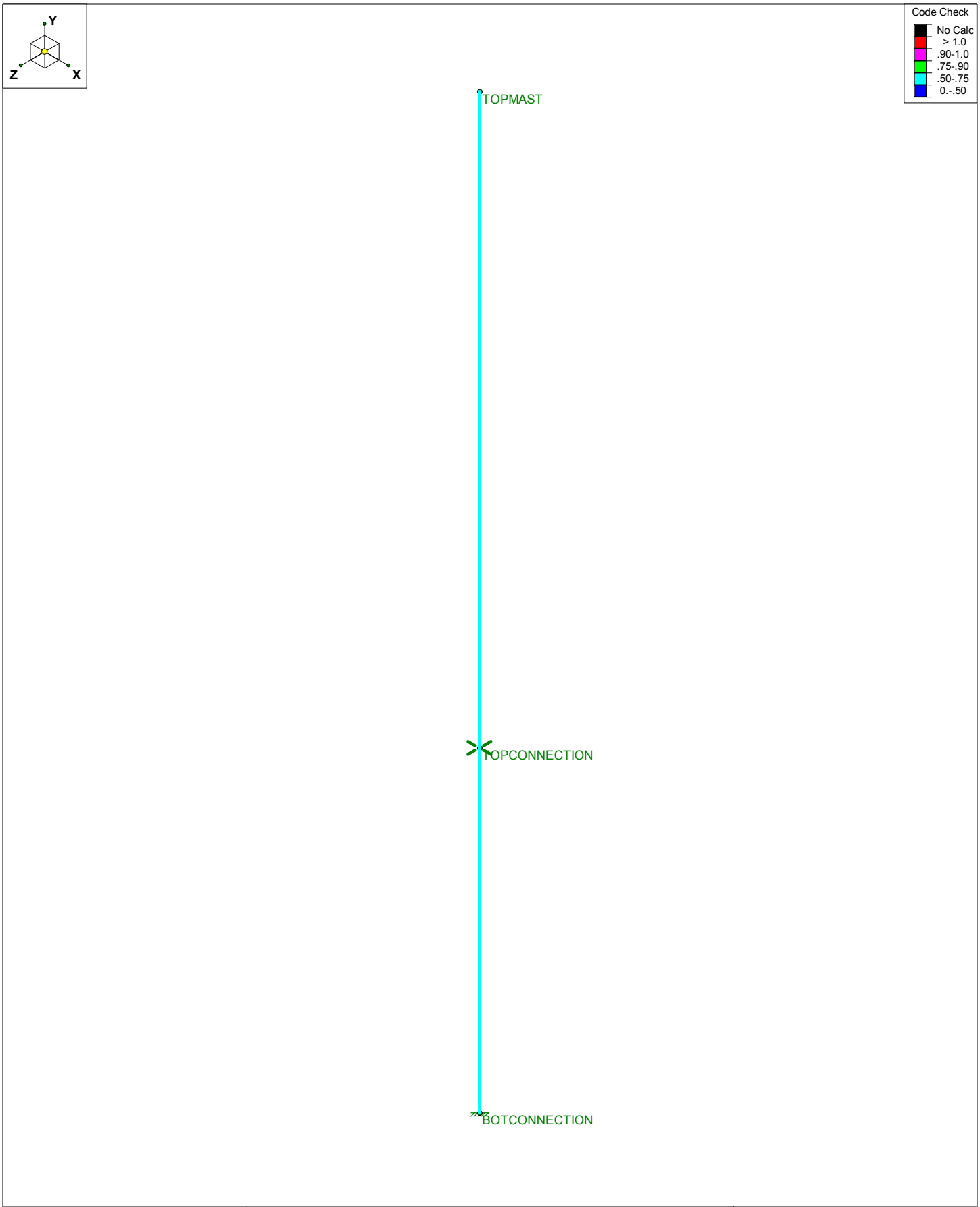
	Me...	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Fa ...	Ft [...	Fb y-y [ksi]	Fb	...	AS...
1	M1	PIPE_1...	.742	9.917	2	.092	9.917		2	20...	27...	30.723	30...	1.6	H1-2

Joint Reactions

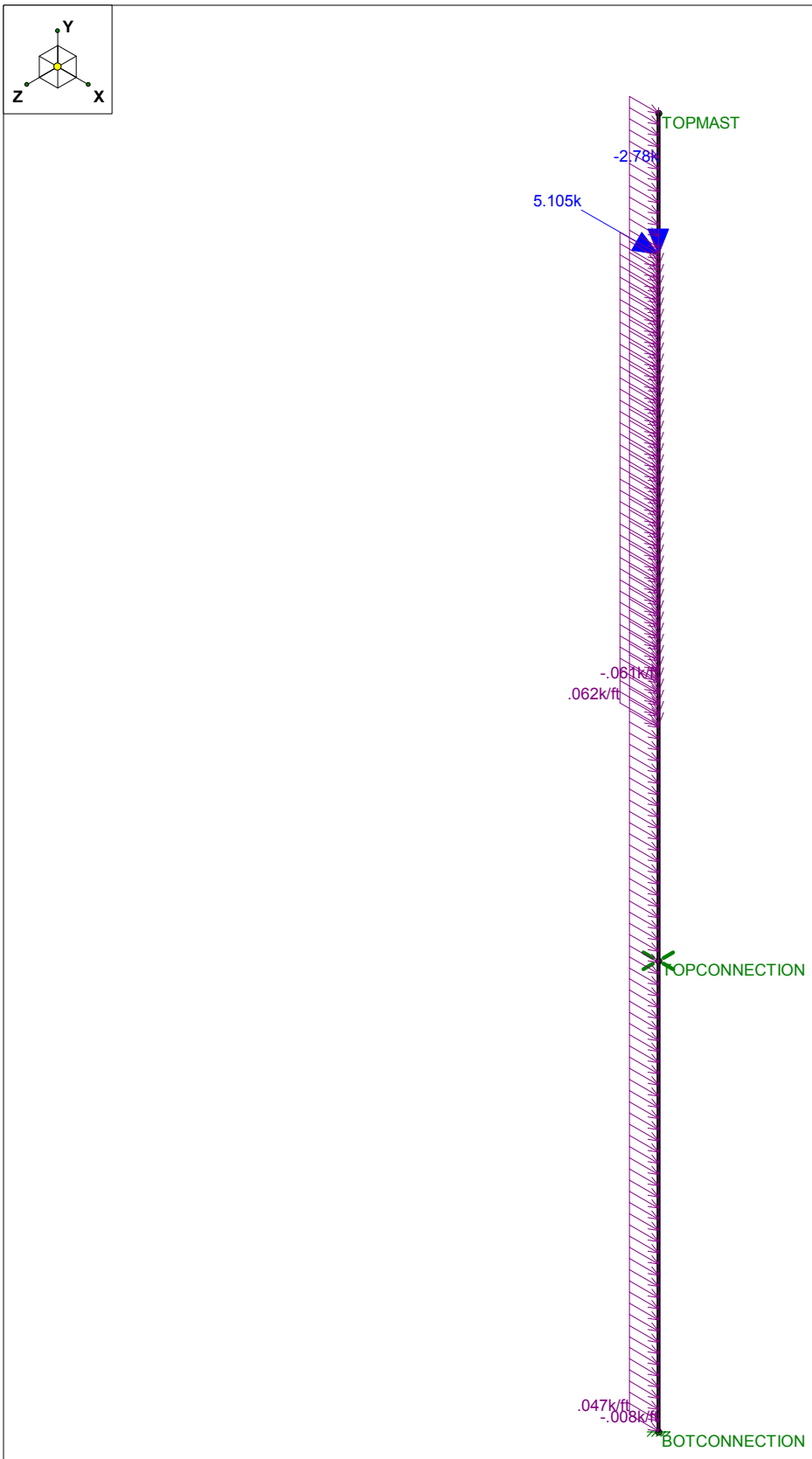
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	BOTCONNECTION	13.003	5.281	0	0	0	-41.995
2	1	TOPCONNECTION	-20.044	0	0	0	0	0
3	1	Totals:	-7.041	5.281	0			
4	1	COG (ft):	X: 0	Y: 20.483	Z: 0			

Joint Reactions

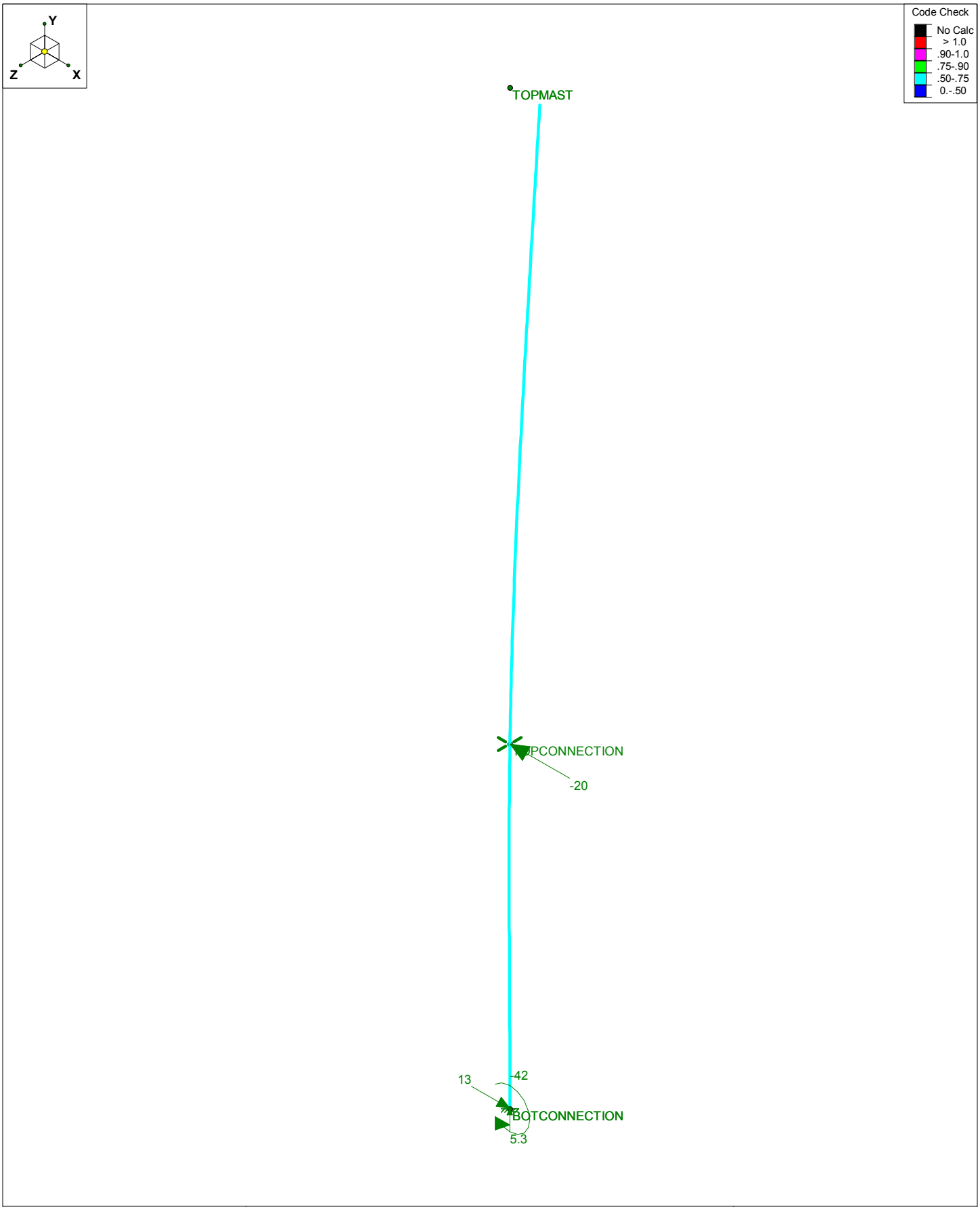
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	BOTCONNECTION	14.496	3.935	0	0	0	-46.851
2	2	TOPCONNECTION	-22.387	0	0	0	0	0
3	2	Totals:	-7.891	3.935	0			
4	2	COG (ft):	X: 0	Y: 20.022	Z: 0			



CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:53 PM
15267.006/ AT&T CT2343	Unity Check	EIA-TIA Loads.r3d



CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:53 PM
15267.006/ AT&T CT2343	LC #1 Loads	EIA-TIA Loads.r3d



CENTEK Engineering, INC.		
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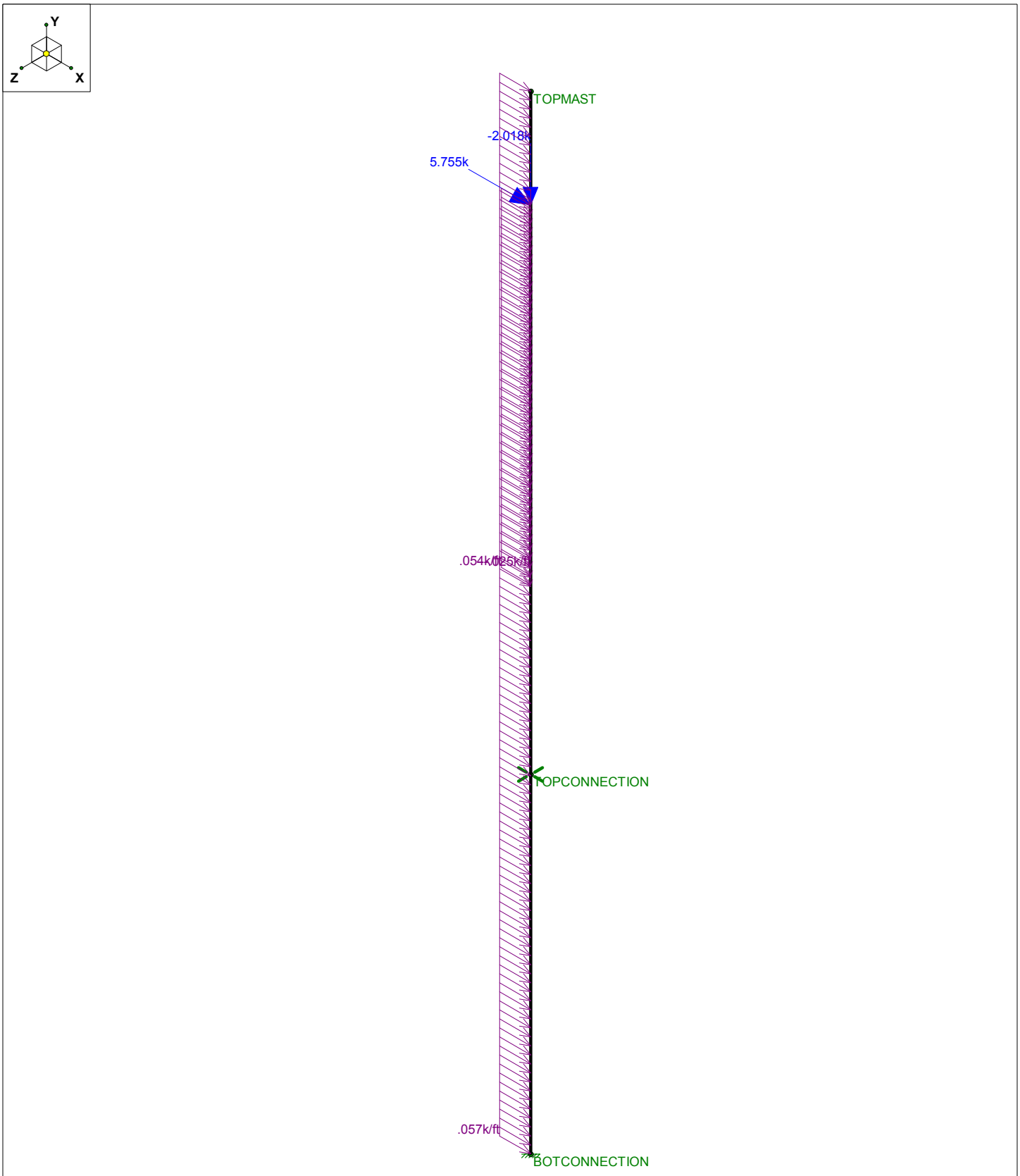

CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:54 PM
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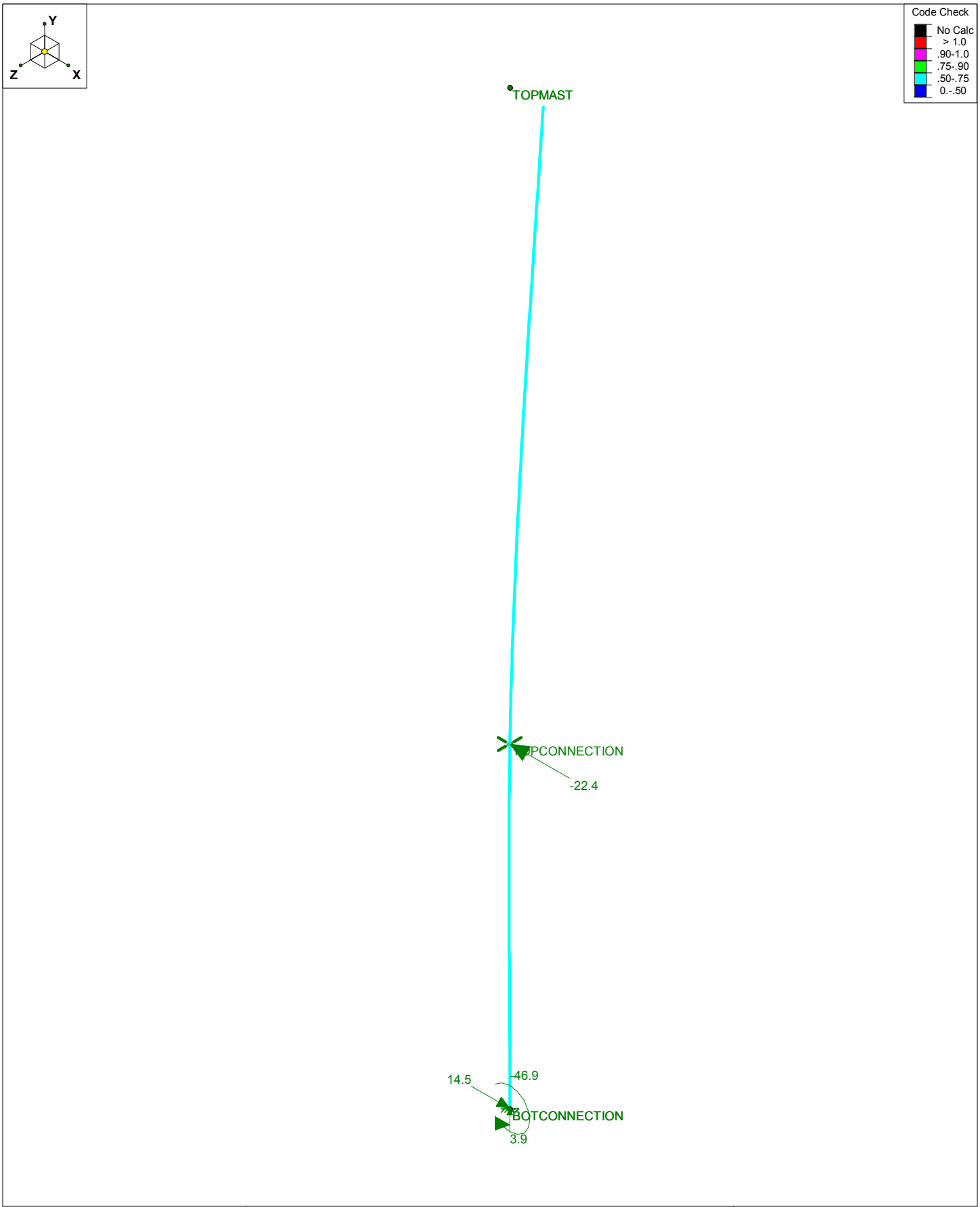

CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:56 PM
15267.006/ AT&T CT2343	LC #2 Reactions and Deflected Shape	EIA-TIA Loads.r3d

CENTEK engineering
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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Mast Connection to Pole # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

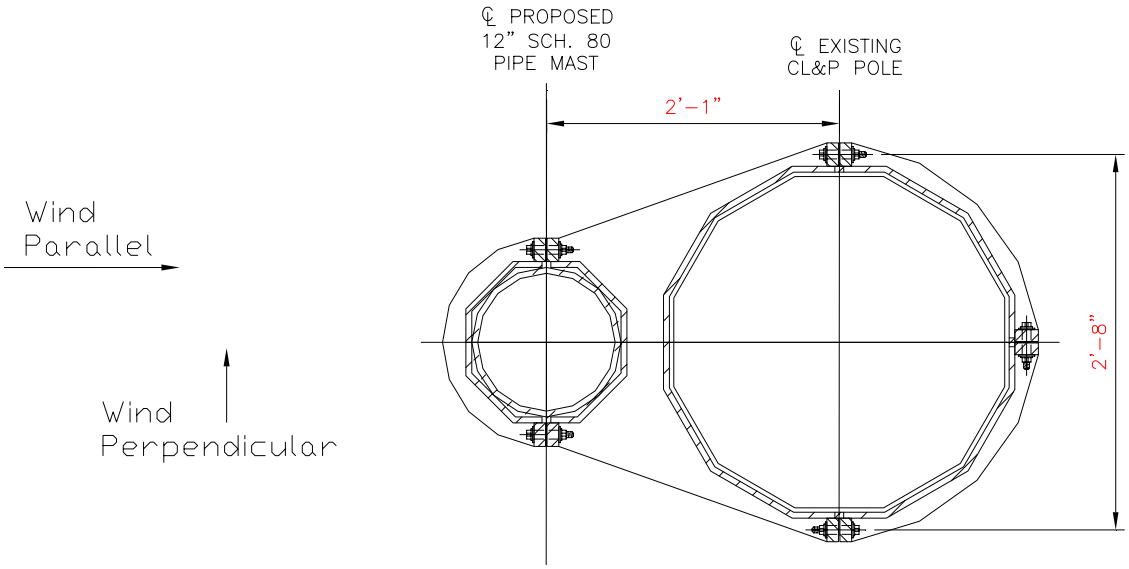
Mast Top Connection:

Maximum Design Reactions at Brace:

Vertical =	Vert := 0·kips	(User Input)
Horizontal =	Horz := 22.4·kips	(User Input)
Moment =	Moment := 0	(User Input)

Bolt Data:

Bolt Grade =	A325	(User Input)
Number of Bolts =	$n_b := 6$	(User Input)
Bolt Diameter =	$d_b := 0.75in$	(User Input)
Allowable Tensile Stress =	$F_{t.all} := 45 \cdot ksi$	(User Input)
Allowable Shear Stress =	$F_{v.all} := 27 \cdot ksi$	(User Input)
Bolt Eccentricity from C.L. Mast =	$e := 25 \cdot in$	(User Input)
Vetical Spacing Between Top and Bottom Bolts =	$S_{vert} := 9 \cdot in$	(User Input)
Horizontal Spacing Between Bolts =	$S_{horz} := 32 \cdot in$	(User Input)
Bolt Area =	$a_b := \frac{1}{4} \cdot \pi \cdot d_b^2 = 0.442 \cdot in^2$	



Check Bolt Stresses:

Wind Acting Parallel to Stiffiner Plate:

Shear Force per Bolt = $F_{v.conn} := \frac{Vert}{n_b} = 0 \cdot kips$

Shear Stress per Bolt = $F_{v.act} := \frac{F_{v.conn}}{a_b} = 0 \cdot ksi$

$Condition1 := if(F_{v.act} < F_{v.all}, "OK", "Overstressed")$

Condition1 = "OK"

Allowable Tensile Stress Adjusted for Shear = $F_{t.adj} := \sqrt{F_{t.all}^2 - 4.39 \cdot F_{v.act}^2} = 45 \cdot ksi$ (AISC 9th Ed. Table J3.3)

Moment From Mast Eccentricity = $M_{par} := Vert \cdot e = 0 \cdot kips \cdot in$

Tension Force = $F_{tension} := Horz = 22.4 \cdot kips$

Tension Force Each Bolt = $F_{tension.bolt} := \frac{F_{tension}}{n_b} + \frac{M_{par}}{S_{vert} \cdot 2} = 3.733 \cdot kips$

Tension Stress Each Bolt = $F_{t.act} := \frac{F_{tension.bolt}}{a_b} = 8.5 \cdot ksi$

$Condition2 := if(F_{t.act} < F_{t.adj}, "OK", "Overstressed")$

Condition2 = "OK"

Wind Acting Perpendicular to Stiffiner Plate:

Shear Force per Bolt = $F_{v.conn} := \frac{\sqrt{Vert^2 + Horz^2}}{n_b} = 3.733 \cdot kips$

Shear Stress per Bolt = $F_{v.act} := \frac{F_{v.conn}}{a_b} = 8.451 \cdot ksi$

$Condition3 := if(F_{v.act} < F_{v.all}, "OK", "Overstressed")$

Condition3 = "OK"

Allowable Tensile Stress Adjusted for Shear = $F_{t.adj} := \sqrt{F_{t.all}^2 - 4.39 \cdot F_{v.act}^2} = 41.37 \cdot ksi$ (AISC 9th Ed. Table J3.3)

Moment from Mast Eccentricity = $M_{perp} := Horz \cdot e = 560 \cdot kips \cdot in$

Tension Force per Bolt = $F_{tension.conn} := \frac{M_{perp}}{S_{horz} \cdot 3} + \frac{M_{par}}{S_{vert} \cdot 2} = 5.833 \cdot kips$

Tension Stress Each Bolt = $F_{tension.act} := \frac{F_{tension.conn}}{a_b} = 13.204 \cdot ksi$

$Condition4 := if(F_{tension.act} < F_{t.adj}, "OK", "Overstressed")$

Condition4 = "OK"

CENTEK engineering
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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Mast Connection to Bottom Bracket
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Mast Connection to Bottom Bracket:

Design Reactions at Brace:

Axial =	Axial := 4·kips	(User Input)
Shear =	Shear := 14.5·kips	(User Input)
Moment =	Moment := 46.9·kips·ft	(User Input)

Anchor Bolt Data:

Bolt Grade =	A325	(User Input)
Allowable Shear Stress =	$F_v := 27 \cdot ksi$	(User Input)
Allowable Tension Stress =	$F_T := 45 \cdot ksi$	(User Input)
Total Number of Bolts =	$n_b := 4$	(User Input)
Number of Bolts Tension Side Parallel =	$n_{b.par} := 2$	(User Input)
Number of Bolts Tension Side Diagonal =	$n_{b.diag} := 1$	(User Input)
Bolt Diameter =	$d_b := 1.125in$	(User Input)
Bolt Spacing X Direction =	$S_x := 13 \cdot in$	(User Input)
Bolt Spacing Z Direction =	$S_z := 13 \cdot in$	(User Input)

Base Plate Data:

Base Plate Steel =	A36	(User Input)
Allowable Yield Stress =	$F_y := 36 \cdot ksi$	(User Input)
Base Plate Width =	$Pl_w := 16 \cdot in$	(User Input)
Base Plate Thickness =	$Pl_t := 1.5 \cdot in$	(User Input)
Bolt Edge Distance =	$B_E := 1.5 \cdot in$	(User Input)
Pole Diameter =	$D_p := 12.875 \cdot in$	(User Input)

Base Plate Data:

Weld Grade	E70XX	(User Input)
Weld Yield Stress =	$F_{yw} := 70 \cdot ksi$	(User Input)
Weld Size =	$sw := 0.375 \cdot in$	(User Input)

Anchor Bolt Check:

Bolt Area = $a_b := \frac{1}{4}\cdot\pi\cdot d_b^{\,2} = 0.994\cdot in^2$

Bolt Spacing Diag. Direction = $S_{diag} := \sqrt{S_x^{\,2} + S_z^{\,2}} = 18.38\cdot in$

Actual Shear Stress = $f_v := \frac{Shear}{a_b\cdot n_b} = 3.65\cdot ksi$

$Condition1 := if\left(f_v < F_v, "OK", "Overstressed"\right)$

Condition1 = "OK"

Allowable Tensile Stress Adjusted for Shear = $F_{t.adj} := \sqrt{F_T^{\,2} - 4.39\cdot f_v^{\,2}} = 44.347\cdot ksi$

Tension Load per Bolt Parallel = $T_{par} := \frac{Moment}{S_x\cdot n_{b.par}} - \frac{Axial}{n_b} = 20.65\cdot kips$

Tension Load per Bolt Diagonal = $T_{diag} := \frac{Moment}{S_{diag}\cdot n_{b.diag}} - \frac{Axial}{n_b} = 29.61\cdot kips$

Tension per bolt = $T := if\left(T_{par} > T_{diag}, T_{par}, T_{diag}\right) = 29.612\cdot kips$

Actual Tensile Stress = $f_t := \frac{T}{a_b} = 29.79\cdot ksi$

$Condition2 := if\left(f_t < F_{t.adj}, "OK", "Overstressed"\right)$

Condition2 = "OK"

Base Plate Check:

Allowable Bending Stress = $F_b := 0.75\cdot F_y = 27\cdot ksi$

Plate Bending Width = $Z := \left(Pl_w\cdot\sqrt{2} - D_p\right) = 9.75\cdot in$

Moment Arm = $K := \frac{\left(S_{diag} - D_p\right)}{2} = 2.75\cdot in$

Moment in Base Plate = $M := K\cdot T = 81.58\cdot kips\cdot in$

Section Modulus = $S_Z := \frac{1}{6}\cdot Z\cdot Pl_t^{\,2} = 3.66\cdot in^3$

Bending Stress = $f_b := \frac{M}{S_Z} = 22.31\cdot ksi$

$Condition3 := if\left(f_b < F_b, "OK", "Overstressed"\right)$

Condition3 = "OK"

Base Plate to PCS Mast Weld Check:

Allowable Weld Stress = $F_w := 0.3 \cdot F_{yw} = 21 \cdot ksi$

Weld Area = $A_w := \frac{\pi}{4} \cdot \left[\left(D_p + 2sw \cdot 0.707 \right)^2 - D_p^2 \right] = 10.94 \cdot in^2$

Weld Moment of Inertia = $I_w := \frac{\pi}{64} \cdot \left[\left(D_p + 2sw \cdot 0.707 \right)^4 - D_p^4 \right] = 236.31 \cdot in^4$

$c := \frac{D_p}{2} + sw \cdot 0.707 = 6.7 \cdot in$

Section Modulus of Weld = $S_w := \frac{I_w}{c} = 35.26 \cdot in^3$

Weld Stress = $f_w := \frac{Moment}{S_w} + \frac{Shear}{A_w} = 17.29 \cdot ksi$

$Condition4 := if\left(f_w < F_w, "OK", "Overstressed" \right)$

Condition4 = "OK"

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Subject:	Mast Connection to Pole # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

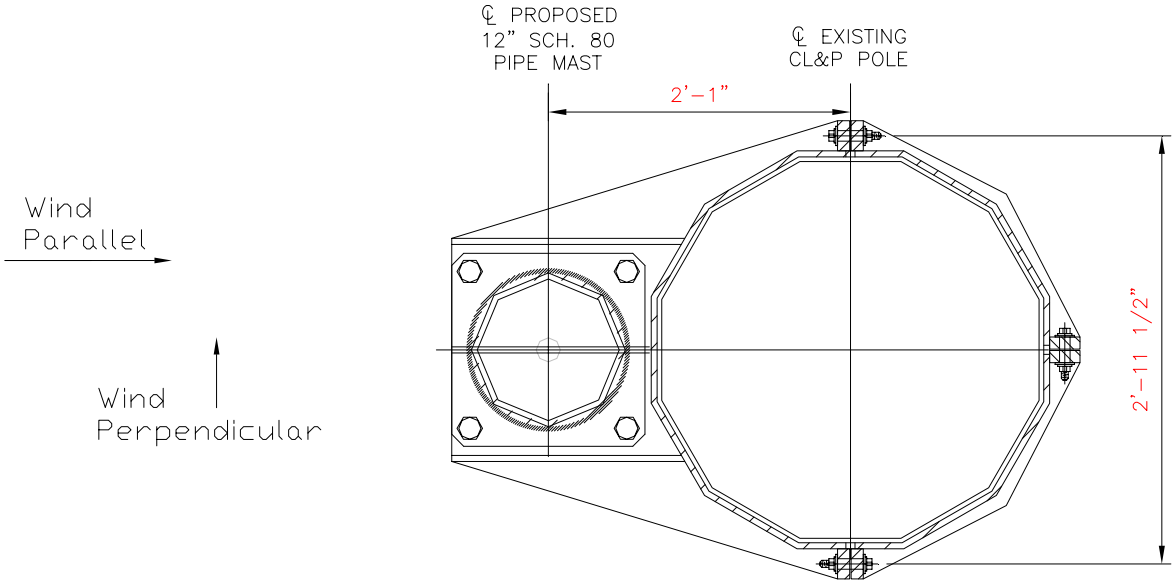
Mast Bottom Connection:

Maximum Design Reactions at Brace:

Vertical =	Vert := 4·kips	(User Input)
Horizontal =	Horz := 14.5·kips	(User Input)
Moment =	Moment := 46.9·ft·kips	(User Input)

Bolt Data:

Bolt Grade =	A325	(User Input)
Number of Bolts =	$n_b := 8$	(User Input)
Bolt Diameter =	$d_b := 0.875in$	(User Input)
Allowable Tensile Stress =	$F_{t.all} := 45 \cdot ksi$	(User Input)
Allowable Shear Stress =	$F_{v.all} := 27 \cdot ksi$	(User Input)
Bolt Eccentricity from C.L. Mast =	$e := 25 \cdot in$	(User Input)
Horizontal Spacing Between Bolts =	$S_{horz} := 35.5 \cdot in$	(User Input)
Vetical Spacing From Plate CL to Bolt 1 =	$S_{vert1} := 2.25 \cdot in$	(User Input)
Vetical Spacing From Plate CL to Bolt 2 =	$S_{vert2} := 6 \cdot in$	(User Input)
Bolt Polar Moment of Inertia =	$I_p := 2 \cdot S_{vert1}^2 + 2 \cdot S_{vert2}^2 = 82.125 \cdot in^2$	
Bolt Area =	$a_b := \frac{1}{4} \cdot \pi \cdot d_b^2 = 0.601 \cdot in^2$	



Check Bolt Stresses:

Wind Acting Parallel to Stiffiner Plate:

Shear Force per Bolt = $F_{v.conn} := \frac{Vert}{n_b} = 0.5 \cdot kips$

Shear Stress per Bolt = $F_{v.act} := \frac{F_{v.conn}}{a_b} = 0.832 \cdot ksi$

$Condition1 := if(F_{v.act} < F_{v.all}, "OK", "Overstressed")$

Condition1 = "OK"

Allowable Tensile Stress Adjusted for Shear = $F_{t.adj} := \sqrt{F_{t.all}^2 - 4.39 \cdot F_{v.act}^2} = 44.97 \cdot ksi$ (AISC 9th Ed. Table J3.3)

Moment From Mast Eccentricity = $M_{par} := Vert \cdot e + Moment = 662.8 \cdot kips \cdot in$

Tension Force = $F_{tension} := Horz = 14.5 \cdot kips$

Tension Force Each Bolt = $F_{tension.bolt} := \frac{F_{tension}}{n_b} + \frac{M_{par} \cdot S_{vert2}}{2 \cdot I_p} = 26.024 \cdot kips$

Tension Stress Each Bolt = $F_{t.act} := \frac{F_{tension.bolt}}{a_b} = 43.3 \cdot ksi$

$Condition2 := if(F_{t.act} < F_{t.adj}, "OK", "Overstressed")$

Condition2 = "OK"

Wind Acting Perpendicular to Stiffiner Plate:

Shear Force per Bolt = $F_{v.conn} := \sqrt{\left(\frac{Vert}{n_b} + \frac{Moment \cdot 2}{S_{horz} \cdot n_b}\right)^2 + \left(\frac{Horz}{n_b}\right)^2} = 4.817 \cdot kips$

Shear Stress per Bolt = $F_{v.act} := \frac{F_{v.conn}}{a_b} = 8.011 \cdot ksi$

$Condition3 := if(F_{v.act} < F_{v.all}, "OK", "Overstressed")$

Condition3 = "OK"

Allowable Tensile Stress Adjusted for Shear = $F_{t.adj} := \sqrt{F_{t.all}^2 - 4.39 \cdot F_{v.act}^2} = 41.75 \cdot ksi$ (AISC 9th Ed. Table J3.3)

Moment from Mast Eccentricity = $M_{perp} := Horz \cdot e = 363 \cdot kips \cdot in$

Tension Force per Bolt = $F_{tension.conn} := \frac{M_{perp} \cdot 2}{S_{horz} \cdot n_b} + \frac{Vert \cdot e \cdot S_{vert2}}{2 \cdot I_p} = 6.206 \cdot kips$

Tension Stress Each Bolt = $F_{tension.act} := \frac{F_{tension.conn}}{a_b} = 10.32 \cdot ksi$

$Condition4 := if(F_{tension.act} < F_{t.adj}, "OK", "Overstressed")$

Condition4 = "OK"

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

Rev. 0: 2/4/16

Prepared by: T.J.L Checked by: C.F.C.
Job No. 15267.006

Basic Components

Heavy Wind Pressure =	p := 4.00	psf	(User Input NESC 2007 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 110	mph	(User Input NESC 2007 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50	in	(User Input)
Radial Ice Density =	Id := 56.0	pcf	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Mast Above Grade =	TME := 133	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.344$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.3$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.815$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.847$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 35.3$ psf (NESC 2007 Section 250.C.2)

NESC Extreme Ice w/ Wind Components

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

Shape Factors

NUS Design Criteria Issued April 12, 2007

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(User Input)

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

NESC Heavy Wind Loading =	**2.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Wind Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Ice w/ Wind Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

Overload Factors for Vertical Loads:

NESC Heavy Wind Loading =	**1.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Wind Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Ice w/ Wind Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

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Subject:	Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L Checked by: C.F.C. Job No. 15267.006

Development of Wind & Ice Load on PCS Mast

PCS Mast Data: (Pipe 12.0" SCH. 80)

Mast Shape = Round (User Input)

Mast Diameter = $D_{mast} := 12.75$ in (User Input)

Mast Length = $L_{mast} := 28$ ft (User Input)

Mast Thickness = $t_{mast} := 0.5$ in (User Input)

Gravity Loads (without ice)

Weight of the mast = Self Weight **(Computed internally by Risa-3D)** plf **BLC 1**

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + Ir \cdot 2\right)^2 - D_{mast}^2\right] = 20.8$ sq in

Weight of Ice on Mast = $W_{ICEmast} := Id \cdot \frac{Ai_{mast}}{144} = 8$ plf **BLC 3**

Gravity Loads (Extreme ice only)

Extreme Ice Area per Linear Foot = $Ai_{ex.mast} := \frac{\pi}{4}\left[\left(D_{mast} + Ir_{ex} \cdot 2\right)^2 - D_{mast}^2\right] = 31.8$ sq in

Weight of Extreme Ice on Mast = $W_{ICE.exmast} := Id \cdot \frac{Ai_{ex.mast}}{144} = 12$ plf **BLC 4**

Wind Load (NESC Heavy)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot Ir\right)}{12} = 1.146$ sf/ft

Total Mast Wind Force w/ Ice = $Fi_{mast} := p \cdot Cd_R \cdot AICE_{mast} = 6$ plf **BLC 5**

Wind Load (NESC Extreme)

Mast Projected Surface Area = $A_{mast} := \frac{D_{mast}}{12} = 1.063$ sf/ft

Total Mast Wind Force (Below NU Structure) = $F_{mast} := qz \cdot Cd_R \cdot A_{mast} = 49$ plf **BLC 6**

Total Mast Wind Force (Above NU Structure) = $F_{mast} := qz \cdot Cd_R \cdot A_{mast} \cdot m = 61$ plf **BLC 6**

Wind Load (NESC Extreme Ice w/ Wind)

Mast Projected Surface Area w/ Extreme Ice = $AICE_{ex.mast} := \frac{\left(D_{mast} + 2 \cdot Ir_{ex}\right)}{12} = 1.188$ sf/ft

Total Mast Wind Force w/ Extreme Ice = $Fi_{ex.mast} := p_{ex} \cdot Cd_R \cdot AICE_{ex.mast} = 10$ plf **BLC 7**

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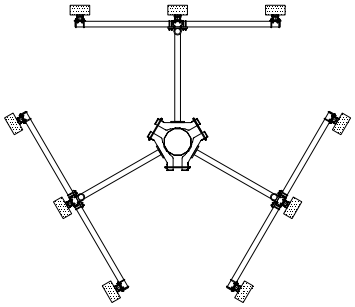
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L Checked by: C.F.C. Job No. 15267.006

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Andrew SBNH-1D6565B		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72.72$	in	(User Input)
Antenna Width =	$W_{ant} := 11.85$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)
Antenna Weight =	$WT_{ant} := 47.4$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)



Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 284$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6118$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 1555$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 50$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 302$ lbs **BLC 3**

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 2403$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 78$ lbs

Weight of Extreme Ice on All Antennas = $W_{ICE.exant} \cdot N_{ant} = 467$ lbs **BLC 4**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 6.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 39.5$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 253$ lbs **BLC 5**

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 35.9$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2532$ lbs **BLC 6**

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 = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 6.9$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 41.3$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 423$ lbs **BLC 7**

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

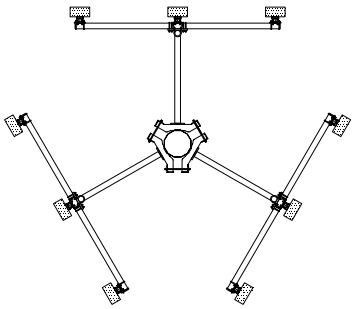
Rev. 0: 2/4/16

Prepared by: T.J.L Checked by: C.F.C.
Job No. 15267.006

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Quintel QS66512-3		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 12$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 112$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)



Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 336$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8294$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 1765$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 57$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 172$ lbs **BLC 3**

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 2720$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 88$ lbs

Weight of Extreme Ice on All Antennas = $W_{ICE.exant} \cdot N_{ant} = 264$ lbs **BLC 4**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 6.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.8$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := p \cdot Cd_F \cdot A_{ICEant} = 127$ lbs **BLC 5**

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 18$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1269$ lbs **BLC 6**

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 = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 6.9$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 20.7$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 212$ lbs **BLC 7**

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

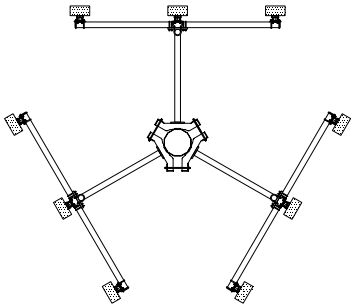
Rev. 0: 2/4/16

Prepared by: T.J.L Checked by: C.F.C.
Job No. 15267.006

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	CCI DTMABP7819VG12A		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 14.25$	in	(User Input)
TMA Width =	$W_{TMA} := 11.46$	in	(User Input)
TMA Thickness =	$T_{TMA} := 4.17$	in	(User Input)
TMA Weight =	$WT_{TMA} := 20$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 6$		(User Input)



Gravity Load (without ice)

Weight of All TMA's = $WT_{TMA} \cdot N_{TMA} = 120$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 681$ cu in

Volume of Ice on Each TMA = $V_{ice} := \left(L_{TMA} + 2 \cdot Ir\right)\left(W_{TMA} + 2 \cdot Ir\right)\left(T_{TMA} + 2 \cdot Ir\right) - V_{TMA} = 301$ cu in

Weight of Ice on Each TMA = $W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 10$ lbs

Weight of Ice on All TMA's = $W_{ICETMA} \cdot N_{TMA} = 59$ lbs **BLC 3**

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each TMA = $V_{ice.ex} := \left(L_{TMA} + 2 \cdot Ir_{ex}\right)\left(W_{TMA} + 2 \cdot Ir_{ex}\right)\left(T_{TMA} + 2 \cdot Ir_{ex}\right) - V_{TMA} = 476$ cu in

Weight of Extreme Ice on Each TMA = $W_{ICE.exTMA} := \frac{V_{ice.ex}}{1728} \cdot Id = 15$ lbs

Weight of Extreme Ice on All TMA's = $W_{ICE.exTMA} \cdot N_{TMA} = 93$ lbs **BLC 4**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all TMA's Simultaneously

Surface Area for One TMA w/ Ice = $SA_{ICETMA} := \frac{\left(L_{TMA} + 2 \cdot Ir\right) \cdot \left(W_{TMA} + 2 \cdot Ir\right)}{144} = 1.3$ sf

TMA Projected Surface Area w/ Ice = $A_{ICETMA} := SA_{ICETMA} \cdot N_{TMA} = 7.9$ sf

Total TMA Wind Force w/ Ice = $Fi_{TMA} := p \cdot Cd_F \cdot A_{ICETMA} = 51$ lbs **BLC 5**

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all TMA's Simultaneously

Surface Area for One TMA = $SA_{TMA} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 1.1$ sf

TMA Projected Surface Area = $A_{TMA} := SA_{TMA} \cdot N_{TMA} = 6.8$ sf

Total TMA Wind Force = $F_{TMA} := qz \cdot Cd_F \cdot A_{TMA} \cdot m = 480$ lbs **BLC 6**

Wind Load (NESC Extreme Ice w/ Wind)

Assumes Maximum Possible Wind Pressure Applied to all TMA's Simultaneously

Surface Area for One TMA w/ Extreme Ice = $SA_{ICE.exTMA} := \frac{(L_{TMA} + 2 \cdot Ir_{ex}) \cdot (W_{TMA} + 2 \cdot Ir_{ex})}{144} = 1.4$ sf

TMA Projected Surface Area w/ Extreme Ice = $A_{ICE.exTMA} := SA_{ICE.exTMA} \cdot N_{TMA} = 8.5$ sf

Total TMA Wind Force w/ Extreme Ice = $Fi_{ex.TMA} := p_{ex} \cdot Cd_F \cdot A_{ICE.exTMA} = 87$ lbs **BLC 7**

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Subject: Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063

Location: Orange, CT

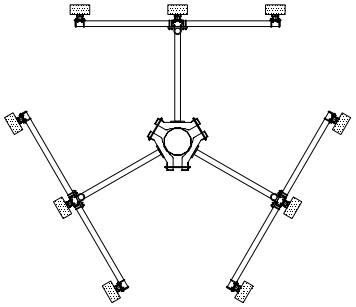
Rev. 0: 2/4/16

Prepared by: T.J.L Checked by: C.F.C.
Job No. 15267.006

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Kaelus TMA2117F00V1-1		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 8.46$	in	(User Input)
TMA Width =	$W_{TMA} := 11.81$	in	(User Input)
TMA Thickness =	$T_{TMA} := 4.21$	in	(User Input)
TMA Weight =	$WT_{TMA} := 18$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 6$		(User Input)



Gravity Load (without ice)

Weight of All TMA's = $WT_{TMA} \cdot N_{TMA} = 108$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 421$ cu in

Volume of Ice on Each TMA = $V_{ice} := \left(L_{TMA} + 2 \cdot Ir\right)\left(W_{TMA} + 2 \cdot Ir\right)\left(T_{TMA} + 2 \cdot Ir\right) - V_{TMA} = 211$ cu in

Weight of Ice on Each TMA = $W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 7$ lbs

Weight of Ice on All TMA's = $W_{ICETMA} \cdot N_{TMA} = 41$ lbs **BLC 3**

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each TMA = $V_{ice.ex} := \left(L_{TMA} + 2 \cdot Ir_{ex}\right)\left(W_{TMA} + 2 \cdot Ir_{ex}\right)\left(T_{TMA} + 2 \cdot Ir_{ex}\right) - V_{TMA} = 336$ cu in

Weight of Extreme Ice on Each TMA = $W_{ICE.exTMA} := \frac{V_{ice.ex}}{1728} \cdot Id = 11$ lbs

Weight of Extreme Ice on All TMA's = $W_{ICE.exTMA} \cdot N_{TMA} = 65$ lbs **BLC 4**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all TMA's Simultaneously

Surface Area for One TMA w/ Ice = $SA_{ICETMA} := \frac{\left(L_{TMA} + 2 \cdot Ir\right) \cdot \left(W_{TMA} + 2 \cdot Ir\right)}{144} = 0.8$ sf

TMA Projected Surface Area w/ Ice = $A_{ICETMA} := SA_{ICETMA} \cdot N_{TMA} = 5$ sf

Total TMA Wind Force w/ Ice = $Fi_{TMA} := p \cdot Cd_F \cdot A_{ICETMA} = 32$ lbs **BLC 5**

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all TMA's Simultaneously

Surface Area for One TMA = $SA_{TMA} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.7$ sf

TMA Projected Surface Area = $A_{TMA} := SA_{TMA} \cdot N_{TMA} = 4.2$ sf

Total TMA Wind Force = $F_{TMA} := qz \cdot Cd_F \cdot A_{TMA} \cdot m = 294$ lbs **BLC 6**

Wind Load (NESC Extreme Ice w/ Wind)

Assumes Maximum Possible Wind Pressure Applied to all TMA's Simultaneously

Surface Area for One TMA w/ Extreme Ice = $SA_{ICE.exTMA} := \frac{\left(L_{TMA} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{TMA} + 2 \cdot Ir_{ex}\right)}{144} = 0.9$ sf

TMA Projected Surface Area w/ Extreme Ice = $A_{ICE.exTMA} := SA_{ICE.exTMA} \cdot N_{TMA} = 5.5$ sf

Total TMA Wind Force w/ Extreme Ice = $Fi_{ex.TMA} := p_{ex} \cdot Cd_F \cdot A_{ICE.exTMA} = 57$ lbs **BLC 7**

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Subject:	Load Analysis of Pipe Mast and AT&T Equipment on Structure # 24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L Checked by: C.F.C. Job No. 15267.006

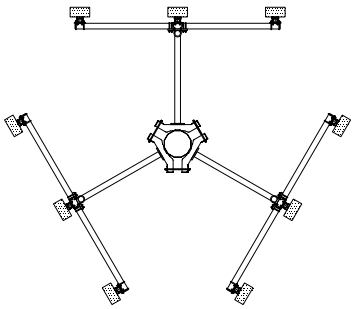
Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type: Valmont 10'-6" T-Arm Co-Location Kit

Mount Shape = Flat

Mount Projected Surface Area =	$CdAa := 33.3$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 44.4$	sf	(User Input)
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 55.6$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 1170$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 1356$	lbs	(User Input)
Mount Weight w/ Extreme Ice =	$WT_{mnt.ice.ex} := 1845$	lbs	(User Input)



Gravity Loads (without ice)

Weight of All Mounts = $WT_{mnt} = 1170$ lbs **BLC 2**

Gravity Load (ice only)

Weight of Ice on All Mounts = $WT_{mnt.ice} - WT_{mnt} = 186$ lbs **BLC 3**

Gravity Load (Extreme ice only)

Weight of Extreme Ice on All Mounts = $WT_{mnt.ice.ex} - WT_{mnt} = 675$ lbs **BLC 4**

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt} := p \cdot CdAa_{ice} = 178$ lbs **BLC 5**

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt} := qz \cdot CdAa \cdot m = 1468$ lbs **BLC 6**

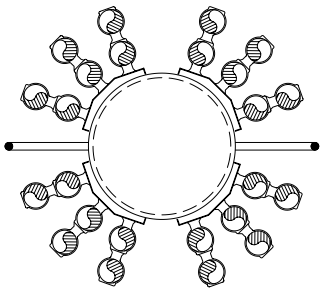
Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force w/ Extreme Ice = $Fi_{ex.mnt} := p_{ex} \cdot CdAa_{ice.ex} = 356$ lbs **BLC 7**

Development of Wind & Ice Load on Coax Cables

Coax Cable Data:

Coax Type =	HELIAX 1-5/8"			
Shape =	Round		(User Input)	
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)	
Coax Cable Length =	$L_{coax} := 10$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 24$		(User Input)	
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 6$		(User Input)	



Gravity Loads (without ice)

Weight of all cables w/o ice = $WT_{coax} := Wt_{coax} \cdot N_{coax} = 25$ plf **BLC 2**

Gravity Load (ice only)

Ice Area per Linear Foot = $Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 3.9$ sq in

Ice Weight All Coax per foot = $WTi_{coax} := N_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 36$ plf **BLC 3**

Gravity Loads (Extreme ice only)

Extreme Ice Area per Linear Foot = $Ai_{ex.coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot Ir_{ex}\right)^2 - D_{coax}^2\right] = 6.4$ sq in

Extreme Ice Weight All Coax per foot = $W_{ICE.excoax} := N_{coax} \cdot Id \cdot \frac{Ai_{ex.coax}}{144} = 60$ plf **BLC 4**

Wind Load (NESC Heavy)

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{NP_{coax} \cdot \left(D_{coax} + 2 \cdot Ir\right)}{12} = 1.5$ sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := p \cdot Cd_{coax} \cdot AICE_{coax} = 10$ plf **BLC 5**

Wind Load (NESC Extreme)

Coax projected surface area = $A_{coax} := \frac{\left(NP_{coax} D_{coax}\right)}{12} = 1$ sf/ft

Total Coax Wind Force (Above NU Structure) = $F_{coax} := qz \cdot Cd_{coax} \cdot A_{coax} \cdot m = 70$ plf **BLC 6**

Wind Load (NESC Extreme Ice w/ Wind)

Coax Projected Surface Area w/ Extreme Ice = $AICE_{ex.coax} := \frac{NP_{coax} \cdot \left(D_{coax} + 2 \cdot Ir_{ex}\right)}{12} = 1.74$ sf/ft

Total Coax Wind Force w/ Extreme Ice = $Fi_{ex.coax} := p_{ex} \cdot Cd_{coax} \cdot AICE_{ex.coax} = 18$ plf **BLC 7**

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Subject: **Analysis of NESC Wind and Ice Loads for Obtaining Reactions Applied to Utility Pole Tabulated Load Cases**

Location: **Orange, CT**

Date:2/4/16 Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Load Case	Description
1	Self Weight (Mast)
2	Weight of Appurtenances
3	Weight of Ice Only
4	Weight of Extreme Ice
5	NESC Heavy Wind
6	NESC Extreme Wind
7	NESC Extreme Ice w/ Wind

Footnotes:

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Subject: **Analysis of NESC Wind and Ice Loads for Obtaining Reactions Applied to Utility Pole Load Combinations Table**

Location: **Orange, CT**

Date: 2/4/16 Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Load Combination	Description	Envelope Soultion	Wind Factor	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	NESC Heavy Wind		1		1	1.5	2	1.5	3	1.5	5	2.5		
2	NESC Extreme Wind		1		1	1	2	1	6	1				
3	NESC Extreme Ice w/ Wind		1		1	1	2	1	4	1	7	1		

Footnotes:
(1) BLC = Basic Load Case

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Increase Nailing Capacity for Wind?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	No
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 9th: ASD
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Global, Continued

Seismic Code	UBC 1997
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	No
Ct Z	.035
Ct X	.035
T Z (sec)	Not Entered
T X (sec)	Not Entered
R Z	8.5
R X	8.5
Ca	.36
Cv	.54
Nv	1
Occupancy Category	4
Seismic Zone	3
Seismic Detailing Code	ASCE 7-05
Om Z	1
Om X	1
Rho Z	1
Rho X	1

Footing Overturning Safety Factor	1.5
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	0
Footing Concrete f'c (ksi)	3
Footing Concrete Ec (ksi)	4000
Lamda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	3.5
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Design Parameters

	Label	Shape	Leng...	Lbyy[ft]	Lbzz[ft]	Lcomp ...	Lcomp ...	Kyy	Kzz	Cm...	Cm...	Cb	y s...	z s...	Functi...
1	M1	Mast	28												Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast	PIPE_12.0X	Beam	Pipe	A53 Gr. B	Typical	17.5	339	339	678

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	BOTCO...	TOPMA...			Mast	Beam	Pipe	A53 Gr. B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From D...
1	BOTCONNECTION	0	0	0	0	
2	TOPCONNECTION	0	10	0	0	
3	TOPMAST	0	28	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	BOTCONNECTION	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
2	TOPCONNECTION	Reaction		Reaction				

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.284	25
2	M1	Y	-.336	25
3	M1	Y	-.12	25
4	M1	Y	-.108	25
5	M1	Y	-1.17	25

Member Point Loads (BLC 3 : Weight of Ice Only)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.302	25
2	M1	Y	-.172	25
3	M1	Y	-.059	25
4	M1	Y	-.041	25
5	M1	Y	-.186	25

Member Point Loads (BLC 4 : Weight of Extreme Ice Only)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.467	25
2	M1	Y	-.264	25
3	M1	Y	-.093	25
4	M1	Y	-.065	25

Member Point Loads (BLC 4 : Weight of Extreme Ice Only) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	M1	Y	-.675	25

Member Point Loads (BLC 5 : NESC Heavy Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.253	25
2	M1	X	.127	25
3	M1	X	.051	25
4	M1	X	.032	25
5	M1	X	.178	25

Member Point Loads (BLC 6 : NESC Extreme Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	2.532	25
2	M1	X	1.269	25
3	M1	X	.48	25
4	M1	X	.294	25
5	M1	X	1.468	25

Member Point Loads (BLC 7 : NESC Extreme Ice w/ Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.423	25
2	M1	X	.212	25
3	M1	X	.087	25
4	M1	X	.057	25
5	M1	X	.356	25

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
No Data to Print ...			

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.025	-.025	15	25

Member Distributed Loads (BLC 3 : Weight of Ice Only)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.008	-.008	0	0
2	M1	Y	-.036	-.036	15	25

Member Distributed Loads (BLC 4 : Weight of Extreme Ice Only)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.012	-.012	0	0
2	M1	Y	-.06	-.06	15	25

Member Distributed Loads (BLC 5 : NESC Heavy Wind)

Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 5 : NESC Heavy Wind) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.006	.006	0	0
2	M1	X	.01	.01	15	25

Member Distributed Loads (BLC 6 : NESC Extreme Wind)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.049	.049	0	15
2	M1	X	.061	.061	15	28
3	M1	X	.07	.07	15	25

Member Distributed Loads (BLC 7 : NESC Extreme Ice w/ Wind)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.01	.01	0	0
2	M1	X	.018	.018	15	25

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Grav...	Joint	Point	Distrib...	Area(...	Surfac...
1	Self Weight (Antenna Mast)	None		-1						
2	Weight of Appurtenances	None					5	1		
3	Weight of Ice Only	None					5	2		
4	Weight of Extreme Ice Only	None					5	2		
5	NESC Heavy Wind	None					5	2		
6	NESC Extreme Wind	None					5	3		
7	NESC Extreme Ice w/ Wind	None					5	2		

Load Combinations

	Description	Sol...	PDelta	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	NESC Heavy Wind	Yes			1	1.5	2	1.5	3	1.5	5	2.5								
2	NESC Extreme Wind	Yes			1	1	2	1	6	1										
3	NESC Extreme Ice w/ Wind	Yes			1	1	2	1	4	1	7	1								
4	Self Weight				1	1														

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	BOTCONNE...	max	15.49	2	7.919	1	0	1	0	1	0	1	-9.507	3
2		min	2.945	3	3.935	2	0	1	0	1	0	1	-49.972	2
3	TOPCONNE...	max	-4.54	3	0	1	0	1	0	1	0	1	0	1
4		min	-23.761	2	0	1	0	1	0	1	0	1	0	1
5	Totals:	max	-1.595	3	7.919	1	0	1						
6		min	-8.271	2	3.935	2	0	1						

Joint Reactions

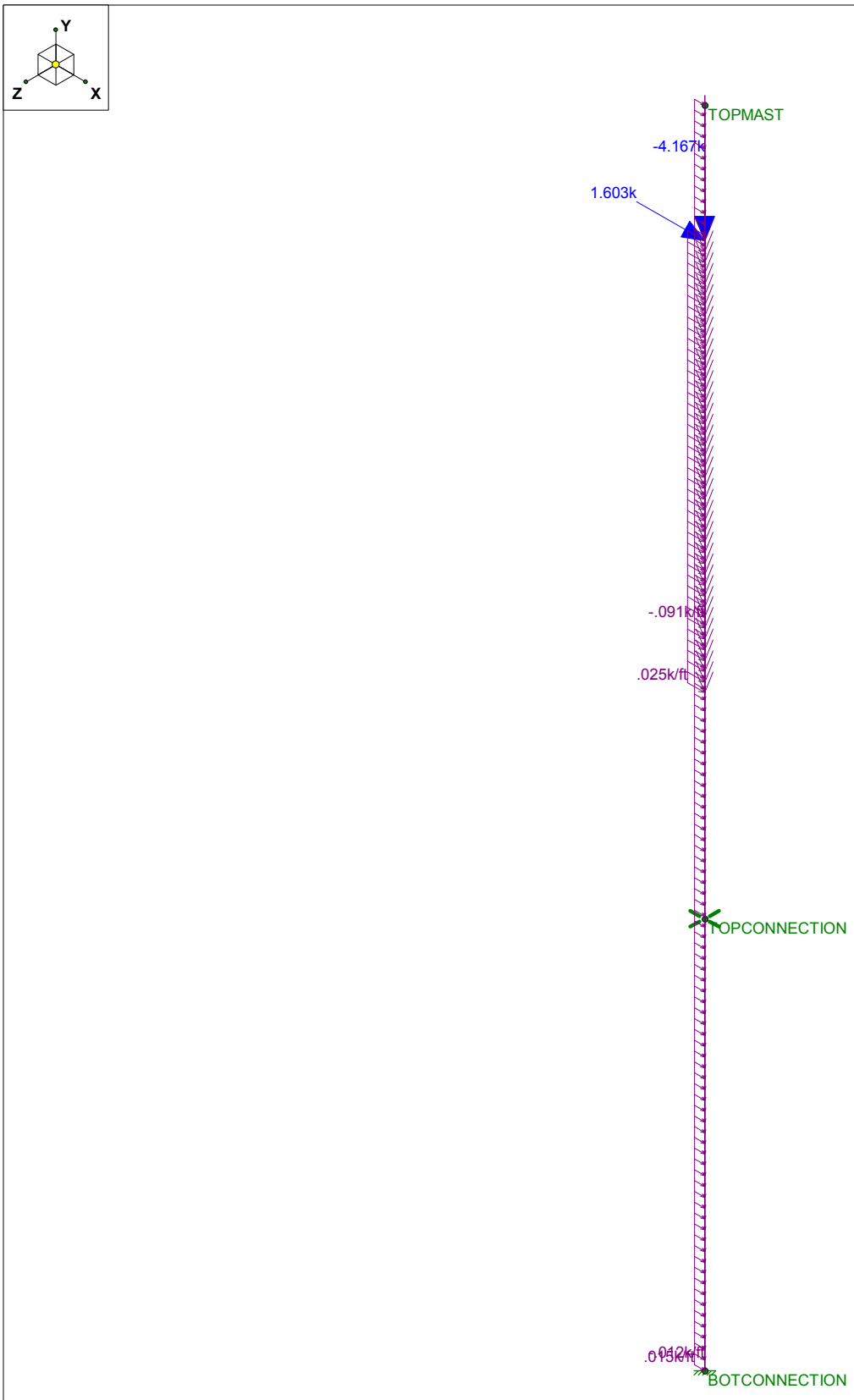
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	BOTCONNECTION	4.168	7.919	0	0	0	-13.459
2	1	TOPCONNECTION	-6.44	0	0	0	0	0
3	1	Totals:	-2.273	7.919	0			
4	1	COG (ft):	X: 0	Y: 20.481	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	BOTCONNECTION	15.49	3.935	0	0	0	-49.972
2	2	TOPCONNECTION	-23.761	0	0	0	0	0
3	2	Totals:	-8.271	3.935	0			
4	2	COG (ft):	X: 0	Y: 20.022	Z: 0			

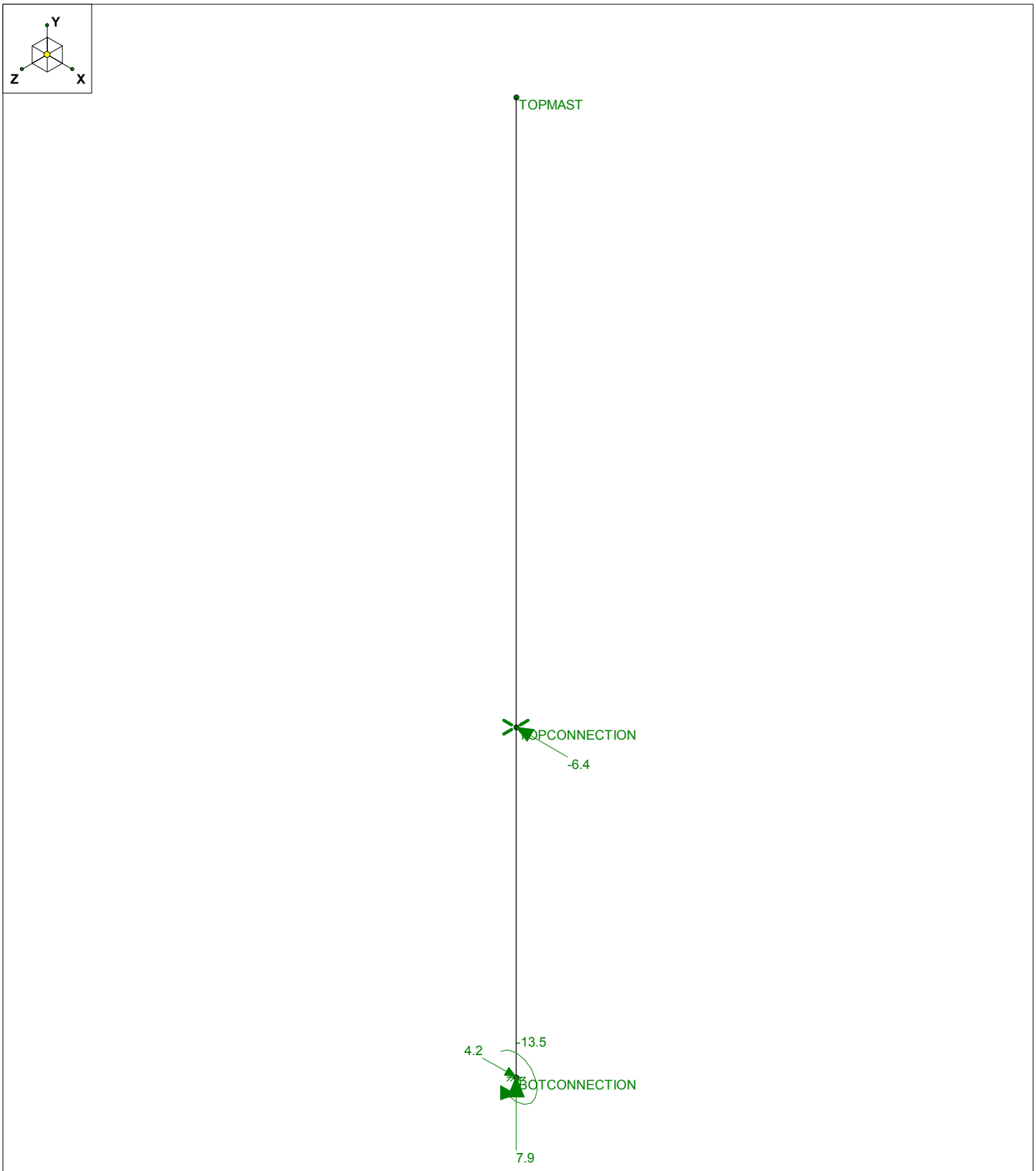
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	BOTCONNECTION	2.945	6.435	0	0	0	-9.507
2	3	TOPCONNECTION	-4.54	0	0	0	0	0
3	3	Totals:	-1.595	6.435	0			
4	3	COG (ft):	X: 0	Y: 20.915	Z: 0			



Loads: LC 1, NESC Heavy Wind

CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:22 PM
15267.006 / AT&T CT2343	LC #1 Loads	NESC Loads.r3d



CENTEK Engineering, INC.		
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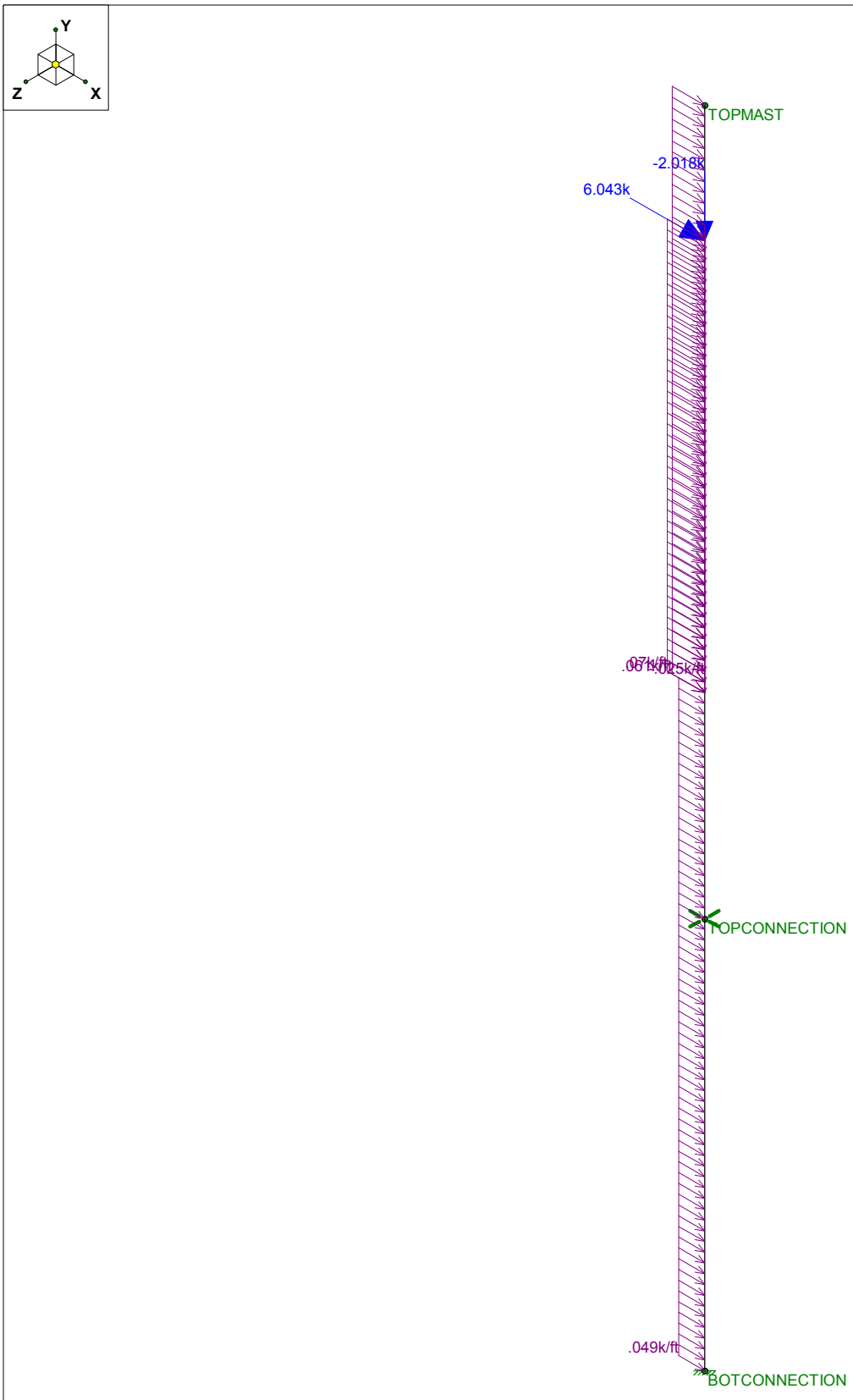
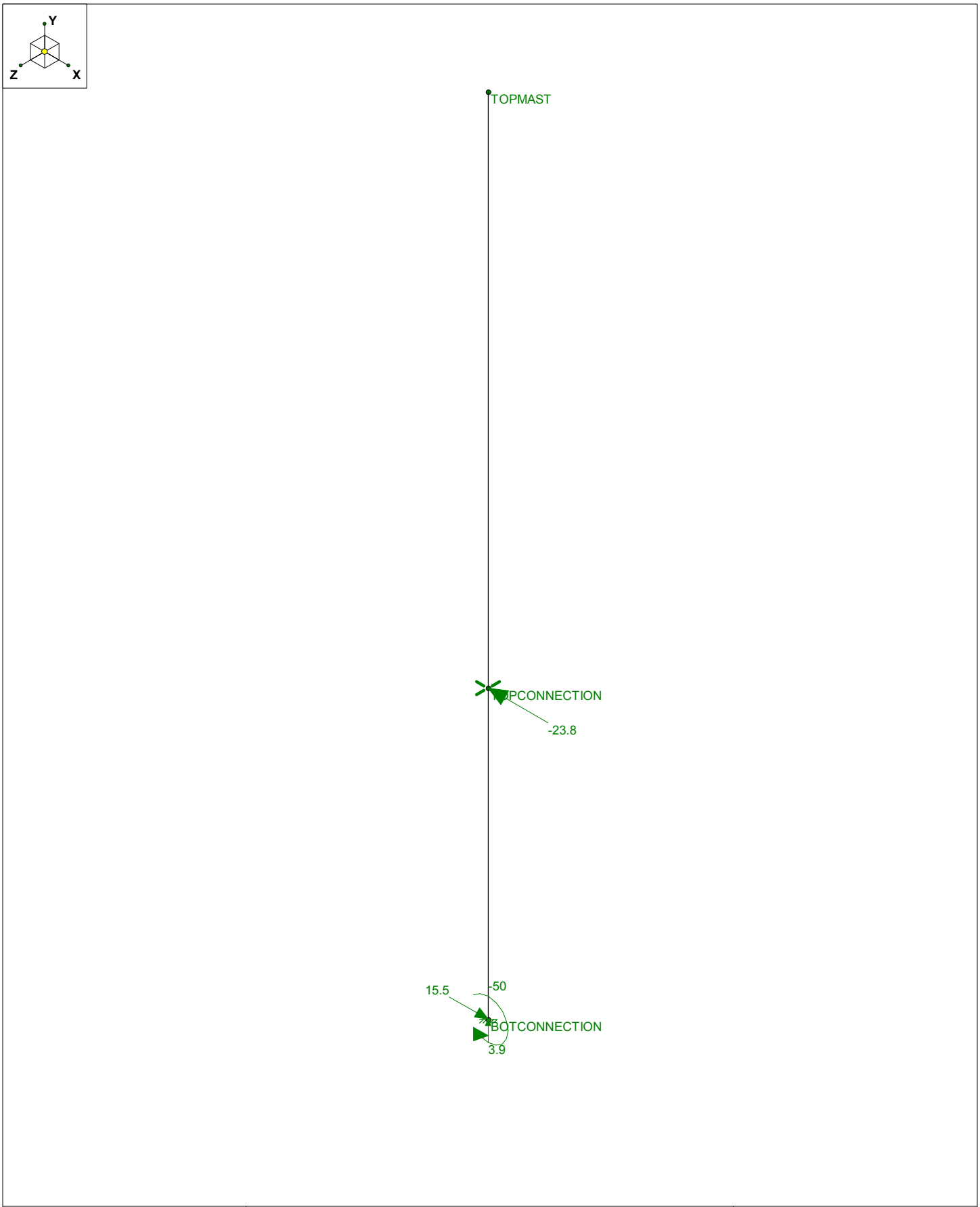
15267.006 / AT&T CT2343	LC #1 Reactions	NESC Loads.r3d



Loads: LC 2, NESC Extreme Wind

CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:22 PM
15267.006 / AT&T CT2343	LC #2 Loads	NESC Loads.r3d



CENTEK Engineering, INC.		
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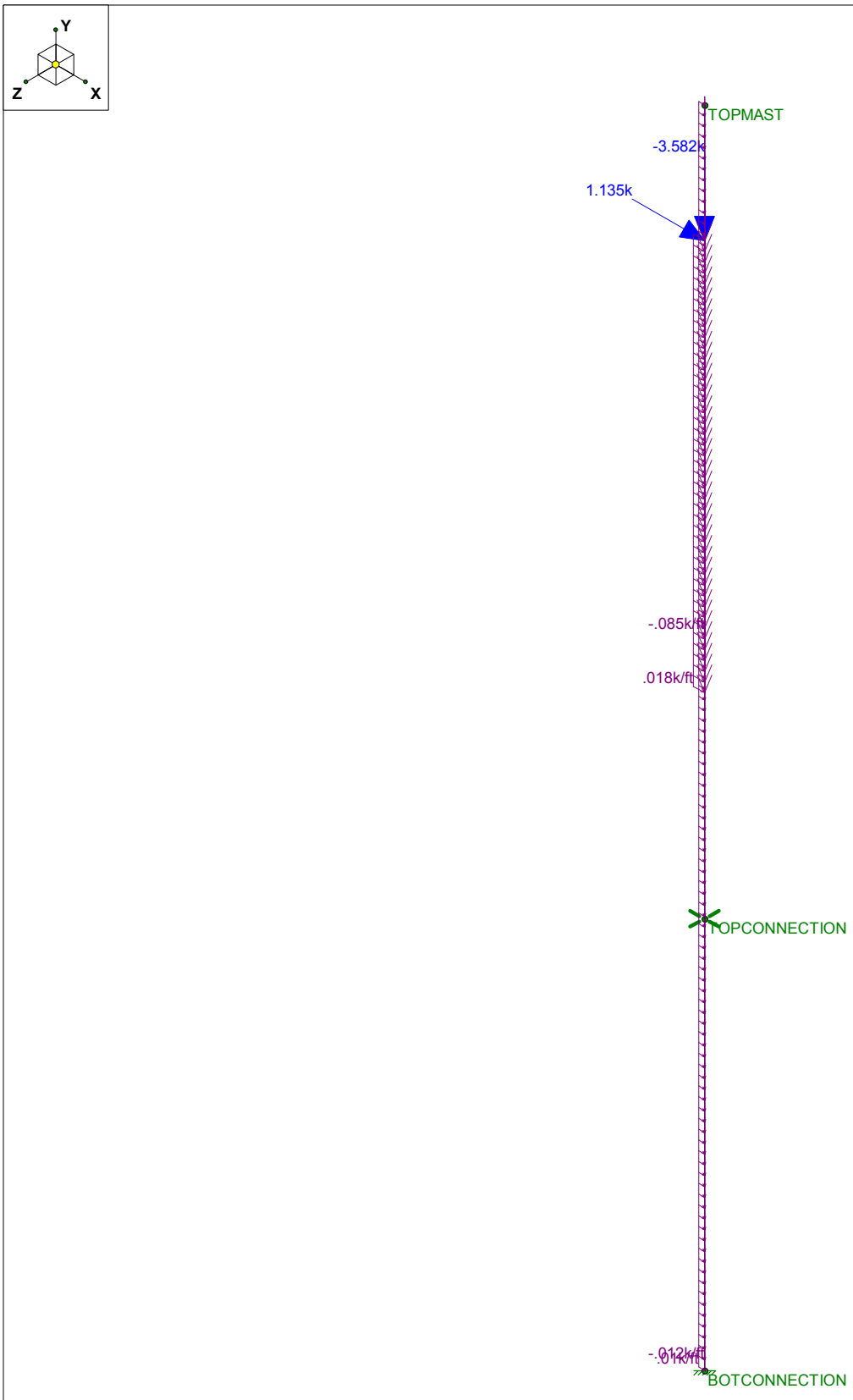
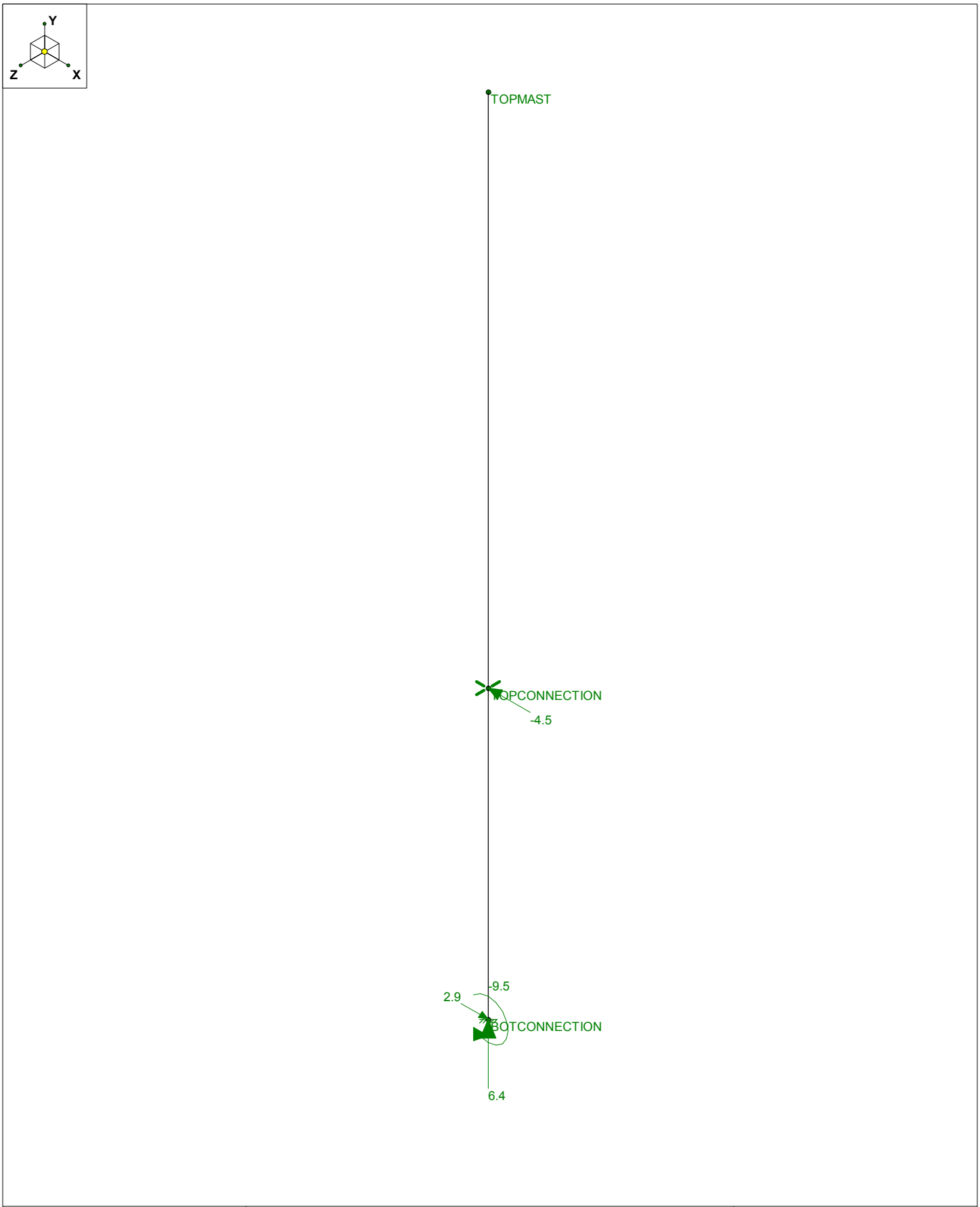
15267.006 / AT&T CT2343	LC #2 Reactions	NESC Loads.r3d



Loads: LC 3, NESC Extreme Ice w/ Wind

CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:22 PM
15267.006 / AT&T CT2343	LC #3 Loads	NESC Loads.r3d



CENTEK Engineering, INC.		
tjl, cfc	Structure # 24063 - Mast	Feb 4, 2016 at 4:25 PM
15267.006 / AT&T CT2343	LC #3 Reactions	NESC Loads.r3d

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Coax Cable on Pole #24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L Checked by: C.F.C. Job No. 15267.006

Coax Cable on Pole

Distance Between Coax Cable Attach Points =

Coaxial Cable Span $Coax_{Span} := \begin{pmatrix} 15 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable =	$D_{coax} := 1.98 \cdot in$	*(User Input)*
Weight of Coax Cable =	$W_{coax} := 1.04 \cdot plf$	*(User Input)*
Number of Coax Cables =	$N_{coax} := 24$	*(User Input)*
Number of Projected Coax Cables =	$NP_{coax} := 8$	*(User Input)*
Extreme Wind Pressure =	$qz := 35.3 \cdot psf$	*(User Input)*
Heavy Wind Pressure =	$p := 4 \cdot psf$	*(User Input)*
Radial Ice Thickness =	$Ir := 0.5 \cdot in$	*(User Input)*
Radial Ice Density =	$Id := 56 \cdot pcf$	*(User Input)*
Extreme Ice w/ Wind Pressure =	$p_{ex} := 6.4 \cdot psf$	*(User Input)*
Extreme Radial Ice Thickness =	$Ir_{ex} := 0.75 \cdot in$	*(User Input)*
Shape Factor =	$Cd_{coax} := 1.6$	*(User Input)*
Overload Factor for NESC Heavy Wind Transverse Load =	$OF_{HWT} := 2.5$	*(User Input)*
Overload Factor for NESC Heavy Wind Vertical Load =	$OF_{HWV} := 1.5$	*(User Input)*
Overload Factor for NESC Extreme Wind Transverse Load =	$OF_{EWT} := 1.0$	*(User Input)*
Overload Factor for NESC Extreme Wind Vertical Load =	$OF_{EWV} := 1.0$	*(User Input)*
Overload Factor for NESC Extreme Ice w/ Wind Transverse Load =	$OF_{EIT} := 1.0$	*(User Input)*
Overload Factor for NESC Extreme Ice w/ Wind Vertical Load =	$OF_{EIV} := 1.0$	*(User Input)*

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 15.84 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 16.84 \cdot in$

Wind Area with Extreme Ice = $A_{ice.ex} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir_{ex}\right) = 17.34 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 36.359 \cdot plf$

Extreme Ice Area per Liner Ft = $Ai_{coax.ex} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir_{ex}\right)^2 - D_{coax}^2\right] = 0.045\,ft^2$

Weight of Extreme Ice on All Coax Cables = $W_{ice.ex} := Ai_{coax.ex} \cdot Id \cdot N_{coax} = 60.036 \cdot plf$

Heavy Wind Vertical Load =

$$\overrightarrow{Heavy\_WInd_{Vert} := \left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HWV}\right]}$$

Heavy Wind Transverse Load =

$$\overrightarrow{Heavy\_Wind_{Trans} := \left(p \cdot A_{ice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HWT}\right)}$$

$$Heavy\_WInd_{Vert} = \begin{pmatrix} 1380 \\ 920 \\ 920 \\ 920 \\ 920 \\ 920 \\ 920 \\ 920 \\ 920 \\ 920 \\ 920 \end{pmatrix} lb \qquad Heavy\_Wind_{Trans} = \begin{pmatrix} 337 \\ 225 \\ 225 \\ 225 \\ 225 \\ 225 \\ 225 \\ 225 \\ 225 \\ 225 \\ 225 \end{pmatrix} lb$$

Extreme Wind Vertical Load =

$$Extreme\_Wind_{Vert} := \overrightarrow{\left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$Extreme\_Wind_{Trans} := \overrightarrow{\left[\left(qz \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$$Extreme\_Wind_{Vert} = \begin{pmatrix} 374 \\ 250 \\ 250 \\ 250 \\ 250 \\ 250 \\ 250 \\ 250 \\ 250 \\ 250 \\ 250 \end{pmatrix} lb \qquad Extreme\_Wind_{Trans} = \begin{pmatrix} 1118 \\ 746 \\ 746 \\ 746 \\ 746 \\ 746 \\ 746 \\ 746 \\ 746 \\ 746 \\ 746 \end{pmatrix} lb$$

Extreme Ice w/ Wind Vertical Load =

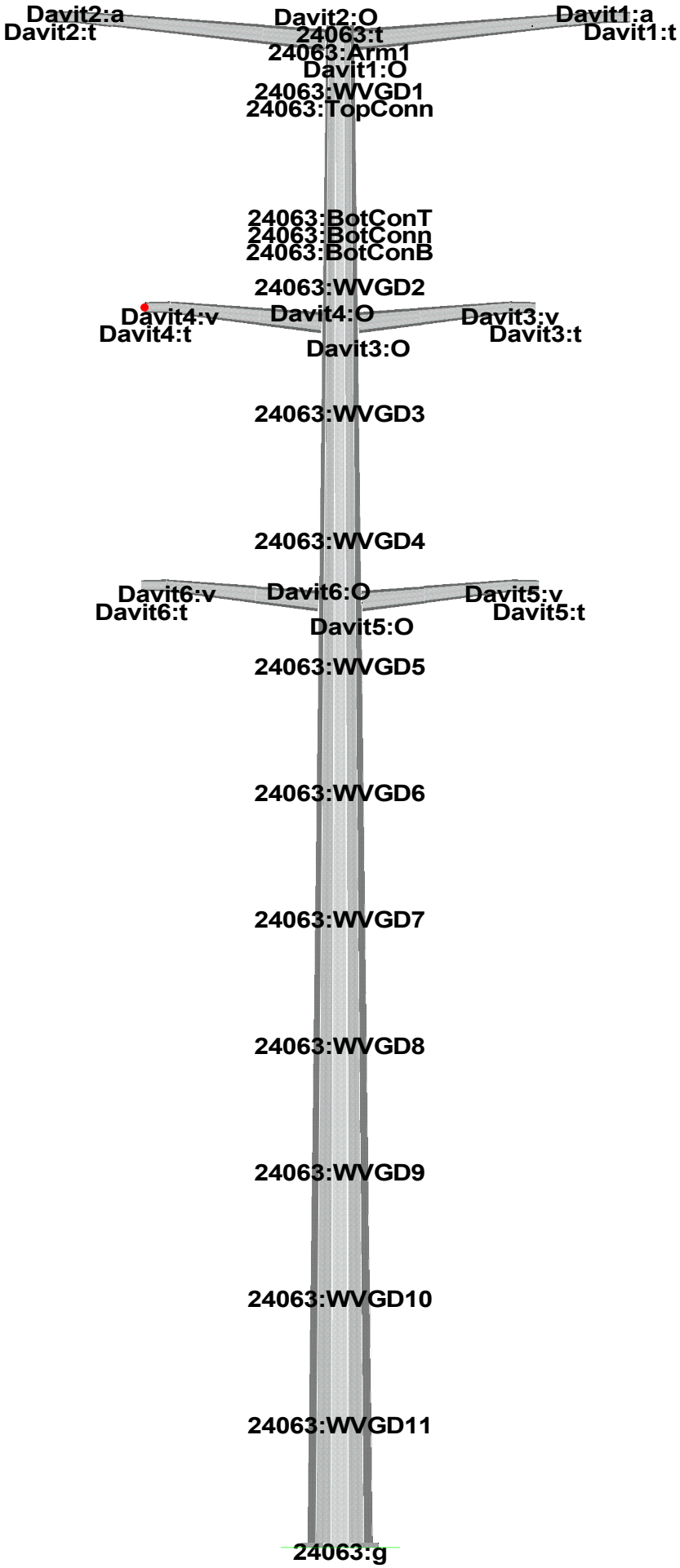
$$Extreme\_Ice_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice.ex}\right) \cdot Coax_{Span} \cdot OF_{EIV}\right]}$$

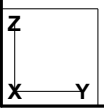
Extreme Ice w/ Wind Transverse Load =

$$Extreme\_Ice_{Trans} := \overrightarrow{\left(p_{ex} \cdot A_{ice.ex} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{EIT}\right)}$$

$$Extreme\_Ice_{Vert} = \begin{pmatrix} 1275 \\ 850 \\ 850 \\ 850 \\ 850 \\ 850 \\ 850 \\ 850 \\ 850 \\ 850 \\ 850 \end{pmatrix} lb \qquad Extreme\_Ice_{Trans} = \begin{pmatrix} 222 \\ 148 \\ 148 \\ 148 \\ 148 \\ 148 \\ 148 \\ 148 \\ 148 \\ 148 \\ 148 \end{pmatrix} lb$$

Centek Engineering Inc, Project: "cl&p structure # 24063"
PLS-POLE Version 12.50, 9:57:07 AM Friday, February 05, 2016
Undeformed geometry displayed





Project Name : 15267.006 - Orange, CT
Project Notes: Structure # 24063/ AT&T - CT2343
Project File : J:\Jobs\1526700.WI\006_Orange Offload for CT2343\04_Structural\Backup Documentation\PLS-Pole\cl&p structure # 24063.pol
Date run : 9:55:57 AM Friday, February 05, 2016
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\1526700.wi\006_orange offload for ct2343\04_structural\backup documentation\pls-pole\cl&p #24063.lca

*** Analysis Results:

Maximum element usage is 58.21% for Steel Pole "24063" in load case "NESC Extreme Wind"
Maximum insulator usage is 62.46% for Clamp "Clamp22" 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	24063:g	-0.18	-26.97	-136.01	26.97	2520.91	-11.00	2520.93	0.02	0.00
NESC Extreme Wind	24063:g	-0.18	-64.18	-79.10	64.18	5863.09	-16.46	5863.11	0.01	0.00
NESC Extreme Ice w/ Wind	24063:g	-0.09	-20.93	-111.77	20.94	1989.97	-6.48	1989.98	-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	24063:t	0.07	20.77	-0.26	20.77	0.00	-1.56	-0.00
NESC Extreme Wind	24063:t	0.13	48.53	-1.14	48.54	0.01	-3.69	-0.00
NESC Extreme Ice w/ Wind	24063:t	0.05	16.47	-0.17	16.47	0.00	-1.24	0.00

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
24063	1	5418	NESC Extreme Wind	55.45	1352.68
24063	2	5311	NESC Extreme Wind	52.74	2187.26
24063	3	5645	NESC Extreme Wind	57.17	3282.86
24063	4	7044	NESC Extreme Wind	55.51	4446.60
24063	5	8970	NESC Extreme Wind	58.21	5863.11

*** 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)

24063 58.21 NESC Extreme Wind 34 36946.9

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Segment Number	Weight (lbs)
Davit1	36.46	NESC Heavy Wind	1	1053.0
Davit2	34.33	NESC Heavy Wind	1	1053.0
Davit3	30.27	NESC Heavy Wind	1	653.2
Davit4	29.05	NESC Heavy Wind	1	653.2
Davit5	30.31	NESC Heavy Wind	1	653.2
Davit6	29.11	NESC Heavy Wind	1	653.2

*** 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	36.46	Davit1	Tubular Davit
NESC Extreme Wind	58.21	24063	Steel Pole
NESC Extreme Ice w/ Wind	33.22	Davit1	Tubular Davit

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Segment Number
NESC Heavy Wind	26.27	24063	34
NESC Extreme Wind	58.21	24063	34
NESC Extreme Ice w/ Wind	20.79	24063	24

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	24063	11	25.837	131.448	2520.907	-11.005	9.208	46.463	5	58.946	1.469	15.35
NESC Extreme Wind	24063	11	25.837	74.542	5863.088	-16.462	20.100	101.428	5	129.839	2.170	33.50
NESC Extreme Ice w/ Wind	24063	11	25.837	107.212	1989.972	-6.476	7.283	36.754	5	46.631	1.307	12.14

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Segment Number
NESC Heavy Wind	36.46	Davit1	1
NESC Extreme Wind	20.87	Davit1	1
NESC Extreme Ice w/ Wind	33.22	Davit1	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
Clamp1	Clamp	11.03	NESC Heavy Wind	0.0
Clamp2	Clamp	2.26	NESC Extreme Ice w/ Wind	0.0
Clamp3	Clamp	11.03	NESC Heavy Wind	0.0
Clamp4	Clamp	11.03	NESC Heavy Wind	0.0
Clamp5	Clamp	11.03	NESC Heavy Wind	0.0
Clamp6	Clamp	11.03	NESC Heavy Wind	0.0
Clamp9	Clamp	1.78	NESC Heavy Wind	0.0
Clamp10	Clamp	1.18	NESC Heavy Wind	0.0
Clamp11	Clamp	1.18	NESC Heavy Wind	0.0
Clamp12	Clamp	1.18	NESC Heavy Wind	0.0
Clamp13	Clamp	1.18	NESC Heavy Wind	0.0
Clamp14	Clamp	1.18	NESC Heavy Wind	0.0
Clamp15	Clamp	1.18	NESC Heavy Wind	0.0
Clamp16	Clamp	1.18	NESC Heavy Wind	0.0
Clamp17	Clamp	1.18	NESC Heavy Wind	0.0
Clamp18	Clamp	1.18	NESC Heavy Wind	0.0
Clamp19	Clamp	1.18	NESC Heavy Wind	0.0
Clamp20	Clamp	19.98	NESC Extreme Wind	0.0
Clamp21	Clamp	29.70	NESC Extreme Wind	0.0
Clamp22	Clamp	62.46	NESC Extreme Wind	0.0
Clamp23	Clamp	62.46	NESC Extreme Wind	0.0
Clamp24	Clamp	11.03	NESC Heavy Wind	0.0
Clamp25	Clamp	2.15	NESC Extreme Ice w/ Wind	0.0

*** Weight of structure (lbs):
Weight of Tubular Davit Arms: 4718.8
Weight of Steel Poles: 36946.9
Total: 41665.7

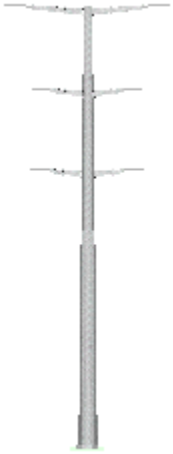
*** End of Report

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

Project Name : 15267.006 - Orange, CT
Project Notes: Structure # 24063/ AT&T - CT2343
Project File : J:\Jobs\1526700.WI\006_Orange Offload for CT2343\04_Structural\Backup Documentation\PLS-Pole\cl&p structure # 24063.pol
Date run     : 9:55:56 AM Friday, February 05, 2016
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 Property	Stock Length Number	Default Embedded	Base Plate	Shape	Tip Diameter	Base Diameter	Taper	Default Drag	Tubes Modulus of Elasticity	Weight Density	Shape At	Strength Check	Distance From Ultimate	Ultimate

Label	Length (ft)	Length (ft)		(in)	(in)	Coef. (in/ft)		Override (ksi)	Override (lbs/ft^3)	Base	Type	Tip (ft)	Trans. Load (kips)	Long. Load (kips)
CL&P24063	24063	120.00	0	Yes	12F	27.63	61.56	0	1.3	5 tubes	0	0	Calculated	0.000	0.0000	0.0000

Steel Tubes Properties:

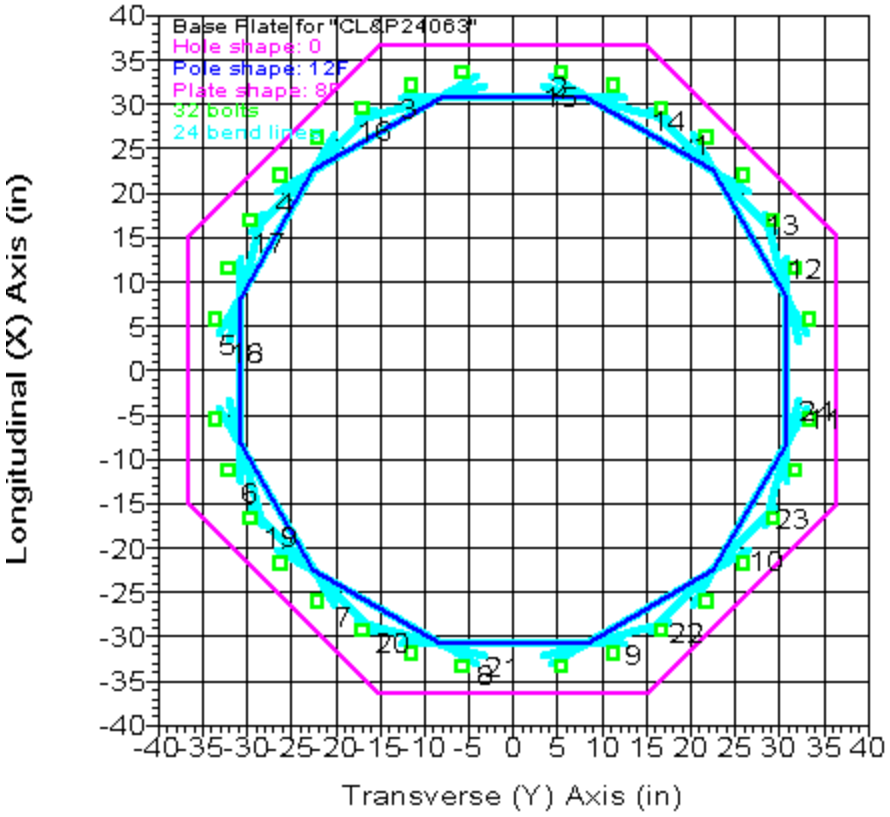
Pole Property	Tube No.	Length (ft)	Thickness (in)	Lap Length (ft)	Lap Factor	Lap Gap (in)	Yield Stress (ksi)	Moment Cap. Override (ft-k)	Tube Weight (lbs)	Center of Gravity (ft)	Calculated Taper (in/ft)	Tube Top Diameter (in)	Tube Bot. Diameter (in)	1.5x Lap Length (ft)	Diam. Actual Overlap (ft)
CL&P24063	1	40	0.375	0.000	0.000	0.000	65.000	0.000	5418	21.16	0.28802	27.63	39.15	4.799	0.000
CL&P24063	2	23	0.5	5.833	0.000	0.000	65.000	0.000	5311	11.80	0.28802	39.40	46.02	5.628	5.833
CL&P24063	3	20.083	0.5625	0.000	0.000	0.000	65.000	0.000	5645	10.25	0.28802	43.34	49.12	6.000	0.000
CL&P24063	4	20	0.625	0.000	0.000	0.000	65.000	0.000	7044	10.19	0.28802	49.25	55.01	6.720	0.000
CL&P24063	5	22.75	0.625	0.000	0.000	0.000	65.000	0.000	8970	11.59	0.28802	55.01	61.56	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 Diam. (in)	Num. Of Bolts	Bolt Cage X Inertia (in^4)	Bolt Cage Y Inertia (in^4)
CL&P24063	73.000	8F	3.750	4559	0.000	0.000	0	490.00	60.000	2.250	68.000	32	73531.13	73531.13

Base Plate Bolt Coordinates for Property "CL&P24063":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)
0.1654	0.9853	0
0.3346	0.9412	0
0.4963	0.8676	0
0.6434	0.7684	0
0.7684	0.6434	0
0.8676	0.4963	0
0.9412	0.3346	0
0.9853	0.1654	0



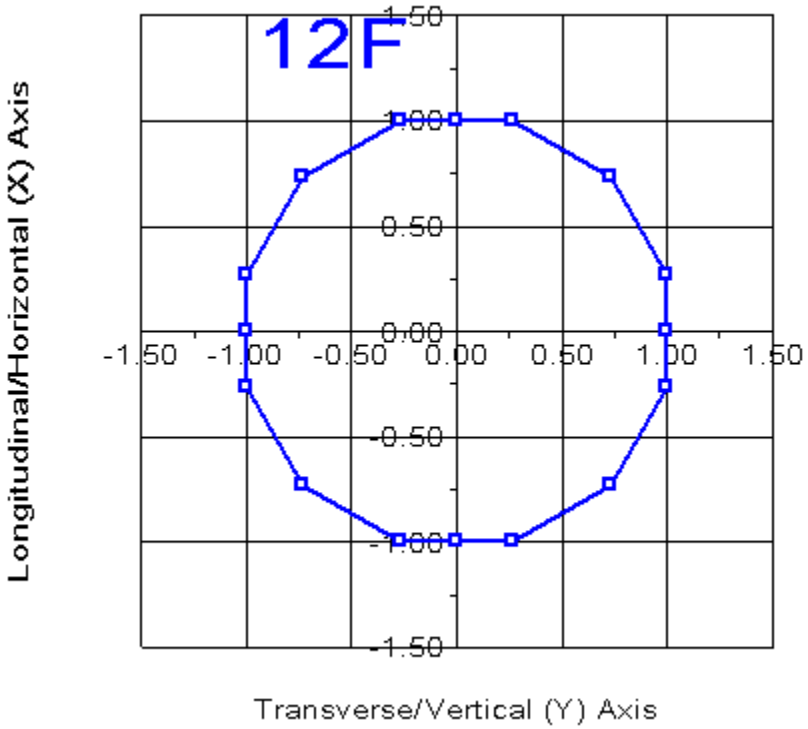
Steel Pole Connectivity:

Pole Label	Tip Joint	Base Joint	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)
24063			0	0	0	0	0	CL&P24063	18 labels		0.00	0

Relative Attachment Labels for Steel Pole "24063":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
24063:Arm1	0.00	118.90
24063:Arm2	0.00	96.54
24063:Arm3	0.00	74.54
24063:WVGD1	0.00	115.50
24063:WVGD2	0.00	100.00

24063:WVGD3	0.00	90.00
24063:WVGD4	0.00	80.00
24063:WVGD5	0.00	70.00
24063:WVGD6	0.00	60.00
24063:WVGD7	0.00	50.00
24063:WVGD8	0.00	40.00
24063:WVGD9	0.00	30.00
24063:WVGD10	0.00	20.00
24063:WVGD11	0.00	10.00
24063:TopConn	0.00	115.00
24063:BotConn	0.00	105.00
24063:BotConT	0.00	105.50
24063:BotConB	0.00	104.50



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. (ft)	Outer Diam. (in)	Area (in^2)	T-Moment Inertia (in^4)	L-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	T-Moment Capacity (ft-k)	L-Moment Capacity (ft-k)
24063	24063:t	24063:t Ori	0.00	27.63	32.86	3123.39	3123.39	0.00	17.1	65.00	65.00	1224.86	1224.86
24063	24063:Arm1	24063:Arm1 End	1.10	27.94	33.24	3233.99	3233.99	0.00	17.3	65.00	65.00	1253.80	1253.80

24063	24063:Arm1	24063:Arm1	Ori	1.10	27.94	33.24	3233.99	3233.99	0.00	17.3	65.00	65.00	1253.80	1253.80
24063	24063:WVGD1	24063:WVGD1	End	4.50	28.92	34.42	3590.54	3590.54	0.00	18.0	65.00	65.00	1344.95	1344.95
24063	24063:WVGD1	24063:WVGD1	Ori	4.50	28.92	34.42	3590.54	3590.54	0.00	18.0	65.00	65.00	1344.95	1344.95
24063	24063:TopConn	24063:TopConn	End	5.00	29.07	34.59	3645.15	3645.15	0.00	18.1	65.00	65.00	1358.64	1358.64
24063	24063:TopConn	24063:TopConn	Ori	5.00	29.07	34.59	3645.15	3645.15	0.00	18.1	65.00	65.00	1358.64	1358.64
24063	#24063:0	Tube 1	End	9.75	30.43	36.24	4191.81	4191.81	0.00	19.1	65.00	65.00	1492.16	1492.16
24063	#24063:0	Tube 1	Ori	9.75	30.43	36.24	4191.81	4191.81	0.00	19.1	65.00	65.00	1492.16	1492.16
24063	24063:BotConT	24063:BotConT	End	14.50	31.80	37.89	4790.56	4790.56	0.00	20.0	65.00	65.00	1631.94	1631.94
24063	24063:BotConT	24063:BotConT	Ori	14.50	31.80	37.89	4790.56	4790.56	0.00	20.0	65.00	65.00	1631.94	1631.94
24063	24063:BotConn	24063:BotConn	End	15.00	31.95	38.07	4856.71	4856.71	0.00	20.1	65.00	65.00	1647.01	1647.01
24063	24063:BotConn	24063:BotConn	Ori	15.00	31.95	38.07	4856.72	4856.72	0.00	20.1	65.00	65.00	1647.01	1647.01
24063	24063:BotConB	24063:BotConB	End	15.50	32.09	38.24	4923.48	4923.48	0.00	20.2	65.00	65.00	1662.16	1662.16
24063	24063:BotConB	24063:BotConB	Ori	15.50	32.09	38.24	4923.48	4923.48	0.00	20.2	65.00	65.00	1662.16	1662.16
24063	24063:WVGD2	24063:WVGD2	End	20.00	33.39	39.80	5552.06	5552.06	0.00	21.2	65.00	65.00	1801.60	1801.60
24063	24063:WVGD2	24063:WVGD2	Ori	20.00	33.39	39.80	5552.06	5552.06	0.00	21.2	65.00	65.00	1801.60	1801.60
24063	24063:Arm2	24063:Arm2	End	23.46	34.38	41.00	6069.87	6069.87	0.00	21.9	65.00	65.00	1912.57	1912.57
24063	24063:Arm2	24063:Arm2	Ori	23.46	34.38	41.00	6069.87	6069.87	0.00	21.9	65.00	65.00	1912.57	1912.57
24063	#24063:1	Tube 1	End	26.73	35.32	42.14	6588.42	6588.42	0.00	22.6	65.00	65.00	2020.59	2020.59
24063	#24063:1	Tube 1	Ori	26.73	35.32	42.14	6588.42	6588.42	0.00	22.6	65.00	65.00	2020.59	2020.59
24063	24063:WVGD3	24063:WVGD3	End	30.00	36.27	43.28	7135.68	7135.68	0.00	23.2	65.00	65.00	2131.58	2131.58
24063	24063:WVGD3	24063:WVGD3	Ori	30.00	36.27	43.28	7135.68	7135.68	0.00	23.2	65.00	65.00	2131.58	2131.58
24063	#24063:2	Tube 1	End	35.00	37.71	45.01	8029.50	8029.50	0.00	24.3	65.00	65.00	2306.97	2306.97
24063	#24063:2	Tube 1	Ori	35.00	37.71	45.01	8029.50	8029.50	0.00	24.3	65.00	65.00	2306.97	2306.97
24063	24063:WVGD4	24063:WVGD4	End	40.00	39.15	46.75	8995.00	8995.00	0.00	25.3	65.00	65.00	2489.30	2489.30
24063	24063:WVGD4	24063:WVGD4	Ori	40.00	39.40	62.53	12110.56	12110.56	0.00	18.4	65.00	65.00	3330.24	3330.24
24063	#24063:3	Tube 2	End	42.73	40.18	63.80	12859.60	12859.60	0.00	18.9	65.00	65.00	3467.04	3467.04
24063	#24063:3	Tube 2	Ori	42.73	40.18	63.80	12859.61	12859.61	0.00	18.9	65.00	65.00	3467.04	3467.04
24063	24063:Arm3	24063:Arm3	End	45.46	40.97	65.06	13638.92	13638.92	0.00	19.3	65.00	65.00	3606.60	3606.60
24063	24063:Arm3	24063:Arm3	Ori	45.46	40.97	65.06	13638.92	13638.92	0.00	19.3	65.00	65.00	3606.60	3606.60
24063	24063:WVGD5	24063:WVGD5	End	50.00	42.28	67.16	15004.71	15004.71	0.00	20.0	65.00	65.00	3844.98	3844.98
24063	24063:WVGD5	24063:WVGD5	Ori	50.00	42.28	67.16	15004.71	15004.71	0.00	20.0	65.00	65.00	3844.98	3844.98
24063	#24063:4	Tube 2	End	53.58	43.31	68.82	16144.42	16144.42	0.00	20.5	65.00	65.00	4038.45	4038.45
24063	#24063:4	Tube 2	Ori	53.58	43.31	68.82	16144.43	16144.43	0.00	20.5	65.00	65.00	4038.45	4038.45
24063	#24063:5	SpliceT	End	57.17	44.34	70.48	17340.44	17340.44	0.00	21.1	65.00	65.00	4236.66	4236.66
24063	#24063:5	SpliceT	Ori	57.17	44.34	70.48	17340.45	17340.45	0.00	21.1	65.00	65.00	4236.66	4236.66
24063	24063:WVGD6	24063:WVGD6	End	60.00	44.16	78.85	19181.41	19181.41	0.00	18.4	65.00	65.00	4705.98	4705.98
24063	24063:WVGD6	24063:WVGD6	Ori	60.00	44.16	78.85	19181.42	19181.42	0.00	18.4	65.00	65.00	4705.98	4705.98
24063	#24063:6	SpliceB	End	63.00	45.02	80.41	20344.62	20344.62	0.00	18.8	65.00	65.00	4895.56	4895.56
24063	#24063:6	SpliceB	Ori	63.00	45.02	80.41	20344.62	20344.62	0.00	18.8	65.00	65.00	4895.56	4895.56
24063	#24063:7	Tube 3	End	66.50	46.03	82.23	21760.02	21760.02	0.00	19.2	65.00	65.00	5121.47	5121.47
24063	#24063:7	Tube 3	Ori	66.50	46.03	82.23	21760.02	21760.02	0.00	19.2	65.00	65.00	5121.47	5121.47
24063	24063:WVGD7	24063:WVGD7	End	70.00	47.04	84.06	23239.59	23239.59	0.00	19.7	65.00	65.00	5352.48	5352.48
24063	24063:WVGD7	24063:WVGD7	Ori	70.00	47.04	84.06	23239.59	23239.59	0.00	19.7	65.00	65.00	5352.48	5352.48
24063	#24063:8	Tube 3	End	73.63	48.08	85.94	24841.18	24841.18	0.00	20.2	65.00	65.00	5597.12	5597.12
24063	#24063:8	Tube 3	Ori	73.63	48.08	85.94	24841.18	24841.18	0.00	20.2	65.00	65.00	5597.12	5597.12
24063	#24063:9	SpliceT	End	77.25	49.12	87.83	26514.71	26514.71	0.00	20.7	65.00	65.00	5847.22	5847.22
24063	#24063:9	SpliceT	Ori	77.25	49.25	97.72	29575.58	29575.58	0.00	18.4	65.00	65.00	6505.67	6505.67
24063	24063:WVGD8	24063:WVGD8	End	80.00	50.04	99.31	31044.38	31044.38	0.00	18.8	65.00	65.00	6720.67	6720.67
24063	24063:WVGD8	24063:WVGD8	Ori	80.00	50.04	99.31	31044.39	31044.39	0.00	18.8	65.00	65.00	6720.67	6720.67
24063	#24063:10	Tube 4	End	85.00	51.48	102.20	33838.04	33838.04	0.00	19.4	65.00	65.00	7120.54	7120.54
24063	#24063:10	Tube 4	Ori	85.00	51.48	102.20	33838.05	33838.05	0.00	19.4	65.00	65.00	7120.55	7120.55
24063	24063:WVGD9	24063:WVGD9	End	90.00	52.92	105.10	36794.48	36794.48	0.00	20.0	65.00	65.00	7531.98	7531.98
24063	24063:WVGD9	24063:WVGD9	Ori	90.00	52.92	105.10	36794.48	36794.48	0.00	20.0	65.00	65.00	7531.98	7531.98
24063	#24063:11	Tube 4	End	93.63	53.97	107.19	39042.30	39042.30	0.00	20.5	65.00	65.00	7837.49	7837.49
24063	#24063:11	Tube 4	Ori	93.63	53.97	107.19	39042.30	39042.30	0.00	20.5	65.00	65.00	7837.49	7837.49
24063	#24063:12	SpliceT	End	97.25	55.01	109.29	41379.85	41379.85	0.00	20.9	65.00	65.00	8149.08	8149.08
24063	#24063:12	SpliceT	Ori	97.25	55.01	109.29	41379.86	41379.86	0.00	20.9	65.00	65.00	8149.08	8149.08
24063	24063:WVGD10	24063:WVGD10	End	100.00	55.80	110.88	43214.11	43214.11	0.00	21.2	65.00	65.00	8389.51	8389.51
24063	24063:WVGD10	24063:WVGD10	Ori	100.00	55.80	110.88	43214.11	43214.11	0.00	21.2	65.00	65.00	8389.51	8389.51

24063	#24063:13	Tube 5 End	105.00	57.24	113.78	46686.52	46686.52	0.00	21.9	65.00	65.00	8835.61	8835.61
24063	#24063:13	Tube 5 Ori	105.00	57.24	113.78	46686.52	46686.52	0.00	21.9	65.00	65.00	8835.61	8835.61
24063	24063:WVGD11	24063:WVGD11 End	110.00	58.68	116.67	50340.14	50340.14	0.00	22.5	65.00	65.00	9293.27	9293.27
24063	24063:WVGD11	24063:WVGD11 Ori	110.00	58.68	116.67	50340.14	50340.14	0.00	22.5	65.00	65.00	9293.28	9293.28
24063	#24063:14	Tube 5 End	115.00	60.12	119.57	54179.58	54179.58	0.00	23.1	65.00	65.00	9762.49	9762.49
24063	#24063:14	Tube 5 Ori	115.00	60.12	119.57	54179.58	54179.58	0.00	23.1	65.00	65.00	9762.49	9762.49
24063	24063:g	24063:g End	120.00	61.56	122.46	58209.44	58209.44	0.00	23.7	65.00	65.00	10243.27	10243.27

Tubular Davit Properties:

Davit Label	Stock Number	Steel Shape	Thickness (in)	Base Diameter or Depth (in)	Tip Diameter or Depth (in)	Taper (in/ft)	Drag Coef.	Modulus of Elasticity (ksi)	Geometry Check Type	Strength Vertical Capacity (lbs)	Tension Capacity (lbs)	Compres. Capacity (lbs)	Long. Capacity (lbs)	Yield Stress (ksi)	Weight Steel Density Override (lbs/ft^3)
20707-F	20707-F	8T	0.3125	18	9	0	1.3	29000	2 points Calculated	0	0	0	0	65	0
20707-E	20707-E	8T	0.3125	19	9	0	1.3	29000	3 points Calculated	0	0	0	0	65	0

Intermediate Joints for Davit Property "20707-F":

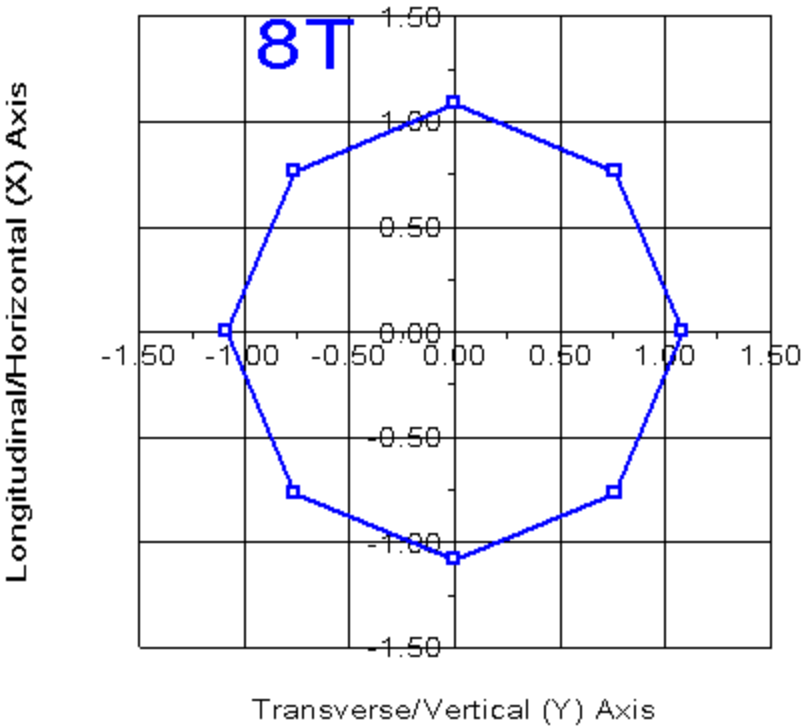
Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
v	12	-1.167
t	14	-1.167

Intermediate Joints for Davit Property "20707-E":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
v	14	-1.2865
a	19.75	-1.8125
t	21.75	-1.8125

Tubular Davit Arm Connectivity:

Davit Label	Attach Label	Davit Property Set	Azimuth (deg)
Davit1	24063:Arm1	20707-E	0
Davit2	24063:Arm1	20707-E	180
Davit3	24063:Arm2	20707-F	0
Davit4	24063:Arm2	20707-F	180
Davit5	24063:Arm3	20707-F	0
Davit6	24063:Arm3	20707-F	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:O	Origin	0.00	19.00	19.35	893.31	893.31	0.00	21.0	65.00	65.00	470.57	470.57
Davit1	#Davit1:0	End	5.00	16.71	16.98	603.54	603.54	0.00	18.0	65.00	65.00	361.50	361.50
Davit1	#Davit1:0	Origin	5.00	16.71	16.98	603.54	603.54	0.00	18.0	65.00	65.00	361.50	361.50
Davit1	#Davit1:1	End	9.53	14.64	14.83	402.27	402.27	0.00	15.3	65.00	65.00	275.10	275.10
Davit1	#Davit1:1	Origin	9.53	14.64	14.83	402.27	402.27	0.00	15.3	65.00	65.00	275.10	275.10
Davit1	Davit1:v	End	14.06	12.56	12.68	251.60	251.60	0.00	12.5	65.00	65.00	200.49	200.49
Davit1	Davit1:v	Origin	14.06	12.56	12.68	251.60	251.60	0.00	12.5	65.00	65.00	200.49	200.49
Davit1	#Davit1:2	End	16.95	11.24	11.31	178.62	178.62	0.00	10.8	65.00	65.00	159.08	159.08
Davit1	#Davit1:2	Origin	16.95	11.24	11.31	178.62	178.62	0.00	10.8	65.00	65.00	159.08	159.08
Davit1	Davit1:a	End	19.83	9.92	9.94	121.33	121.33	0.00	9.0	65.00	65.00	122.46	122.46
Davit1	Davit1:a	Origin	19.83	9.92	9.94	121.33	121.33	0.00	9.0	65.00	65.00	122.46	122.46
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:O	Origin	0.00	19.00	19.35	893.31	893.31	0.00	21.0	65.00	65.00	470.57	470.57
Davit2	#Davit2:0	End	5.00	16.71	16.98	603.54	603.54	0.00	18.0	65.00	65.00	361.50	361.50
Davit2	#Davit2:0	Origin	5.00	16.71	16.98	603.54	603.54	0.00	18.0	65.00	65.00	361.50	361.50
Davit2	#Davit2:1	End	9.53	14.64	14.83	402.27	402.27	0.00	15.3	65.00	65.00	275.10	275.10

Davit2	#Davit2:1	Origin	9.53	14.64	14.83	402.27	402.27	0.00	15.3	65.00	65.00	275.10	275.10
Davit2	Davit2:v	End	14.06	12.56	12.68	251.60	251.60	0.00	12.5	65.00	65.00	200.49	200.49
Davit2	Davit2:v	Origin	14.06	12.56	12.68	251.60	251.60	0.00	12.5	65.00	65.00	200.49	200.49
Davit2	#Davit2:2	End	16.95	11.24	11.31	178.62	178.62	0.00	10.8	65.00	65.00	159.08	159.08
Davit2	#Davit2:2	Origin	16.95	11.24	11.31	178.62	178.62	0.00	10.8	65.00	65.00	159.08	159.08
Davit2	Davit2:a	End	19.83	9.92	9.94	121.33	121.33	0.00	9.0	65.00	65.00	122.46	122.46
Davit2	Davit2:a	Origin	19.83	9.92	9.94	121.33	121.33	0.00	9.0	65.00	65.00	122.46	122.46
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:O	Origin	0.00	18.00	18.32	757.46	757.46	0.00	19.7	65.00	65.00	421.18	421.18
Davit3	#Davit3:0	End	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit3	#Davit3:0	Origin	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit3	#Davit3:1	End	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit3	#Davit3:1	Origin	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit3	Davit3:v	End	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit3	Davit3:v	Origin	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit3	Davit3:t	End	14.06	9.00	9.00	89.84	89.84	0.00	7.8	65.00	65.00	99.91	99.91
Davit4	Davit4:O	Origin	0.00	18.00	18.32	757.46	757.46	0.00	19.7	65.00	65.00	421.18	421.18
Davit4	#Davit4:0	End	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit4	#Davit4:0	Origin	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit4	#Davit4:1	End	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit4	#Davit4:1	Origin	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit4	Davit4:v	End	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit4	Davit4:v	Origin	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit4	Davit4:t	End	14.06	9.00	9.00	89.84	89.84	0.00	7.8	65.00	65.00	99.91	99.91
Davit5	Davit5:O	Origin	0.00	18.00	18.32	757.46	757.46	0.00	19.7	65.00	65.00	421.18	421.18
Davit5	#Davit5:0	End	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit5	#Davit5:0	Origin	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit5	#Davit5:1	End	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit5	#Davit5:1	Origin	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit5	Davit5:v	End	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit5	Davit5:v	Origin	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit5	Davit5:t	End	14.06	9.00	9.00	89.84	89.84	0.00	7.8	65.00	65.00	99.91	99.91
Davit6	Davit6:O	Origin	0.00	18.00	18.32	757.46	757.46	0.00	19.7	65.00	65.00	421.18	421.18
Davit6	#Davit6:0	End	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit6	#Davit6:0	Origin	5.00	14.80	15.00	416.19	416.19	0.00	15.5	65.00	65.00	281.48	281.48
Davit6	#Davit6:1	End	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit6	#Davit6:1	Origin	8.53	12.54	12.66	250.31	250.31	0.00	12.5	65.00	65.00	199.79	199.79
Davit6	Davit6:v	End	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit6	Davit6:v	Origin	12.06	10.28	10.32	135.67	135.67	0.00	9.5	65.00	65.00	132.08	132.08
Davit6	Davit6:t	End	14.06	9.00	9.00	89.84	89.84	0.00	7.8	65.00	65.00	99.91	99.91

*** Insulator Data

Clamp Properties:

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

Clamp Insulator Connectivity:

Clamp Label	Structure Property And Tip	Min. Required Set Vertical Load

	Attach		(uplift) (lbs)
Clamp1	Davit1:v	clamp	No Limit
Clamp2	Davit1:t	clamp	No Limit
Clamp3	Davit3:t	clamp	No Limit
Clamp4	Davit4:t	clamp	No Limit
Clamp5	Davit5:t	clamp	No Limit
Clamp6	Davit6:t	clamp	No Limit
Clamp9	24063:WVGD1	clamp	No Limit
Clamp10	24063:WVGD2	clamp	No Limit
Clamp11	24063:WVGD3	clamp	No Limit
Clamp12	24063:WVGD4	clamp	No Limit
Clamp13	24063:WVGD5	clamp	No Limit
Clamp14	24063:WVGD6	clamp	No Limit
Clamp15	24063:WVGD7	clamp	No Limit
Clamp16	24063:WVGD8	clamp	No Limit
Clamp17	24063:WVGD9	clamp	No Limit
Clamp18	24063:WVGD10	clamp	No Limit
Clamp19	24063:WVGD11	clamp	No Limit
Clamp20	24063:BotConn	clamp	No Limit
Clamp21	24063:TopConn	clamp	No Limit
Clamp22	24063:BotConT	clamp	No Limit
Clamp23	24063:BotConB	clamp	No Limit
Clamp24	Davit2:v	clamp	No Limit
Clamp25	Davit2:t	clamp	No Limit

*** Loads Data

Loads from file: j:\jobs\1526700.wi\006_orange offload for ct2343\04_structural\backup documentation\pls-pole\cl&p #24063.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)	120.71 (ft)	
Structure height	120.71 (ft)	
Structure height above ground	120.71 (ft)	

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Tubular Poles and Towers	SF for Poles Deflection Check	SF for Wood Poles Deflection Limit	SF for Conc. Poles Ult. Limit	SF for Conc. First Crack	SF for Conc. Zero Tens.	SF for Guys and Cables	SF for Non Tubular Arms	SF for Braces	SF For Insuls.	SF for Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)
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	1.0000	23 loads	Wind on All	4	0	0.500	56.000	60.0
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	1.0000	23 loads	NESC 2007	31	0	0.000	0.000	60.0
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	1.0000	23 loads	Wind on All	6.4	0	0.750	56.000	60.0

No Limit	0			
No Limit	0			
No Limit	0			

Point Loads for Load Case "NESC Heavy Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
Davit1:t	1544	790	2	Shield Wire
Davit2:t	1468	736	1	Shield Wire
Davit1:v	8477	2443	3	Conductor
Davit2:v	8477	2443	3	Conductor
Davit3:t	8477	2443	3	Conductor
Davit4:t	8477	2443	3	Conductor
Davit5:t	8477	2443	3	Conductor
Davit6:t	8477	2443	3	Conductor
24063:TopConn	0	6440	0	Top Connection
24063:BotConT	0	13459	0	
24063:BotConn	7919	-4168	0	Bottom Connection
24063:BotConB	0	-13459	0	
24063:WVGD1	1380	337	0	Coax Cables
24063:WVGD2	920	225	0	Coax Cables

24063:WVGD3	920	225	0	Coax Cables
24063:WVGD4	920	225	0	Coax Cables
24063:WVGD5	920	225	0	Coax Cables
24063:WVGD6	920	225	0	Coax Cables
24063:WVGD7	920	225	0	Coax Cables
24063:WVGD8	920	225	0	Coax Cables
24063:WVGD9	920	225	0	Coax Cables
24063:WVGD10	920	225	0	Coax Cables
24063:WVGD11	920	225	0	Coax Cables

Detailed Pole Loading Data for Load Case "NESC Heavy 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 Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (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 Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
24063	24063:t	24063:Arm1	120.00	118.90	119.45	27.784	1.32e+006	1.300	10.00	0.50	186.23	33.23	19.18	1.20	34.43	0.00
24063	24063:Arm1	24063:WVGD1	118.90	115.50	117.20	28.432	1.35e+006	1.300	10.00	0.50	586.41	104.61	60.37	3.68	108.29	0.00
24063	24063:WVGD1	24063:TopConn	115.50	115.00	115.25	28.993	1.37e+006	1.300	10.00	0.50	88.06	15.71	9.06	0.54	16.25	0.00
24063	24063:TopConn		115.00	110.25	112.63	29.749	1.41e+006	1.300	10.00	0.50	858.71	153.09	88.35	5.15	158.24	0.00
24063		24063:BotConT	110.25	105.50	107.88	31.117	1.47e+006	1.300	10.00	0.50	898.71	160.13	92.41	5.15	165.28	0.00
24063	24063:BotConT	24063:BotConn	105.50	105.00	105.25	31.873	1.51e+006	1.300	10.00	0.50	96.93	17.27	9.96	0.54	17.81	0.00
24063	24063:BotConn	24063:BotConB	105.00	104.50	104.75	32.017	1.52e+006	1.300	10.00	0.50	97.37	17.34	10.01	0.54	17.89	0.00
24063	24063:BotConB	24063:WVGD2	104.50	100.00	102.25	32.737	1.55e+006	1.300	10.00	0.50	896.28	159.60	92.11	4.88	164.48	0.00
24063	24063:WVGD2	24063:Arm2	100.00	96.54	98.27	33.883	1.6e+006	1.300	10.00	0.50	713.13	126.94	73.26	3.75	130.69	0.00
24063	24063:Arm2		96.54	93.27	94.91	34.852	1.65e+006	1.300	10.00	0.50	694.07	123.51	71.28	3.54	127.05	0.00
24063		24063:WVGD3	93.27	90.00	91.64	35.795	1.69e+006	1.300	10.00	0.50	713.04	126.85	73.20	3.54	130.39	0.00
24063	24063:WVGD3		90.00	85.00	87.50	36.986	1.75e+006	1.300	10.00	0.50	1126.59	200.35	115.62	5.42	205.77	0.00
24063		24063:WVGD4	85.00	80.00	82.50	38.426	1.82e+006	1.300	10.00	0.50	1170.91	208.15	120.12	5.42	213.57	0.00
24063	24063:WVGD4		80.00	77.27	78.64	39.789	1.88e+006	1.300	10.00	0.50	879.77	117.64	67.89	2.96	120.60	0.00
24063		24063:Arm3	77.27	74.54	75.91	40.575	1.92e+006	1.300	10.00	0.50	897.44	119.96	69.23	2.96	122.92	0.00
24063	24063:Arm3	24063:WVGD5	74.54	70.00	72.27	41.622	1.97e+006	1.300	10.00	0.50	1532.67	204.81	118.19	4.92	209.73	0.00
24063	24063:WVGD5		70.00	66.42	68.21	42.792	2.03e+006	1.300	10.00	0.50	1243.64	166.13	95.87	3.88	170.02	0.00
24063			66.42	62.83	64.62	43.824	2.07e+006	1.300	10.00	0.50	1273.99	170.14	98.19	3.88	174.02	0.00
24063		24063:WVGD6	62.83	60.00	61.42	44.248	2.09e+006	1.300	10.00	0.50	2158.11	135.81	78.37	3.07	138.88	0.00
24063	24063:WVGD6		60.00	57.00	58.50	44.588	2.11e+006	1.300	10.00	0.50	2329.27	144.92	83.63	3.25	148.17	0.00
24063			57.00	53.50	55.25	45.524	2.16e+006	1.300	10.00	0.50	1452.76	172.62	99.62	3.79	176.41	0.00
24063		24063:WVGD7	53.50	50.00	51.75	46.532	2.2e+006	1.300	10.00	0.50	1485.33	176.44	101.82	3.79	180.24	0.00
24063	24063:WVGD7		50.00	46.38	48.19	47.558	2.25e+006	1.300	10.00	0.50	1572.71	186.78	107.79	3.93	190.70	0.00
24063			46.38	42.75	44.56	48.603	2.3e+006	1.300	10.00	0.50	1607.69	190.88	110.15	3.93	194.80	0.00
24063		24063:WVGD8	42.75	40.00	41.38	49.646	2.35e+006	1.300	10.00	0.50	1382.73	147.91	85.36	2.98	150.89	0.00
24063	24063:WVGD8		40.00	35.00	37.50	50.762	2.4e+006	1.300	10.00	0.50	2571.37	274.97	158.68	5.42	280.39	0.00
24063		24063:WVGD9	35.00	30.00	32.50	52.202	2.47e+006	1.300	10.00	0.50	2645.23	282.77	163.19	5.42	288.19	0.00
24063	24063:WVGD9		30.00	26.38	28.19	53.444	2.53e+006	1.300	10.00	0.50	1963.97	209.89	121.13	3.93	213.82	0.00
24063			26.38	22.75	24.56	54.488	2.58e+006	1.300	10.00	0.50	2002.80	213.99	123.49	3.93	217.92	0.00
24063		24063:WVGD10	22.75	20.00	21.38	55.406	2.62e+006	1.300	10.00	0.50	1545.26	165.07	95.26	2.98	168.05	0.00
24063	24063:WVGD10		20.00	15.00	17.50	56.522	2.68e+006	1.300	10.00	0.50	2866.80	306.18	176.69	5.42	311.59	0.00
24063		24063:WVGD11	15.00	10.00	12.50	57.962	2.74e+006	1.300	10.00	0.50	2940.66	313.98	181.19	5.42	319.40	0.00
24063	24063:WVGD11		10.00	5.00	7.50	59.402	2.81e+006	1.300	10.00	0.50	3014.52	321.78	185.70	5.42	327.20	0.00
24063		24063:g	5.00	0.00	2.50	60.842	2.88e+006	1.300	10.00	0.50	3088.38	329.58	190.20	5.42	335.00	0.00

Point Loads for Load Case "NESC Extreme Wind":

Joint Label	Vertical Load	Transverse Load	Longitudinal Load	Load Comment

	(lbs)	(lbs)	(lbs)	
Davit1:t	749	1068	5	Shield Wire
Davit2:t	710	877	4	Shield Wire
Davit1:v	4797	5184	21	Conductor
Davit2:v	4801	5184	21	Conductor
Davit3:t	4797	5184	21	Conductor
Davit4:t	4801	5184	21	Conductor
Davit5:t	4797	5184	21	Conductor
Davit6:t	4801	5184	21	Conductor
24063:TopConn	0	23761	0	Top Connection
24063:BotConT	0	49972	0	
24063:BotConn	3935	-15490	0	Bottom Connection
24063:BotConB	0	-49972	0	
24063:WVGD1	374	1118	0	Coax Cables
24063:WVGD2	250	746	0	Coax Cables
24063:WVGD3	250	746	0	Coax Cables
24063:WVGD4	250	746	0	Coax Cables
24063:WVGD5	250	746	0	Coax Cables
24063:WVGD6	250	746	0	Coax Cables
24063:WVGD7	250	746	0	Coax Cables
24063:WVGD8	250	746	0	Coax Cables
24063:WVGD9	250	746	0	Coax Cables
24063:WVGD10	250	746	0	Coax Cables
24063:WVGD11	250	746	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 Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (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 Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
24063	24063:t	24063:Arm1	120.00	118.90	119.45	27.784	2.36e+006	1.000	32.05	0.00	124.15	81.93	0.00	0.00	81.93	0.00
24063	24063:Arm1	24063:WVGD1	118.90	115.50	117.20	28.432	2.41e+006	1.000	32.05	0.00	390.94	257.90	0.00	0.00	257.90	0.00
24063	24063:WVGD1	24063:TopConn	115.50	115.00	115.25	28.993	2.46e+006	1.000	32.05	0.00	58.71	38.72	0.00	0.00	38.72	0.00
24063	24063:TopConn		115.00	110.25	112.63	29.749	2.52e+006	1.000	32.05	0.00	572.48	377.44	0.00	0.00	377.44	0.00
24063		24063:BotConT	110.25	105.50	107.88	31.117	2.64e+006	1.000	32.05	0.00	599.14	394.80	0.00	0.00	394.80	0.00
24063	24063:BotConT	24063:BotConn	105.50	105.00	105.25	31.873	2.7e+006	1.000	32.05	0.00	64.62	42.57	0.00	0.00	42.57	0.00
24063	24063:BotConn	24063:BotConB	105.00	104.50	104.75	32.017	2.71e+006	1.000	32.05	0.00	64.91	42.76	0.00	0.00	42.76	0.00
24063	24063:BotConB	24063:WVGD2	104.50	100.00	102.25	32.737	2.77e+006	1.000	32.05	0.00	597.52	393.49	0.00	0.00	393.49	0.00
24063	24063:WVGD2	24063:Arm2	100.00	96.54	98.27	33.883	2.87e+006	1.000	32.05	0.00	475.42	312.96	0.00	0.00	312.96	0.00
24063	24063:Arm2		96.54	93.27	94.91	34.852	2.95e+006	1.000	32.05	0.00	462.72	304.50	0.00	0.00	304.50	0.00
24063		24063:WVGD3	93.27	90.00	91.64	35.795	3.03e+006	1.000	32.05	0.00	475.36	312.74	0.00	0.00	312.74	0.00
24063	24063:WVGD3		90.00	85.00	87.50	36.986	3.13e+006	1.000	32.05	0.00	751.06	493.95	0.00	0.00	493.95	0.00
24063		24063:WVGD4	85.00	80.00	82.50	38.426	3.26e+006	1.000	32.05	0.00	780.61	513.18	0.00	0.00	513.18	0.00
24063	24063:WVGD4		80.00	77.27	78.64	39.789	3.37e+006	1.000	32.05	0.00	586.51	290.03	0.00	0.00	290.03	0.00
24063		24063:Arm3	77.27	74.54	75.91	40.575	3.44e+006	1.000	32.05	0.00	598.29	295.76	0.00	0.00	295.76	0.00
24063	24063:Arm3	24063:WVGD5	74.54	70.00	72.27	41.622	3.53e+006	1.000	32.05	0.00	1021.78	504.95	0.00	0.00	504.95	0.00
24063	24063:WVGD5		70.00	66.42	68.21	42.792	3.63e+006	1.000	32.05	0.00	829.09	409.59	0.00	0.00	409.59	0.00
24063			66.42	62.83	64.62	43.824	3.71e+006	1.000	32.05	0.00	849.33	419.47	0.00	0.00	419.47	0.00
24063		24063:WVGD6	62.83	60.00	61.42	44.248	3.75e+006	1.000	32.05	0.00	1438.74	334.83	0.00	0.00	334.83	0.00
24063	24063:WVGD6		60.00	57.00	58.50	44.588	3.78e+006	1.000	32.05	0.00	1552.85	357.29	0.00	0.00	357.29	0.00
24063			57.00	53.50	55.25	45.524	3.86e+006	1.000	32.05	0.00	968.51	425.59	0.00	0.00	425.59	0.00
24063		24063:WVGD7	53.50	50.00	51.75	46.532	3.94e+006	1.000	32.05	0.00	990.22	435.01	0.00	0.00	435.01	0.00
24063	24063:WVGD7		50.00	46.38	48.19	47.558	4.03e+006	1.000	32.05	0.00	1048.48	460.49	0.00	0.00	460.49	0.00

24063			46.38	42.75	44.56	48.603	4.12e+006	1.000	32.05	0.00	1071.79	470.59	0.00	0.00	470.59	0.00
24063		24063:WVGD8	42.75	40.00	41.38	49.646	4.21e+006	1.000	32.05	0.00	921.82	364.66	0.00	0.00	364.66	0.00
24063	24063:WVGD8		40.00	35.00	37.50	50.762	4.3e+006	1.000	32.05	0.00	1714.25	677.93	0.00	0.00	677.93	0.00
24063		24063:WVGD9	35.00	30.00	32.50	52.202	4.42e+006	1.000	32.05	0.00	1763.49	697.16	0.00	0.00	697.16	0.00
24063	24063:WVGD9		30.00	26.38	28.19	53.444	4.53e+006	1.000	32.05	0.00	1309.32	517.47	0.00	0.00	517.47	0.00
24063			26.38	22.75	24.56	54.488	4.62e+006	1.000	32.05	0.00	1335.20	527.58	0.00	0.00	527.58	0.00
24063		24063:WVGD10	22.75	20.00	21.38	55.406	4.7e+006	1.000	32.05	0.00	1030.17	406.98	0.00	0.00	406.98	0.00
24063	24063:WVGD10		20.00	15.00	17.50	56.522	4.79e+006	1.000	32.05	0.00	1911.20	754.86	0.00	0.00	754.86	0.00
24063		24063:WVGD11	15.00	10.00	12.50	57.962	4.91e+006	1.000	32.05	0.00	1960.44	774.10	0.00	0.00	774.10	0.00
24063	24063:WVGD11		10.00	5.00	7.50	59.402	5.04e+006	1.000	32.05	0.00	2009.68	793.33	0.00	0.00	793.33	0.00
24063		24063:g	5.00	0.00	2.50	60.842	5.16e+006	1.000	32.05	0.00	2058.92	812.56	0.00	0.00	812.56	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	1655	728	2	Shield Wire
Davit2:t	1579	690	2	Shield Wire
Davit1:v	7599	2064	4	Conductor
Davit2:v	7603	2064	4	Conductor
Davit3:t	7599	2064	4	Conductor
Davit4:t	7603	2064	4	Conductor
Davit5:t	7599	2064	4	Conductor
Davit6:t	7603	2064	4	Conductor
24063:TopConn	0	4540	0	Top Connection
24063:BotConT	0	9507	0	
24063:BotConn	6435	-2945	0	Bottom Connection
24063:BotConB	0	-9507	0	
24063:WVGD1	1275	222	0	Coax Cables
24063:WVGD2	850	148	0	Coax Cables
24063:WVGD3	850	148	0	Coax Cables
24063:WVGD4	850	148	0	Coax Cables
24063:WVGD5	850	148	0	Coax Cables
24063:WVGD6	850	148	0	Coax Cables
24063:WVGD7	850	148	0	Coax Cables
24063:WVGD8	850	148	0	Coax Cables
24063:WVGD9	850	148	0	Coax Cables
24063:WVGD10	850	148	0	Coax Cables
24063:WVGD11	850	148	0	Coax Cables

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

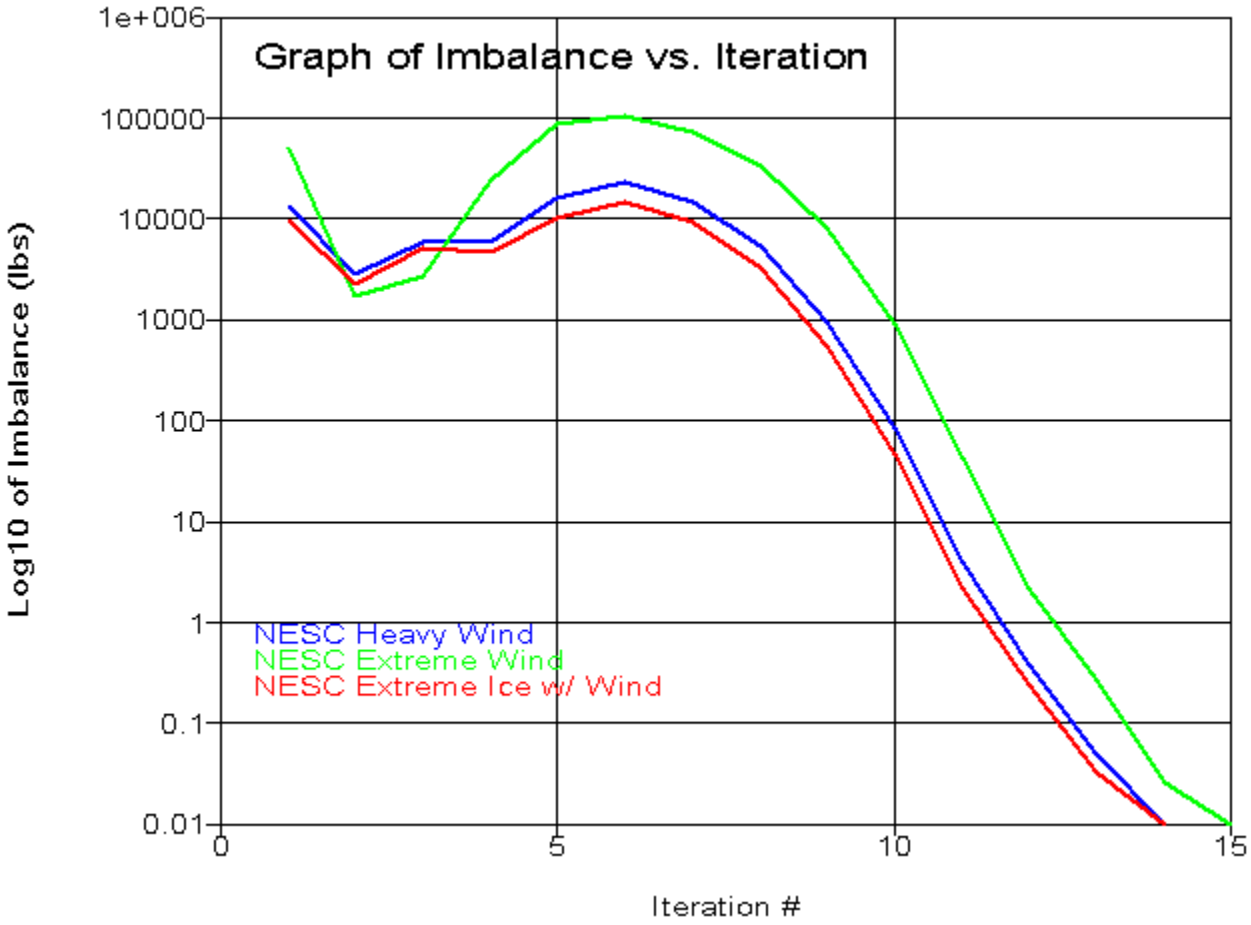
Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (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 Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
24063	24063:t	24063:Arm1	120.00	118.90	119.45	27.784	1.05e+006	1.300	6.40	0.75	124.15	21.27	28.77	1.15	22.42	0.00
24063	24063:Arm1	24063:WVGD1	118.90	115.50	117.20	28.432	1.08e+006	1.300	6.40	0.75	390.94	66.95	90.55	3.53	70.49	0.00
24063	24063:WVGD1	24063:TopConn	115.50	115.00	115.25	28.993	1.1e+006	1.300	6.40	0.75	58.71	10.05	13.60	0.52	10.57	0.00
24063	24063:TopConn		115.00	110.25	112.63	29.749	1.13e+006	1.300	6.40	0.75	572.48	97.99	132.52	4.94	102.93	0.00
24063		24063:BotConT	110.25	105.50	107.88	31.117	1.18e+006	1.300	6.40	0.75	599.14	102.49	138.62	4.94	107.43	0.00
24063	24063:BotConT	24063:BotConn	105.50	105.00	105.25	31.873	1.21e+006	1.300	6.40	0.75	64.62	11.05	14.95	0.52	11.57	0.00
24063	24063:BotConn	24063:BotConB	105.00	104.50	104.75	32.017	1.21e+006	1.300	6.40	0.75	64.91	11.10	15.01	0.52	11.62	0.00

24063	24063:BotConB	24063:WVGD2	104.50	100.00	102.25	32.737	1.24e+006	1.300	6.40	0.75	597.52	102.15	138.16	4.68	106.83	0.00
24063	24063:WVGD2	24063:Arm2	100.00	96.54	98.27	33.883	1.28e+006	1.300	6.40	0.75	475.42	81.25	109.88	3.60	84.84	0.00
24063	24063:Arm2		96.54	93.27	94.91	34.852	1.32e+006	1.300	6.40	0.75	462.72	79.05	106.91	3.40	82.45	0.00
24063		24063:WVGD3	93.27	90.00	91.64	35.795	1.36e+006	1.300	6.40	0.75	475.36	81.19	109.80	3.40	84.59	0.00
24063	24063:WVGD3		90.00	85.00	87.50	36.986	1.4e+006	1.300	6.40	0.75	751.06	128.23	173.43	5.20	133.43	0.00
24063		24063:WVGD4	85.00	80.00	82.50	38.426	1.46e+006	1.300	6.40	0.75	780.61	133.23	180.18	5.20	138.43	0.00
24063	24063:WVGD4		80.00	77.27	78.64	39.789	1.51e+006	1.300	6.40	0.75	586.51	75.29	101.83	2.84	78.13	0.00
24063		24063:Arm3	77.27	74.54	75.91	40.575	1.54e+006	1.300	6.40	0.75	598.29	76.78	103.84	2.84	79.62	0.00
24063	24063:Arm3	24063:WVGD5	74.54	70.00	72.27	41.622	1.58e+006	1.300	6.40	0.75	1021.78	131.09	177.29	4.72	135.81	0.00
24063	24063:WVGD5		70.00	66.42	68.21	42.792	1.62e+006	1.300	6.40	0.75	829.09	106.33	143.81	3.73	110.06	0.00
24063			66.42	62.83	64.62	43.824	1.66e+006	1.300	6.40	0.75	849.33	108.90	147.28	3.73	112.63	0.00
24063		24063:WVGD6	62.83	60.00	61.42	44.248	1.68e+006	1.300	6.40	0.75	1438.74	86.92	117.56	2.95	89.87	0.00
24063	24063:WVGD6		60.00	57.00	58.50	44.588	1.69e+006	1.300	6.40	0.75	1552.85	92.76	125.45	3.12	95.88	0.00
24063			57.00	53.50	55.25	45.524	1.72e+006	1.300	6.40	0.75	968.51	110.49	149.43	3.64	114.13	0.00
24063		24063:WVGD7	53.50	50.00	51.75	46.532	1.76e+006	1.300	6.40	0.75	990.22	112.93	152.74	3.64	116.57	0.00
24063	24063:WVGD7		50.00	46.38	48.19	47.558	1.8e+006	1.300	6.40	0.75	1048.48	119.55	161.68	3.77	123.32	0.00
24063			46.38	42.75	44.56	48.603	1.84e+006	1.300	6.40	0.75	1071.79	122.17	165.23	3.77	125.94	0.00
24063		24063:WVGD8	42.75	40.00	41.38	49.646	1.88e+006	1.300	6.40	0.75	921.82	94.67	128.04	2.86	97.53	0.00
24063	24063:WVGD8		40.00	35.00	37.50	50.762	1.92e+006	1.300	6.40	0.75	1714.25	176.00	238.03	5.20	181.20	0.00
24063		24063:WVGD9	35.00	30.00	32.50	52.202	1.98e+006	1.300	6.40	0.75	1763.49	180.99	244.78	5.20	186.19	0.00
24063	24063:WVGD9		30.00	26.38	28.19	53.444	2.02e+006	1.300	6.40	0.75	1309.32	134.34	181.69	3.77	138.11	0.00
24063			26.38	22.75	24.56	54.488	2.06e+006	1.300	6.40	0.75	1335.20	136.96	185.24	3.77	140.73	0.00
24063		24063:WVGD10	22.75	20.00	21.38	55.406	2.1e+006	1.300	6.40	0.75	1030.17	105.65	142.89	2.86	108.52	0.00
24063	24063:WVGD10		20.00	15.00	17.50	56.522	2.14e+006	1.300	6.40	0.75	1911.20	195.97	265.04	5.20	201.17	0.00
24063		24063:WVGD11	15.00	10.00	12.50	57.962	2.2e+006	1.300	6.40	0.75	1960.44	200.96	271.79	5.20	206.16	0.00
24063	24063:WVGD11		10.00	5.00	7.50	59.402	2.25e+006	1.300	6.40	0.75	2009.68	205.96	278.54	5.20	211.16	0.00
24063		24063:g	5.00	0.00	2.50	60.842	2.3e+006	1.300	6.40	0.75	2058.92	210.95	285.30	5.20	216.15	0.00

*** Analysis Results:

Maximum element usage is 58.21% for Steel Pole "24063" in load case "NESC Extreme Wind"
Maximum insulator usage is 62.46% for Clamp "Clamp22" 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)
24063:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
24063:t	0.005862	1.731	-0.02133	-1.5639	0.0047	-0.0000	0.005862	1.731	120
24063:Arm1	0.005772	1.7	-0.02092	-1.5639	0.0047	-0.0000	0.005772	1.7	118.9

24063:WVGD1	0.005494	1.608	-0.01958	-1.5574	0.0047	-0.0000	0.005494	1.608	115.5
24063:TopConn	0.005453	1.594	-0.01938	-1.5559	0.0047	-0.0000	0.005453	1.594	115
24063:BotConT	0.004686	1.34	-0.01576	-1.4888	0.0046	-0.0000	0.004686	1.34	105.5
24063:BotConn	0.004646	1.327	-0.01557	-1.4835	0.0046	-0.0000	0.004646	1.327	105
24063:BotConB	0.004606	1.315	-0.01539	-1.4778	0.0045	-0.0000	0.004606	1.315	104.5
24063:WVGD2	0.004252	1.2	-0.0138	-1.4232	0.0045	-0.0000	0.004252	1.2	99.99
24063:Arm2	0.003986	1.116	-0.01265	-1.3781	0.0044	-0.0000	0.003986	1.116	96.53
24063:WVGD3	0.003496	0.9636	-0.01058	-1.2811	0.0042	-0.0000	0.003496	0.9636	89.99
24063:WVGD4	0.002799	0.7541	-0.007914	-1.1109	0.0038	-0.0000	0.002799	0.7541	79.99
24063:Arm3	0.002448	0.6517	-0.006764	-1.0367	0.0036	-0.0000	0.002448	0.6517	74.54
24063:WVGD5	0.00217	0.5718	-0.005863	-0.9718	0.0034	-0.0000	0.00217	0.5718	69.99
24063:WVGD6	0.00161	0.415	-0.004198	-0.8212	0.0030	-0.0000	0.00161	0.415	60
24063:WVGD7	0.001128	0.2845	-0.00294	-0.6704	0.0025	-0.0000	0.001128	0.2845	50
24063:WVGD8	0.0007304	0.1804	-0.002005	-0.5225	0.0020	-0.0000	0.0007304	0.1804	40
24063:WVGD9	0.0004164	0.1007	-0.001324	-0.3872	0.0016	-0.0000	0.0004164	0.1007	30
24063:WVGD10	0.0001879	0.0445	-0.0008008	-0.2545	0.0010	-0.0000	0.0001879	0.0445	20
24063:WVGD11	4.816e-005	0.01114	-0.0003773	-0.1253	0.0005	-0.0000	4.816e-005	0.01114	10
Davit1:O	0.00577	1.7	-0.0527	-1.5639	0.0047	-0.0000	0.00577	2.864	118.8
Davit1:v	0.0059	1.735	-0.5258	-2.2085	0.0047	-0.0004	0.0059	16.9	119.7
Davit1:a	0.005973	1.752	-0.752	-2.2813	0.0047	-0.0005	0.005973	22.67	120
Davit1:t	0.005985	1.75	-0.8319	-2.2897	0.0047	-0.0005	0.005985	24.66	119.9
Davit2:O	0.005773	1.701	0.01085	-1.5639	0.0047	-0.0000	0.005773	0.5365	118.9
Davit2:v	0.005931	1.732	0.3081	-0.9620	0.0047	0.0002	0.005931	-13.43	120.5
Davit2:a	0.006008	1.741	0.4007	-0.8951	0.0047	0.0003	0.006008	-19.17	121.1
Davit2:t	0.006021	1.741	0.4318	-0.8870	0.0047	0.0003	0.006021	-21.17	121.1
Davit3:O	0.003983	1.115	-0.04711	-1.3781	0.0044	-0.0000	0.003983	2.548	96.49
Davit3:v	0.004073	1.145	-0.4035	-1.9900	0.0044	-0.0002	0.004073	14.58	97.31
Davit3:t	0.004076	1.143	-0.4741	-2.0326	0.0044	-0.0002	0.004076	16.58	97.23
Davit4:O	0.003988	1.116	0.0218	-1.3781	0.0044	-0.0000	0.003988	-0.3163	96.56
Davit4:v	0.004114	1.14	0.2456	-0.7880	0.0044	0.0002	0.004114	-12.29	97.95
Davit4:t	0.004123	1.14	0.272	-0.7451	0.0044	0.0002	0.004123	-14.29	97.98
Davit5:O	0.002446	0.6514	-0.03765	-1.0367	0.0036	-0.0000	0.002446	2.358	74.5
Davit5:v	0.002527	0.6757	-0.3225	-1.6495	0.0036	-0.0002	0.002527	14.38	75.39
Davit5:t	0.002532	0.6748	-0.3812	-1.6921	0.0036	-0.0002	0.002532	16.38	75.33
Davit6:O	0.00245	0.6519	0.02412	-1.0367	0.0036	-0.0000	0.00245	-1.055	74.57
Davit6:v	0.002554	0.6679	0.1764	-0.4452	0.0036	0.0002	0.002554	-13.04	75.89
Davit6:t	0.002563	0.6679	0.1908	-0.4023	0.0036	0.0002	0.002563	-15.04	75.9

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)	Comp. Uplift Usage %	Result. Usage %	Result. Force (kips)	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 %
24063:g	-0.18	0.0	-26.97	0.0	0.0	-136.01	0.0	0.0	138.66	0.0	2520.91	0.0	-11.0	0.0	0.0	0.02	0.0	0.0

Detailed Steel Pole 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)	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.
24063	24063:t	Origin	0.00	20.77	0.07	-0.26	-0.00	-0.00	0.0	-0.10	0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	5
24063	24063:Arm1	End	1.10	20.40	0.07	-0.25	0.02	-0.00	0.0	-0.10	0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	

24063	24063:Arm1	Origin	1.10	20.40	0.07	-0.25	10.90	-0.02	-0.0	-23.47	7.14	-0.01	-0.71	0.57	0.11	0.00	1.29	2.0
24063	24063:WVGD1	End	4.50	19.29	0.07	-0.23	35.15	-0.07	-0.0	-23.47	7.14	-0.01	-0.68	1.70	0.11	0.00	2.39	3.7
24063	24063:WVGD1	Origin	4.50	19.29	0.07	-0.23	35.15	-0.07	-0.0	-25.21	7.59	-0.02	-0.73	1.70	0.12	0.00	2.44	3.8
24063	24063:TopConn	End	5.00	19.13	0.07	-0.23	38.95	-0.08	-0.0	-25.21	7.59	-0.02	-0.73	1.86	0.12	0.00	2.60	4.0
24063	24063:TopConn	Origin	5.00	19.13	0.07	-0.23	38.95	-0.08	-0.0	-25.56	14.12	-0.02	-0.74	1.86	0.22	0.00	2.63	4.0
24063	Tube 1	End	9.75	17.59	0.06	-0.21	106.03	-0.16	-0.0	-25.56	14.12	-0.02	-0.71	4.62	0.21	0.00	5.34	8.2
24063	Tube 1	Origin	9.75	17.59	0.06	-0.21	106.03	-0.16	-0.0	-26.54	14.29	-0.02	-0.73	4.62	0.21	0.00	5.37	8.3
24063	24063:BotConT	End	14.50	16.09	0.06	-0.19	173.93	-0.27	-0.0	-26.54	14.29	-0.02	-0.70	6.93	0.20	0.00	7.64	11.8
24063	24063:BotConT	Origin	14.50	16.09	0.06	-0.19	173.93	-0.27	-0.0	-26.74	27.84	-0.03	-0.71	6.93	0.39	0.00	7.67	11.8
24063	24063:BotConn	End	15.00	15.93	0.06	-0.19	187.85	-0.29	-0.0	-26.74	27.84	-0.03	-0.70	7.42	0.39	0.00	8.15	12.5
24063	24063:BotConn	Origin	15.00	15.93	0.06	-0.19	187.85	-0.29	-0.0	-34.88	23.90	-0.03	-0.92	7.42	0.33	0.00	8.35	12.9
24063	24063:BotConB	End	15.50	15.77	0.06	-0.18	199.80	-0.30	-0.0	-34.88	23.90	-0.03	-0.91	7.82	0.33	0.00	8.75	13.5
24063	24063:BotConB	Origin	15.50	15.77	0.06	-0.18	199.80	-0.30	-0.0	-35.78	10.53	-0.03	-0.94	7.82	0.15	0.00	8.76	13.5
24063	24063:WVGD2	End	20.00	14.41	0.05	-0.17	247.19	-0.43	-0.0	-35.78	10.53	-0.03	-0.90	8.92	0.14	0.00	9.82	15.1
24063	24063:WVGD2	Origin	20.00	14.41	0.05	-0.17	247.19	-0.43	-0.0	-37.59	10.92	-0.03	-0.94	8.92	0.15	0.00	9.87	15.2
24063	24063:Arm2	End	23.46	13.39	0.05	-0.15	284.94	-0.54	-0.0	-37.59	10.92	-0.03	-0.92	9.69	0.14	0.00	10.61	16.3
24063	24063:Arm2	Origin	23.46	13.39	0.05	-0.15	290.70	-0.55	-0.0	-57.16	16.37	-0.04	-1.39	9.88	0.21	0.00	11.28	17.4
24063	Tube 1	End	26.73	12.46	0.04	-0.14	344.24	-0.70	-0.0	-57.16	16.37	-0.04	-1.36	11.08	0.21	0.00	12.44	19.1
24063	Tube 1	Origin	26.73	12.46	0.04	-0.14	344.24	-0.70	-0.0	-57.95	16.47	-0.05	-1.38	11.08	0.21	0.00	12.46	19.2
24063	24063:WVGD3	End	30.00	11.56	0.04	-0.13	398.10	-0.86	-0.0	-57.95	16.47	-0.05	-1.34	12.15	0.20	0.00	13.49	20.8
24063	24063:WVGD3	Origin	30.00	11.56	0.04	-0.13	398.10	-0.86	-0.0	-59.90	16.83	-0.05	-1.38	12.15	0.21	0.00	13.54	20.8
24063	Tube 1	End	35.00	10.26	0.04	-0.11	482.26	-1.12	-0.0	-59.90	16.83	-0.05	-1.33	13.60	0.20	0.00	14.93	23.0
24063	Tube 1	Origin	35.00	10.26	0.04	-0.11	482.26	-1.12	-0.0	-61.19	16.98	-0.06	-1.36	13.60	0.20	0.00	14.96	23.0
24063	24063:WVGD4	End	40.00	9.05	0.03	-0.09	567.16	-1.41	-0.0	-61.19	16.98	-0.06	-1.31	14.82	0.19	0.00	16.13	24.8
24063	24063:WVGD4	Origin	40.00	9.05	0.03	-0.09	567.16	-1.41	-0.0	-63.25	17.34	-0.06	-1.01	11.08	0.15	0.00	12.09	18.6
24063	Tube 2	End	42.73	8.42	0.03	-0.09	614.48	-1.58	-0.0	-63.25	17.34	-0.06	-0.99	11.53	0.14	0.00	12.52	19.3
24063	Tube 2	Origin	42.73	8.42	0.03	-0.09	614.48	-1.58	-0.0	-64.21	17.44	-0.07	-1.01	11.53	0.14	0.00	12.54	19.3
24063	24063:Arm3	End	45.46	7.82	0.03	-0.08	662.08	-1.75	-0.0	-64.21	17.44	-0.07	-0.99	11.94	0.14	0.00	12.93	19.9
24063	24063:Arm3	Origin	45.46	7.82	0.03	-0.08	667.73	-1.76	-0.0	-84.36	22.79	-0.08	-1.30	12.04	0.19	0.00	13.34	20.5

24063	24063:WVGD5	End	50.00	6.86	0.03	-0.07	771.24	-2.11	-0.0	-84.36	22.79	-0.08	-1.26	13.05	0.18	0.00	14.31	22.0	2
24063	24063:WVGD5	Origin	50.00	6.86	0.03	-0.07	771.24	-2.11	-0.0	-86.80	23.16	-0.08	-1.29	13.05	0.18	0.00	14.34	22.1	2
24063	Tube 2	End	53.58	6.15	0.02	-0.06	854.23	-2.41	-0.0	-86.80	23.16	-0.08	-1.26	13.76	0.18	0.00	15.02	23.1	2
24063	Tube 2	Origin	53.58	6.15	0.02	-0.06	854.23	-2.41	-0.0	-88.17	23.27	-0.09	-1.28	13.76	0.18	0.00	15.04	23.1	2
24063	SpliceT	End	57.17	5.48	0.02	-0.06	937.62	-2.72	-0.0	-88.17	23.27	-0.09	-1.25	14.40	0.17	0.00	15.65	24.1	2
24063	SpliceT	Origin	57.17	5.48	0.02	-0.06	937.62	-2.72	-0.0	-90.00	23.38	-0.09	-1.28	14.40	0.18	0.00	15.68	24.1	2
24063	24063:WVGD6	End	60.00	4.98	0.02	-0.05	1003.84	-2.98	-0.0	-90.00	23.38	-0.09	-1.14	13.88	0.16	0.00	15.02	23.1	2
24063	24063:WVGD6	Origin	60.00	4.98	0.02	-0.05	1003.84	-2.98	-0.0	-93.26	23.72	-0.09	-1.18	13.88	0.16	0.00	15.06	23.2	2
24063	SpliceB	End	63.00	4.48	0.02	-0.05	1075.01	-3.26	-0.0	-93.26	23.72	-0.09	-1.16	14.28	0.16	0.00	15.45	23.8	2
24063	SpliceB	Origin	63.00	4.48	0.02	-0.05	1075.01	-3.26	-0.0	-95.26	23.83	-0.10	-1.18	14.28	0.16	0.00	15.47	23.8	2
24063	Tube 3	End	66.50	3.93	0.02	-0.04	1158.42	-3.61	-0.0	-95.26	23.83	-0.10	-1.16	14.71	0.15	0.00	15.88	24.4	2
24063	Tube 3	Origin	66.50	3.93	0.02	-0.04	1158.42	-3.61	-0.0	-96.85	23.94	-0.10	-1.18	14.71	0.15	0.00	15.89	24.5	2
24063	24063:WVGD7	End	70.00	3.41	0.01	-0.04	1242.21	-3.97	-0.0	-96.85	23.94	-0.10	-1.15	15.10	0.15	0.00	16.25	25.0	2
24063	24063:WVGD7	Origin	70.00	3.41	0.01	-0.04	1242.21	-3.97	-0.0	-99.43	24.29	-0.11	-1.18	15.10	0.15	0.00	16.28	25.1	2
24063	Tube 3	End	73.63	2.92	0.01	-0.03	1330.25	-4.36	-0.0	-99.43	24.29	-0.11	-1.16	15.46	0.15	0.00	16.62	25.6	2
24063	Tube 3	Origin	73.63	2.92	0.01	-0.03	1330.25	-4.36	-0.0	-101.15	24.40	-0.11	-1.18	15.46	0.15	0.00	16.64	25.6	2
24063	SpliceT	End	77.25	2.48	0.01	-0.03	1418.71	-4.76	-0.0	-101.15	24.40	-0.11	-1.15	15.79	0.15	0.00	16.94	26.1	2
24063	SpliceT	Origin	77.25	2.48	0.01	-0.03	1418.71	-4.76	-0.0	-102.76	24.51	-0.12	-1.05	14.19	0.13	0.00	15.24	23.4	2
24063	24063:WVGD8	End	80.00	2.16	0.01	-0.02	1486.10	-5.08	-0.0	-102.76	24.51	-0.12	-1.03	14.39	0.13	0.00	15.42	23.7	2
24063	24063:WVGD8	Origin	80.00	2.16	0.01	-0.02	1486.10	-5.08	-0.0	-105.80	24.88	-0.12	-1.07	14.39	0.13	0.00	15.45	23.8	2
24063	Tube 4	End	85.00	1.65	0.01	-0.02	1610.50	-5.70	-0.0	-105.80	24.88	-0.12	-1.04	14.72	0.13	0.00	15.75	24.2	2
24063	Tube 4	Origin	85.00	1.65	0.01	-0.02	1610.50	-5.69	-0.0	-108.60	25.06	-0.13	-1.06	14.72	0.13	0.00	15.78	24.3	2
24063	24063:WVGD9	End	90.00	1.21	0.00	-0.02	1735.80	-6.34	-0.0	-108.60	25.06	-0.13	-1.03	14.99	0.13	0.00	16.03	24.7	2
24063	24063:WVGD9	Origin	90.00	1.21	0.00	-0.02	1735.80	-6.34	-0.0	-111.99	25.45	-0.14	-1.07	14.99	0.13	0.00	16.06	24.7	2
24063	Tube 4	End	93.63	0.93	0.00	-0.01	1828.05	-6.83	-0.0	-111.99	25.45	-0.14	-1.04	15.18	0.13	0.00	16.22	25.0	2
24063	Tube 4	Origin	93.63	0.93	0.00	-0.01	1828.05	-6.83	-0.0	-114.12	25.58	-0.14	-1.06	15.18	0.13	0.00	16.24	25.0	2
24063	SpliceT	End	97.25	0.69	0.00	-0.01	1920.77	-7.34	-0.0	-114.12	25.58	-0.14	-1.04	15.34	0.12	0.00	16.38	25.2	2
24063	SpliceT	Origin	97.25	0.69	0.00	-0.01	1920.77	-7.34	-0.0	-116.02	25.70	-0.15	-1.06	15.34	0.12	0.00	16.40	25.2	2
24063	24063:WVGD10	End	100.00	0.53	0.00	-0.01	1991.44	-7.74	-0.0	-116.02	25.70	-0.15	-1.05	15.45	0.12	0.00	16.49	25.4	2
24063	24063:WVGD10	Origin	100.00	0.53	0.00	-0.01	1991.44	-7.74	-0.0	-119.30	26.07	-0.15	-1.08	15.45	0.12	0.00	16.52	25.4	

2																			
	24063	Tube 5	End	105.00	0.30	0.00	-0.01	2121.81	-8.50	-0.0	-119.30	26.07	-0.15	-1.05	15.63	0.12	0.00	16.68	25.7
2																			
	24063	Tube 5	Origin	105.00	0.30	0.00	-0.01	2121.81	-8.50	-0.0	-122.42	26.26	-0.16	-1.08	15.63	0.12	0.00	16.70	25.7
2																			
	24063	24063:WVGD11	End	110.00	0.13	0.00	-0.00	2253.12	-9.29	-0.0	-122.42	26.26	-0.16	-1.05	15.78	0.12	0.00	16.83	25.9
2																			
	24063	24063:WVGD11	Origin	110.00	0.13	0.00	-0.00	2253.12	-9.29	-0.0	-126.52	26.68	-0.17	-1.08	15.78	0.12	0.00	16.86	25.9
2																			
	24063	Tube 5	End	115.00	0.03	0.00	-0.00	2386.53	-10.13	-0.0	-126.52	26.68	-0.17	-1.06	15.91	0.12	0.00	16.97	26.1
2																			
	24063	Tube 5	Origin	115.00	0.03	0.00	-0.00	2386.53	-10.13	-0.0	-129.79	26.88	-0.18	-1.09	15.91	0.12	0.00	16.99	26.1
2																			
	24063	24063:g	End	120.00	0.00	0.00	0.00	2520.91	-11.00	-0.0	-129.79	26.88	-0.18	-1.06	16.02	0.12	0.00	17.08	26.3
2																			

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:O	Origin	0.00	20.40	0.07	-0.63	-170.64	-0.10	-0.0	2.53	11.55	0.01	0.13	23.57	0.00	0.00	23.70	36.5	1
Davit1	#Davit1:0	End	5.00	20.54	0.07	-2.42	-112.90	-0.07	-0.0	2.53	11.55	0.01	0.15	20.30	0.00	0.00	20.45	31.5	1
Davit1	#Davit1:0	Origin	5.00	20.54	0.07	-2.42	-112.90	-0.07	-0.0	2.60	11.12	0.01	0.15	20.30	0.00	0.00	20.45	31.5	1
Davit1	#Davit1:1	End	9.53	20.68	0.07	-4.27	-62.53	-0.04	-0.0	2.60	11.12	0.01	0.18	14.77	0.00	0.00	14.95	23.0	1
Davit1	#Davit1:1	Origin	9.53	20.68	0.07	-4.27	-62.53	-0.04	-0.0	2.66	10.77	0.01	0.18	14.77	0.00	0.00	14.95	23.0	1
Davit1	Davit1:v	End	14.06	20.82	0.07	-6.31	-13.75	-0.02	-0.0	2.66	10.77	0.01	0.21	4.46	0.00	0.00	4.67	7.2	1
Davit1	Davit1:v	Origin	14.06	20.82	0.07	-6.31	-13.75	-0.02	-0.0	0.69	1.92	0.00	0.05	4.46	0.00	0.00	4.51	6.9	1
Davit1	#Davit1:2	End	16.95	20.92	0.07	-7.66	-8.19	-0.01	-0.0	0.69	1.92	0.00	0.06	3.35	0.00	0.00	3.41	5.2	1
Davit1	#Davit1:2	Origin	16.95	20.92	0.07	-7.66	-8.19	-0.01	-0.0	0.70	1.76	0.00	0.06	3.35	0.00	0.00	3.41	5.2	1
Davit1	Davit1:a	End	19.83	21.02	0.07	-9.02	-3.12	-0.00	-0.0	0.70	1.76	0.00	0.07	1.66	0.00	0.00	1.73	2.7	1
Davit1	Davit1:a	Origin	19.83	21.02	0.07	-9.02	-3.12	-0.00	0.0	0.85	1.56	0.00	0.09	1.66	0.00	0.00	1.74	2.7	1
Davit1	Davit1:t	End	21.83	21.00	0.07	-9.98	0.00	0.00	0.0	0.85	1.56	0.00	0.09	0.00	0.36	0.00	0.63	1.0	3
Davit2	Davit2:O	Origin	0.00	20.41	0.07	0.13	-159.86	0.09	0.0	-4.47	10.84	-0.01	-0.23	22.08	0.00	0.00	22.31	34.3	1
Davit2	#Davit2:0	End	5.00	20.57	0.07	1.62	-105.65	0.06	0.0	-4.47	10.84	-0.01	-0.26	19.00	0.00	0.00	19.26	29.6	1
Davit2	#Davit2:0	Origin	5.00	20.57	0.07	1.62	-105.65	0.06	0.0	-4.38	10.45	-0.01	-0.26	19.00	0.00	0.00	19.25	29.6	1
Davit2	#Davit2:1	End	9.53	20.68	0.07	2.74	-58.31	0.03	0.0	-4.38	10.45	-0.01	-0.30	13.78	0.00	0.00	14.07	21.7	1
Davit2	#Davit2:1	Origin	9.53	20.68	0.07	2.74	-58.31	0.03	0.0	-4.31	10.12	-0.01	-0.29	13.78	0.00	0.00	14.07	21.6	1
Davit2	Davit2:v	End	14.06	20.78	0.07	3.70	-12.46	0.01	0.0	-4.31	10.12	-0.01	-0.34	4.04	0.00	0.00	4.38	6.7	1
Davit2	Davit2:v	Origin	14.06	20.78	0.07	3.70	-12.46	0.01	0.0	-0.93	1.72	-0.00	-0.07	4.04	0.00	0.00	4.11	6.3	1
Davit2	#Davit2:2	End	16.95	20.83	0.07	4.26	-7.50	0.01	0.0	-0.93	1.72	-0.00	-0.08	3.06	0.00	0.00	3.15	4.8	1
Davit2	#Davit2:2	Origin	16.95	20.83	0.07	4.26	-7.50	0.01	0.0	-0.91	1.55	-0.00	-0.08	3.06	0.00	0.00	3.14	4.8	1
Davit2	Davit2:a	End	19.83	20.89	0.07	4.81	-3.01	0.00	0.0	-0.91	1.55	-0.00	-0.09	1.60	0.00	0.00	1.69	2.6	1
Davit2	Davit2:a	Origin	19.83	20.89	0.07	4.81	-3.01	0.00	0.0	-0.76	1.50	-0.00	-0.08	1.60	0.00	0.00	1.67	2.6	1
Davit2	Davit2:t	End	21.83	20.89	0.07	5.18	-0.00	0.00	0.0	-0.76	1.50	-0.00	-0.08	0.00	0.35	0.00	0.61	0.9	3
Davit3	Davit3:O	Origin	0.00	13.38	0.05	-0.57	-126.88	-0.05	-0.0	1.79	9.39	0.00	0.10	19.58	0.00	0.00	19.68	30.3	1
Davit3	#Davit3:0	End	5.00	13.52	0.05	-2.15	-79.91	-0.03	-0.0	1.79	9.39	0.00	0.12	18.45	0.00	0.00	18.57	28.6	1
Davit3	#Davit3:0	Origin	5.00	13.52	0.05	-2.15	-79.91	-0.03	-0.0	1.84	9.05	0.00	0.12	18.45	0.00	0.00	18.58	28.6	1
Davit3	#Davit3:1	End	8.53	13.62	0.05	-3.43	-47.98	-0.02	-0.0	1.84	9.05	0.00	0.15	15.61	0.00	0.00	15.75	24.2	1
Davit3	#Davit3:1	Origin	8.53	13.62	0.05	-3.43	-47.98	-0.02	-0.0	1.89	8.82	0.00	0.15	15.61	0.00	0.00	15.76	24.2	1
Davit3	Davit3:v	End	12.06	13.74	0.05	-4.84	-16.87	-0.01	-0.0	1.89	8.82	0.00	0.18	8.30	0.00	0.00	8.48	13.1	1
Davit3	Davit3:v	Origin	12.06	13.74	0.05	-4.84	-16.87	-0.01	0.0	2.74	8.43	0.00	0.27	8.30	0.00	0.00	8.57	13.2	1
Davit3	Davit3:t	End	14.06	13.72	0.05	-5.69	-0.00	0.00	0.0	2.74	8.43	0.00	0.30	0.00	1.95	0.00	3.39	5.2	3
Davit4	Davit4:O	Origin	0.00	13.39	0.05	0.26	-121.12	0.05	0.0	-3.52	8.89	-0.00	-0.19	18.69	0.00	0.00	18.88	29.1	1

Davit4	#Davit4:0	End	5.00	13.54	0.05	1.56	-76.68	0.03	0.0	-3.52	8.89	-0.00	-0.23	17.71	0.00	0.00	17.94	27.6	1
Davit4	#Davit4:0	Origin	5.00	13.54	0.05	1.56	-76.68	0.03	0.0	-3.45	8.57	-0.00	-0.23	17.71	0.00	0.00	17.94	27.6	1
Davit4	#Davit4:1	End	8.53	13.62	0.05	2.32	-46.45	0.02	0.0	-3.45	8.57	-0.00	-0.27	15.11	0.00	0.00	15.39	23.7	1
Davit4	#Davit4:1	Origin	8.53	13.62	0.05	2.32	-46.45	0.02	0.0	-3.40	8.35	-0.00	-0.27	15.11	0.00	0.00	15.38	23.7	1
Davit4	Davit4:v	End	12.06	13.68	0.05	2.95	-16.99	0.01	0.0	-3.40	8.35	-0.00	-0.33	8.36	0.00	0.00	8.69	13.4	1
Davit4	Davit4:v	Origin	12.06	13.68	0.05	2.95	-16.99	0.01	0.0	-2.56	8.49	-0.00	-0.25	8.36	0.00	0.00	8.61	13.2	1
Davit4	Davit4:t	End	14.06	13.69	0.05	3.26	-0.00	0.00	0.0	-2.56	8.49	-0.00	-0.28	0.00	1.96	0.00	3.41	5.2	3
Davit5	Davit5:O	Origin	0.00	7.82	0.03	-0.45	-127.04	-0.05	-0.0	1.73	9.40	0.00	0.09	19.61	0.00	0.00	19.70	30.3	1
Davit5	#Davit5:0	End	5.00	7.92	0.03	-1.68	-80.02	-0.03	-0.0	1.73	9.40	0.00	0.12	18.48	0.00	0.00	18.59	28.6	1
Davit5	#Davit5:0	Origin	5.00	7.92	0.03	-1.68	-80.02	-0.03	-0.0	1.79	9.06	0.00	0.12	18.48	0.00	0.00	18.60	28.6	1
Davit5	#Davit5:1	End	8.53	8.01	0.03	-2.70	-48.05	-0.02	-0.0	1.79	9.06	0.00	0.14	15.63	0.00	0.00	15.77	24.3	1
Davit5	#Davit5:1	Origin	8.53	8.01	0.03	-2.70	-48.05	-0.02	-0.0	1.84	8.83	0.00	0.15	15.63	0.00	0.00	15.78	24.3	1
Davit5	Davit5:v	End	12.06	8.11	0.03	-3.87	-16.90	-0.01	-0.0	1.84	8.83	0.00	0.18	8.32	0.00	0.00	8.50	13.1	1
Davit5	Davit5:v	Origin	12.06	8.11	0.03	-3.87	-16.90	-0.01	0.0	2.69	8.45	0.00	0.26	8.32	0.00	0.00	8.58	13.2	1
Davit5	Davit5:t	End	14.06	8.10	0.03	-4.57	-0.00	0.00	0.0	2.69	8.45	0.00	0.30	0.00	1.95	0.00	3.39	5.2	3
Davit6	Davit6:O	Origin	0.00	7.82	0.03	0.29	-121.40	0.05	0.0	-3.47	8.91	-0.00	-0.19	18.74	0.00	0.00	18.92	29.1	1
Davit6	#Davit6:0	End	5.00	7.92	0.03	1.23	-76.86	0.03	0.0	-3.47	8.91	-0.00	-0.23	17.75	0.00	0.00	17.98	27.7	1
Davit6	#Davit6:0	Origin	5.00	7.92	0.03	1.23	-76.86	0.03	0.0	-3.40	8.59	-0.00	-0.23	17.75	0.00	0.00	17.97	27.7	1
Davit6	#Davit6:1	End	8.53	7.98	0.03	1.74	-46.56	0.02	0.0	-3.40	8.59	-0.00	-0.27	15.15	0.00	0.00	15.42	23.7	1
Davit6	#Davit6:1	Origin	8.53	7.98	0.03	1.74	-46.56	0.02	0.0	-3.35	8.37	-0.00	-0.26	15.15	0.00	0.00	15.41	23.7	1
Davit6	Davit6:v	End	12.06	8.01	0.03	2.12	-17.02	0.01	0.0	-3.35	8.37	-0.00	-0.32	8.37	0.00	0.00	8.70	13.4	1
Davit6	Davit6:v	Origin	12.06	8.01	0.03	2.12	-17.02	0.01	0.0	-2.50	8.51	-0.00	-0.24	8.37	0.00	0.00	8.62	13.3	1
Davit6	Davit6:t	End	14.06	8.02	0.03	2.29	-0.00	0.00	0.0	-2.50	8.51	-0.00	-0.28	0.00	1.97	0.00	3.42	5.3	3

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
Clamp1	8.822	80.00	80.00	11.03
Clamp2	1.734	80.00	80.00	2.17
Clamp3	8.822	80.00	80.00	11.03
Clamp4	8.822	80.00	80.00	11.03
Clamp5	8.822	80.00	80.00	11.03
Clamp6	8.822	80.00	80.00	11.03
Clamp9	1.421	80.00	80.00	1.78
Clamp10	0.947	80.00	80.00	1.18
Clamp11	0.947	80.00	80.00	1.18
Clamp12	0.947	80.00	80.00	1.18
Clamp13	0.947	80.00	80.00	1.18
Clamp14	0.947	80.00	80.00	1.18
Clamp15	0.947	80.00	80.00	1.18
Clamp16	0.947	80.00	80.00	1.18
Clamp17	0.947	80.00	80.00	1.18
Clamp18	0.947	80.00	80.00	1.18
Clamp19	0.947	80.00	80.00	1.18
Clamp20	8.949	80.00	80.00	11.19
Clamp21	6.440	80.00	80.00	8.05
Clamp22	13.459	80.00	80.00	16.82
Clamp23	13.459	80.00	80.00	16.82
Clamp24	8.822	80.00	80.00	11.03
Clamp25	1.642	80.00	80.00	2.05

*** Analysis Results for Load Case No. 2 "NESC Extreme Wind" - Number of iterations in SAPS 15

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)
24063:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
24063:t	0.01071	4.044	-0.09505	-3.6917	0.0093	-0.0000	0.01071	4.044	119.9
24063:Arm1	0.01053	3.973	-0.09275	-3.6917	0.0093	-0.0000	0.01053	3.973	118.8
24063:WVGD1	0.00998	3.754	-0.08567	-3.6801	0.0092	-0.0000	0.00998	3.754	115.4
24063:TopConn	0.009899	3.722	-0.08464	-3.6775	0.0092	-0.0000	0.009899	3.722	114.9
24063:BotConT	0.008393	3.122	-0.06557	-3.5171	0.0089	0.0000	0.008393	3.122	105.4
24063:BotConn	0.008316	3.092	-0.06462	-3.5035	0.0088	0.0000	0.008316	3.092	104.9
24063:BotConB	0.008238	3.061	-0.06368	-3.4889	0.0088	0.0000	0.008238	3.061	104.4
24063:WVGD2	0.007554	2.792	-0.05557	-3.3482	0.0086	0.0000	0.007554	2.792	99.94
24063:Arm2	0.007042	2.594	-0.0498	-3.2341	0.0084	0.0000	0.007042	2.594	96.49
24063:WVGD3	0.006112	2.237	-0.03992	-2.9945	0.0079	0.0000	0.006112	2.237	89.96
24063:WVGD4	0.004814	1.749	-0.02773	-2.5846	0.0069	-0.0000	0.004814	1.749	79.97
24063:Arm3	0.004172	1.511	-0.02243	-2.4084	0.0065	-0.0000	0.004172	1.511	74.52
24063:WVGD5	0.003669	1.326	-0.01855	-2.2552	0.0061	-0.0000	0.003669	1.326	69.98
24063:WVGD6	0.002673	0.9618	-0.01168	-1.9032	0.0052	-0.0000	0.002673	0.9618	59.99
24063:WVGD7	0.001839	0.6595	-0.006877	-1.5530	0.0043	-0.0000	0.001839	0.6595	49.99
24063:WVGD8	0.001169	0.4183	-0.003741	-1.2106	0.0034	-0.0000	0.001169	0.4183	40
24063:WVGD9	0.0006542	0.2337	-0.001827	-0.8977	0.0025	-0.0000	0.0006542	0.2337	30
24063:WVGD10	0.0002897	0.1033	-0.0007642	-0.5905	0.0017	-0.0000	0.0002897	0.1033	20
24063:WVGD11	7.267e-005	0.02589	-0.0002502	-0.2910	0.0008	-0.0000	7.267e-005	0.02589	10
Davit1:O	0.01052	3.97	-0.1677	-3.6917	0.0093	-0.0000	0.01052	5.135	118.7
Davit1:v	0.01079	4.026	-1.122	-4.0485	0.0093	-0.0016	0.01079	19.19	119.1
Davit1:a	0.01099	4.048	-1.532	-4.0839	0.0093	-0.0018	0.01099	24.96	119.2
Davit1:t	0.01103	4.043	-1.674	-4.0877	0.0093	-0.0018	0.01103	26.96	119
Davit2:O	0.01054	3.975	-0.01779	-3.6917	0.0093	-0.0000	0.01054	2.811	118.9
Davit2:v	0.0111	4.081	0.8403	-3.4016	0.0095	0.0015	0.0111	-11.08	121
Davit2:a	0.0114	4.122	1.179	-3.3715	0.0095	0.0016	0.0114	-16.79	121.9
Davit2:t	0.01148	4.125	1.296	-3.3678	0.0095	0.0017	0.01148	-18.79	122
Davit3:O	0.00703	2.591	-0.1306	-3.2341	0.0084	0.0000	0.00703	4.024	96.41
Davit3:v	0.007256	2.64	-0.8481	-3.5811	0.0084	-0.0015	0.007256	16.07	96.86
Davit3:t	0.007291	2.636	-0.9736	-3.6038	0.0084	-0.0016	0.007291	18.07	96.74
Davit4:O	0.007054	2.596	0.03102	-3.2341	0.0084	0.0000	0.007054	1.163	96.57
Davit4:v	0.00748	2.676	0.6738	-2.9345	0.0085	0.0015	0.00748	-10.76	98.38
Davit4:t	0.00755	2.679	0.7755	-2.9115	0.0085	0.0016	0.00755	-12.75	98.48
Davit5:O	0.004164	1.509	-0.09416	-2.4084	0.0065	-0.0000	0.004164	3.216	74.45
Davit5:v	0.004396	1.55	-0.6386	-2.7605	0.0065	-0.0015	0.004396	15.26	75.07
Davit5:t	0.004438	1.548	-0.7356	-2.7836	0.0065	-0.0016	0.004438	17.25	74.97
Davit6:O	0.00418	1.512	0.0493	-2.4084	0.0065	-0.0000	0.00418	-0.1947	74.59
Davit6:v	0.004527	1.568	0.5194	-2.1030	0.0067	0.0015	0.004527	-12.14	76.23
Davit6:t	0.00459	1.569	0.5922	-2.0796	0.0067	0.0016	0.00459	-14.14	76.3

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 Force (kips)	Comp. Uplift Usage %	Result. 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 %
24063:g	-0.18	0.0	-64.18	0.0	0.0	-79.10	0.0	0.0	101.86	0.0	5863.09	0.0	-16.5	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.
24063	24063:t	Origin	0.00	48.53	0.13	-1.14	-0.00	-0.00	0.0	-0.06	0.04	-0.00	-0.00	0.00	0.00	0.00	0.01	0.0	5
24063	24063:Arm1	End	1.10	47.67	0.13	-1.11	0.05	-0.00	0.0	-0.06	0.04	-0.00	-0.00	0.00	0.00	0.00	0.01	0.0	4
24063	24063:Arm1	Origin	1.10	47.67	0.13	-1.11	18.06	-0.07	-0.0	-12.64	13.37	-0.05	-0.38	0.25	0.79	0.00	1.51	2.3	4
24063	24063:WVGD1	End	4.50	45.05	0.12	-1.03	63.45	-0.26	-0.0	-12.64	13.37	-0.05	-0.37	3.07	0.21	0.00	3.46	5.3	2
24063	24063:WVGD1	Origin	4.50	45.05	0.12	-1.03	63.45	-0.26	-0.0	-13.17	14.67	-0.06	-0.38	3.07	0.23	0.00	3.47	5.3	2
24063	24063:TopConn	End	5.00	44.67	0.12	-1.02	70.78	-0.29	-0.0	-13.17	14.67	-0.06	-0.38	3.39	0.22	0.00	3.79	5.8	2
24063	24063:TopConn	Origin	5.00	44.67	0.12	-1.02	70.78	-0.29	-0.0	-11.97	38.60	-0.06	-0.35	0.92	2.20	0.00	4.01	6.2	4
24063	Tube 1	End	9.75	41.03	0.11	-0.90	254.14	-0.55	-0.0	-11.97	38.60	-0.06	-0.33	11.08	0.56	0.00	11.45	17.6	2
24063	Tube 1	Origin	9.75	41.03	0.11	-0.90	254.14	-0.55	-0.0	-12.61	39.01	-0.06	-0.35	11.08	0.57	0.00	11.47	17.6	2
24063	24063:BotConT	End	14.50	37.47	0.10	-0.79	439.42	-0.82	-0.0	-12.61	39.01	-0.06	-0.33	17.51	0.55	0.00	17.87	27.5	2
24063	24063:BotConT	Origin	14.50	37.47	0.10	-0.79	439.42	-0.82	-0.0	-9.91	89.11	-0.06	-0.26	17.51	1.25	0.00	17.90	27.5	2
24063	24063:BotConn	End	15.00	37.10	0.10	-0.78	483.98	-0.85	-0.0	-9.91	89.11	-0.06	-0.26	19.11	1.24	0.00	19.49	30.0	2
24063	24063:BotConn	Origin	15.00	37.10	0.10	-0.78	483.98	-0.85	-0.0	-14.87	73.93	-0.06	-0.39	19.11	1.03	0.00	19.58	30.1	2
24063	24063:BotConB	End	15.50	36.73	0.10	-0.76	520.94	-0.88	-0.0	-14.87	73.93	-0.06	-0.39	20.38	1.02	0.00	20.85	32.1	2
24063	24063:BotConB	Origin	15.50	36.73	0.10	-0.76	520.94	-0.88	-0.0	-18.30	24.27	-0.06	-0.48	20.38	0.34	0.00	20.87	32.1	2
24063	24063:WVGD2	End	20.00	33.51	0.09	-0.67	630.14	-1.15	-0.0	-18.30	24.27	-0.06	-0.46	22.75	0.32	0.00	23.21	35.7	2
24063	24063:WVGD2	Origin	20.00	33.51	0.09	-0.67	630.14	-1.15	-0.0	-19.09	25.37	-0.06	-0.48	22.75	0.34	0.00	23.23	35.7	2
24063	24063:Arm2	End	23.46	31.12	0.08	-0.60	717.85	-1.36	-0.0	-19.09	25.37	-0.06	-0.47	24.41	0.33	0.00	24.88	38.3	2
24063	24063:Arm2	Origin	23.46	31.12	0.08	-0.60	730.13	-1.41	-0.0	-29.91	36.62	-0.11	-0.73	24.83	0.47	0.00	25.57	39.3	2
24063	Tube 1	End	26.73	28.94	0.08	-0.54	849.92	-1.75	-0.0	-29.91	36.62	-0.11	-0.71	27.36	0.46	0.00	28.08	43.2	2
24063	Tube 1	Origin	26.73	28.94	0.08	-0.54	849.92	-1.75	-0.0	-30.46	36.89	-0.11	-0.72	27.36	0.46	0.00	28.09	43.2	2
24063	24063:WVGD3	End	30.00	26.85	0.07	-0.48	970.59	-2.10	-0.0	-30.46	36.89	-0.11	-0.70	29.61	0.45	0.00	30.33	46.7	2
24063	24063:WVGD3	Origin	30.00	26.85	0.07	-0.48	970.59	-2.10	-0.0	-31.38	38.00	-0.11	-0.73	29.61	0.46	0.00	30.35	46.7	2
24063	Tube 1	End	35.00	23.81	0.07	-0.40	1160.57	-2.64	-0.0	-31.38	38.00	-0.11	-0.70	32.72	0.45	0.00	33.43	51.4	2
24063	Tube 1	Origin	35.00	23.81	0.07	-0.40	1160.57	-2.64	-0.0	-32.29	38.42	-0.11	-0.72	32.72	0.45	0.00	33.45	51.5	2
24063	24063:WVGD4	End	40.00	20.99	0.06	-0.33	1352.68	-3.19	-0.0	-32.29	38.42	-0.11	-0.69	35.34	0.43	0.00	36.04	55.4	2
24063	24063:WVGD4	Origin	40.00	20.99	0.06	-0.33	1352.68	-3.19	-0.0	-33.29	39.52	-0.11	-0.53	26.42	0.34	0.00	26.96	41.5	2
24063	Tube 2	End	42.73	19.53	0.05	-0.30	1460.54	-3.49	-0.0	-33.29	39.52	-0.11	-0.52	27.40	0.33	0.00	27.93	43.0	2
24063	Tube 2	Origin	42.73	19.53	0.05	-0.30	1460.54	-3.49	-0.0	-33.94	39.79	-0.11	-0.53	27.40	0.33	0.00	27.94	43.0	2
24063	24063:Arm3	End	45.46	18.13	0.05	-0.27	1569.13	-3.79	-0.0	-33.94	39.79	-0.11	-0.52	28.30	0.32	0.00	28.83	44.3	2
24063	24063:Arm3	Origin	45.46	18.13	0.05	-0.27	1581.23	-3.84	-0.0	-45.30	50.96	-0.16	-0.70	28.52	0.41	0.00	29.22	45.0	2
24063	24063:WVGD5	End	50.00	15.91	0.04	-0.22	1812.68	-4.56	-0.0	-45.30	50.96	-0.16	-0.67	30.66	0.40	0.00	31.35	48.2	2
24063	24063:WVGD5	Origin	50.00	15.91	0.04	-0.22	1812.68	-4.55	-0.0	-46.57	52.09	-0.16	-0.69	30.66	0.41	0.00	31.37	48.3	2
24063	Tube 2	End	53.58	14.26	0.04	-0.19	1999.35	-5.12	-0.0	-46.57	52.09	-0.16	-0.68	32.20	0.40	0.00	32.89	50.6	2
24063	Tube 2	Origin	53.58	14.26	0.04	-0.19	1999.35	-5.12	-0.0	-47.52	52.44	-0.16	-0.69	32.20	0.40	0.00	32.90	50.6	2
24063	SpliceT	End	57.17	12.70	0.04	-0.16	2187.26	-5.69	-0.0	-47.52	52.44	-0.16	-0.67	33.58	0.39	0.00	34.26	52.7	2
24063	SpliceT	Origin	57.17	12.70	0.04	-0.16	2187.26	-5.69	-0.0	-48.77	52.76	-0.16	-0.69	33.58	0.40	0.00	34.28	52.7	2
24063	24063:WVGD6	End	60.00	11.54	0.03	-0.14	2336.71	-6.14	-0.0	-48.77	52.76	-0.16	-0.62	32.30	0.35	0.00	32.92	50.6	2
24063	24063:WVGD6	Origin	60.00	11.54	0.03	-0.14	2336.71	-6.14	-0.0	-50.58	53.82	-0.16	-0.64	32.30	0.36	0.00	32.95	50.7	2
24063	SpliceB	End	63.00	10.38	0.03	-0.12	2498.16	-6.63	-0.0	-50.58	53.82	-0.16	-0.63	33.19	0.35	0.00	33.83	52.0	2
24063	SpliceB	Origin	63.00	10.38	0.03	-0.12	2498.16	-6.63	-0.0	-51.95	54.15	-0.16	-0.65	33.19	0.36	0.00	33.84	52.1	2
24063	Tube 3	End	66.50	9.10	0.03	-0.10	2687.68	-7.19	-0.0	-51.95	54.15	-0.16	-0.63	34.14	0.35	0.00	34.77	53.5	2
24063	Tube 3	Origin	66.50	9.10	0.03	-0.10	2687.68	-7.19	-0.0	-53.05	54.49	-0.16	-0.65	34.14	0.35	0.00	34.79	53.5	2
24063	24063:WVGD7	End	70.00	7.91	0.02	-0.08	2878.40	-7.77	-0.0	-53.05	54.49	-0.16	-0.63	34.98	0.34	0.00	35.62	54.8	2
24063	24063:WVGD7	Origin	70.00	7.91	0.02	-0.08	2878.40	-7.77	-0.0	-54.42	55.60	-0.16	-0.65	34.98	0.35	0.00	35.63	54.8	2
24063	Tube 3	End	73.63	6.78	0.02	-0.07	3079.95	-8.36	-0.0	-54.42	55.60	-0.16	-0.63	35.79	0.34	0.00	36.43	56.0	2
24063	Tube 3	Origin	73.63	6.78	0.02	-0.07	3079.95	-8.36	-0.0	-55.60	55.97	-0.17	-0.65	35.79	0.34	0.00	36.45	56.1	2
24063	SpliceT	End	77.25	5.74	0.02	-0.05	3282.85	-8.97	-0.0	-55.60	55.97	-0.17	-0.63	36.52	0.34	0.00	37.16	57.2	2
24063	SpliceT	Origin	77.25	5.74	0.02	-0.05	3282.85	-8.97	-0.0	-56.70	56.31	-0.17	-0.58	32.82	0.31	0.00	33.41	51.4	2
24063	24063:WVGD8	End	80.00	5.02	0.01	-0.04	3437.69	-9.43	-0.0	-56.70	56.31	-0.17	-0.57	33.27	0.30	0.00	33.85	52.1	2
24063	24063:WVGD8	Origin	80.00	5.02	0.01	-0.04	3437.69	-9.42	-0.0	-58.37	57.48	-0.17	-0.59	33.27	0.31	0.00	33.86	52.1	2
24063	Tube 4	End	85.00	3.83	0.01	-0.03	3725.10	-10.27	-0.0	-58.37	57.48	-0.17	-0.57	34.03	0.30	0.00	34.60	53.2	2
24063	Tube 4	Origin	85.00	3.83	0.01	-0.03	3725.10	-10.27	-0.0	-60.27	58.04	-0.17	-0.59	34.03	0.30	0.00	34.62	53.3	2

24063	24063:WVGD9	End	90.00	2.80	0.01	-0.02	4015.31	-11.12	-0.0	-60.27	58.04	-0.17	-0.57	34.68	0.29	0.00	35.25	54.2	2
24063	24063:WVGD9	Origin	90.00	2.80	0.01	-0.02	4015.31	-11.12	-0.0	-62.18	59.28	-0.17	-0.59	34.68	0.30	0.00	35.27	54.3	2
24063	Tube 4	End	93.63	2.16	0.01	-0.02	4230.19	-11.75	-0.0	-62.18	59.28	-0.17	-0.58	35.11	0.29	0.00	35.69	54.9	2
24063	Tube 4	Origin	93.63	2.16	0.01	-0.02	4230.19	-11.75	-0.0	-63.62	59.70	-0.17	-0.59	35.11	0.29	0.00	35.71	54.9	2
24063	SpliceT	End	97.25	1.61	0.00	-0.01	4446.59	-12.38	-0.0	-63.62	59.70	-0.17	-0.58	35.49	0.29	0.00	36.08	55.5	2
24063	SpliceT	Origin	97.25	1.61	0.00	-0.01	4446.59	-12.38	-0.0	-64.91	60.07	-0.18	-0.59	35.49	0.29	0.00	36.09	55.5	2
24063	24063:WVGD10	End	100.00	1.24	0.00	-0.01	4611.77	-12.86	-0.0	-64.91	60.07	-0.18	-0.59	35.76	0.29	0.00	36.35	55.9	2
24063	24063:WVGD10	Origin	100.00	1.24	0.00	-0.01	4611.77	-12.86	-0.0	-66.74	61.28	-0.18	-0.60	35.76	0.29	0.00	36.36	55.9	2
24063	Tube 5	End	105.00	0.70	0.00	-0.01	4918.16	-13.74	-0.0	-66.74	61.28	-0.18	-0.59	36.21	0.28	0.00	36.80	56.6	2
24063	Tube 5	Origin	105.00	0.70	0.00	-0.01	4918.16	-13.74	-0.0	-68.84	61.88	-0.18	-0.61	36.21	0.29	0.00	36.82	56.6	2
24063	24063:WVGD11	End	110.00	0.31	0.00	-0.00	5227.56	-14.64	-0.0	-68.84	61.88	-0.18	-0.59	36.59	0.28	0.00	37.18	57.2	2
24063	24063:WVGD11	Origin	110.00	0.31	0.00	-0.00	5227.56	-14.64	-0.0	-71.23	63.24	-0.18	-0.61	36.59	0.29	0.00	37.20	57.2	2
24063	Tube 5	End	115.00	0.08	0.00	-0.00	5543.76	-15.54	-0.0	-71.23	63.24	-0.18	-0.60	36.94	0.28	0.00	37.54	57.8	2
24063	Tube 5	Origin	115.00	0.08	0.00	-0.00	5543.76	-15.54	-0.0	-73.43	63.87	-0.18	-0.61	36.94	0.28	0.00	37.56	57.8	2
24063	24063:g	End	120.00	0.00	0.00	0.00	5863.09	-16.46	-0.0	-73.43	63.87	-0.18	-0.60	37.23	0.28	0.00	37.84	58.2	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:O	Origin	0.00	47.64	0.13	-2.01	-95.95	-0.42	-0.0	6.08	6.60	0.03	0.31	13.25	0.00	0.00	13.57	20.9	1
Davit1	#Davit1:0	End	5.00	47.88	0.13	-5.96	-62.94	-0.28	-0.0	6.08	6.60	0.03	0.36	11.32	0.00	0.00	11.67	18.0	1
Davit1	#Davit1:0	Origin	5.00	47.88	0.13	-5.96	-62.94	-0.28	-0.0	6.11	6.31	0.03	0.36	11.32	0.00	0.00	11.68	18.0	1
Davit1	#Davit1:1	End	9.53	48.09	0.13	-9.66	-34.35	-0.16	-0.0	6.11	6.31	0.03	0.41	8.12	0.00	0.00	8.53	13.1	1
Davit1	#Davit1:1	Origin	9.53	48.09	0.13	-9.66	-34.35	-0.16	-0.0	6.12	6.07	0.03	0.41	8.12	0.00	0.00	8.53	13.1	1
Davit1	Davit1:v	End	14.06	48.31	0.13	-13.47	-6.85	-0.04	-0.0	6.12	6.07	0.03	0.48	2.22	0.00	0.00	2.70	4.2	1
Davit1	Davit1:v	Origin	14.06	48.31	0.13	-13.47	-6.85	-0.04	-0.0	1.05	1.00	0.01	0.08	2.22	0.00	0.00	2.30	3.5	1
Davit1	#Davit1:2	End	16.95	48.44	0.13	-15.92	-3.97	-0.02	-0.0	1.05	1.00	0.01	0.09	1.62	0.00	0.00	1.71	2.6	1
Davit1	#Davit1:2	Origin	16.95	48.44	0.13	-15.92	-3.97	-0.02	-0.0	1.05	0.89	0.01	0.09	1.62	0.00	0.00	1.71	2.6	1
Davit1	Davit1:a	End	19.83	48.58	0.13	-18.38	-1.41	-0.01	-0.0	1.05	0.89	0.01	0.11	0.75	0.00	0.00	0.85	1.3	1
Davit1	Davit1:a	Origin	19.83	48.58	0.13	-18.38	-1.41	-0.01	0.0	1.12	0.70	0.01	0.11	0.75	0.00	0.00	0.86	1.3	1
Davit1	Davit1:t	End	21.83	48.52	0.13	-20.09	0.00	0.00	0.0	1.12	0.70	0.01	0.12	0.00	0.16	0.00	0.31	0.5	3
Davit2	Davit2:O	Origin	0.00	47.70	0.13	-0.21	-78.00	0.40	0.0	-6.98	5.38	-0.03	-0.36	10.77	0.00	0.00	11.13	17.1	1
Davit2	#Davit2:0	End	5.00	48.17	0.13	3.55	-51.11	0.27	0.0	-6.98	5.38	-0.03	-0.41	9.19	0.00	0.00	9.60	14.8	1
Davit2	#Davit2:0	Origin	5.00	48.17	0.13	3.55	-51.11	0.27	0.0	-6.92	5.12	-0.03	-0.41	9.19	0.00	0.00	9.60	14.8	1
Davit2	#Davit2:1	End	9.53	48.58	0.13	6.86	-27.90	0.15	0.0	-6.92	5.12	-0.03	-0.47	6.59	0.00	0.00	7.06	10.9	1
Davit2	#Davit2:1	Origin	9.53	48.58	0.13	6.86	-27.90	0.15	0.0	-6.88	4.91	-0.03	-0.46	6.59	0.00	0.00	7.06	10.9	1
Davit2	Davit2:v	End	14.06	48.97	0.13	10.08	-5.64	0.03	0.0	-6.88	4.91	-0.03	-0.54	1.83	0.00	0.00	2.37	3.6	1
Davit2	Davit2:v	Origin	14.06	48.97	0.13	10.08	-5.64	0.03	0.0	-1.01	0.79	-0.00	-0.08	1.83	0.00	0.00	1.91	2.9	1
Davit2	#Davit2:2	End	16.95	49.22	0.13	12.12	-3.36	0.02	0.0	-1.01	0.79	-0.00	-0.09	1.37	0.00	0.00	1.46	2.2	1
Davit2	#Davit2:2	Origin	16.95	49.22	0.13	12.12	-3.36	0.02	0.0	-0.99	0.68	-0.00	-0.09	1.37	0.00	0.00	1.46	2.2	1
Davit2	Davit2:a	End	19.83	49.46	0.14	14.15	-1.38	0.01	0.0	-0.99	0.68	-0.00	-0.10	0.73	0.00	0.00	0.83	1.3	1
Davit2	Davit2:a	Origin	19.83	49.46	0.14	14.15	-1.38	0.01	0.0	-0.92	0.69	-0.00	-0.09	0.73	0.00	0.00	0.82	1.3	1
Davit2	Davit2:t	End	21.83	49.51	0.14	15.56	-0.00	0.00	0.0	-0.92	0.69	-0.00	-0.10	0.00	0.16	0.00	0.29	0.5	3
Davit3	Davit3:O	Origin	0.00	31.09	0.08	-1.57	-73.16	-0.30	-0.0	4.97	5.51	0.02	0.27	11.29	0.00	0.00	11.56	17.8	1
Davit3	#Davit3:0	End	5.00	31.33	0.09	-5.03	-45.62	-0.20	-0.0	4.97	5.51	0.02	0.33	10.54	0.00	0.00	10.87	16.7	1
Davit3	#Davit3:0	Origin	5.00	31.33	0.09	-5.03	-45.62	-0.20	-0.0	4.99	5.27	0.02	0.33	10.54	0.00	0.00	10.87	16.7	1
Davit3	#Davit3:1	End	8.53	31.50	0.09	-7.56	-27.02	-0.12	-0.0	4.99	5.27	0.02	0.39	8.79	0.00	0.00	9.19	14.1	1
Davit3	#Davit3:1	Origin	8.53	31.50	0.09	-7.56	-27.02	-0.12	-0.0	5.01	5.11	0.02	0.40	8.79	0.00	0.00	9.19	14.1	1
Davit3	Davit3:v	End	12.06	31.68	0.09	-10.18	-8.99	-0.04	-0.0	5.01	5.11	0.02	0.49	4.42	0.00	0.00	4.91	7.6	1
Davit3	Davit3:v	Origin	12.06	31.68	0.09	-10.18	-8.99	-0.04	0.0	5.48	4.49	0.02	0.53	4.42	0.00	0.00	4.95	7.6	1
Davit3	Davit3:t	End	14.06	31.63	0.09	-11.68	-0.00	0.00	0.0	5.48	4.49	0.02	0.61	0.00	1.04	0.00	1.90	2.9	3
Davit4	Davit4:O	Origin	0.00	31.15	0.08	0.37	-60.90	0.31	0.0	-5.93	4.45	-0.02	-0.32	9.40	0.00	0.00	9.72	15.0	1

Davit4	#Davit4:0	End	5.00	31.56	0.09	3.66	-38.62	0.20	0.0	-5.93	4.45	-0.02	-0.40	8.92	0.00	0.00	9.31	14.3	1
Davit4	#Davit4:0	Origin	5.00	31.56	0.09	3.66	-38.62	0.20	0.0	-5.89	4.25	-0.02	-0.39	8.92	0.00	0.00	9.31	14.3	1
Davit4	#Davit4:1	End	8.53	31.84	0.09	5.91	-23.63	0.12	0.0	-5.89	4.25	-0.02	-0.47	7.69	0.00	0.00	8.15	12.5	1
Davit4	#Davit4:1	Origin	8.53	31.84	0.09	5.91	-23.63	0.12	0.0	-5.86	4.11	-0.02	-0.46	7.69	0.00	0.00	8.15	12.5	1
Davit4	Davit4:v	End	12.06	32.11	0.09	8.09	-9.13	0.04	0.0	-5.86	4.11	-0.02	-0.57	4.49	0.00	0.00	5.06	7.8	1
Davit4	Davit4:v	Origin	12.06	32.11	0.09	8.09	-9.13	0.04	0.0	-5.42	4.56	-0.02	-0.53	4.49	0.00	0.00	5.02	7.7	1
Davit4	Davit4:t	End	14.06	32.14	0.09	9.31	-0.00	0.00	0.0	-5.42	4.56	-0.02	-0.60	0.00	1.05	0.00	1.92	3.0	3
Davit5	Davit5:O	Origin	0.00	18.11	0.05	-1.13	-74.18	-0.30	-0.0	4.89	5.58	0.02	0.27	11.45	0.00	0.00	11.71	18.0	1
Davit5	#Davit5:0	End	5.00	18.31	0.05	-3.73	-46.28	-0.19	-0.0	4.89	5.58	0.02	0.33	10.69	0.00	0.00	11.01	16.9	1
Davit5	#Davit5:0	Origin	5.00	18.31	0.05	-3.73	-46.28	-0.19	-0.0	4.92	5.34	0.02	0.33	10.69	0.00	0.00	11.02	16.9	1
Davit5	#Davit5:1	End	8.53	18.45	0.05	-5.66	-27.43	-0.12	-0.0	4.92	5.34	0.02	0.39	8.92	0.00	0.00	9.31	14.3	1
Davit5	#Davit5:1	Origin	8.53	18.45	0.05	-5.66	-27.43	-0.12	-0.0	4.93	5.18	0.02	0.39	8.92	0.00	0.00	9.31	14.3	1
Davit5	Davit5:v	End	12.06	18.60	0.05	-7.66	-9.15	-0.04	-0.0	4.93	5.18	0.02	0.48	4.50	0.00	0.00	4.98	7.7	1
Davit5	Davit5:v	Origin	12.06	18.60	0.05	-7.66	-9.15	-0.04	0.0	5.41	4.57	0.02	0.52	4.50	0.00	0.00	5.03	7.7	1
Davit5	Davit5:t	End	14.06	18.57	0.05	-8.83	-0.00	0.00	0.0	5.41	4.57	0.02	0.60	0.00	1.06	0.00	1.93	3.0	3
Davit6	Davit6:O	Origin	0.00	18.15	0.05	0.59	-62.09	0.31	0.0	-5.86	4.54	-0.02	-0.32	9.58	0.00	0.00	9.90	15.2	1
Davit6	#Davit6:0	End	5.00	18.43	0.05	3.03	-39.38	0.20	0.0	-5.86	4.54	-0.02	-0.39	9.09	0.00	0.00	9.49	14.6	1
Davit6	#Davit6:0	Origin	5.00	18.43	0.05	3.03	-39.38	0.20	0.0	-5.83	4.33	-0.02	-0.39	9.09	0.00	0.00	9.48	14.6	1
Davit6	#Davit6:1	End	8.53	18.63	0.05	4.66	-24.09	0.12	0.0	-5.83	4.33	-0.02	-0.46	7.84	0.00	0.00	8.30	12.8	1
Davit6	#Davit6:1	Origin	8.53	18.63	0.05	4.66	-24.09	0.12	0.0	-5.80	4.20	-0.02	-0.46	7.84	0.00	0.00	8.29	12.8	1
Davit6	Davit6:v	End	12.06	18.81	0.05	6.23	-9.28	0.04	0.0	-5.80	4.20	-0.02	-0.56	4.57	0.00	0.00	5.13	7.9	1
Davit6	Davit6:v	Origin	12.06	18.81	0.05	6.23	-9.28	0.04	0.0	-5.36	4.64	-0.02	-0.52	4.57	0.00	0.00	5.09	7.8	1
Davit6	Davit6:t	End	14.06	18.83	0.06	7.11	-0.00	0.00	0.0	-5.36	4.64	-0.02	-0.60	0.00	1.07	0.00	1.95	3.0	3

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
Clamp1	7.063	80.00	80.00	8.83
Clamp2	1.304	80.00	80.00	1.63
Clamp3	7.063	80.00	80.00	8.83
Clamp4	7.066	80.00	80.00	8.83
Clamp5	7.063	80.00	80.00	8.83
Clamp6	7.066	80.00	80.00	8.83
Clamp9	1.179	80.00	80.00	1.47
Clamp10	0.787	80.00	80.00	0.98
Clamp11	0.787	80.00	80.00	0.98
Clamp12	0.787	80.00	80.00	0.98
Clamp13	0.787	80.00	80.00	0.98
Clamp14	0.787	80.00	80.00	0.98
Clamp15	0.787	80.00	80.00	0.98
Clamp16	0.787	80.00	80.00	0.98
Clamp17	0.787	80.00	80.00	0.98
Clamp18	0.787	80.00	80.00	0.98
Clamp19	0.787	80.00	80.00	0.98
Clamp20	15.982	80.00	80.00	19.98
Clamp21	23.761	80.00	80.00	29.70
Clamp22	49.972	80.00	80.00	62.46
Clamp23	49.972	80.00	80.00	62.46
Clamp24	7.066	80.00	80.00	8.83
Clamp25	1.128	80.00	80.00	1.41

*** Analysis Results for Load Case No. 3 "NESC Extreme Ice w/ Wind" - Number of iterations in SAPS 14

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)
24063:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
24063:t	0.003786	1.373	-0.0144	-1.2417	0.0032	0.0000	0.003786	1.373	120
24063:Arm1	0.003725	1.349	-0.01414	-1.2417	0.0032	0.0000	0.003725	1.349	118.9
24063:WVGD1	0.003538	1.275	-0.01327	-1.2361	0.0032	0.0000	0.003538	1.275	115.5
24063:TopConn	0.00351	1.265	-0.01314	-1.2349	0.0031	0.0000	0.00351	1.265	115
24063:BotConT	0.002995	1.063	-0.0108	-1.1808	0.0030	0.0000	0.002995	1.063	105.5
24063:BotConn	0.002968	1.053	-0.01068	-1.1766	0.0030	0.0000	0.002968	1.053	105
24063:BotConB	0.002942	1.043	-0.01056	-1.1722	0.0030	0.0000	0.002942	1.043	104.5
24063:WVGD2	0.002706	0.9522	-0.009531	-1.1292	0.0030	0.0000	0.002706	0.9522	99.99
24063:Arm2	0.002529	0.885	-0.008783	-1.0937	0.0029	0.0000	0.002529	0.885	96.53
24063:WVGD3	0.002206	0.7642	-0.007402	-1.0169	0.0027	0.0000	0.002206	0.7642	89.99
24063:WVGD4	0.001752	0.5979	-0.005619	-0.8818	0.0024	0.0000	0.001752	0.5979	79.99
24063:Arm3	0.001526	0.5166	-0.004852	-0.8229	0.0023	0.0000	0.001526	0.5166	74.54
24063:WVGD5	0.001347	0.4532	-0.004239	-0.7713	0.0022	0.0000	0.001347	0.4532	70
24063:WVGD6	0.0009911	0.3287	-0.003094	-0.6515	0.0019	0.0000	0.0009911	0.3287	60
24063:WVGD7	0.0006887	0.2252	-0.002217	-0.5315	0.0016	0.0000	0.0006887	0.2252	50
24063:WVGD8	0.0004423	0.1427	-0.001547	-0.4139	0.0012	0.0000	0.0004423	0.1427	40
24063:WVGD9	0.0002501	0.07963	-0.001046	-0.3065	0.0009	0.0000	0.0002501	0.07963	30
24063:WVGD10	0.000112	0.03516	-0.0006444	-0.2013	0.0006	0.0000	0.000112	0.03516	20
24063:WVGD11	2.844e-005	0.008795	-0.0003072	-0.0990	0.0003	0.0000	2.844e-005	0.008795	10
Davit1:O	0.003723	1.349	-0.03937	-1.2417	0.0032	0.0000	0.003723	2.513	118.9
Davit1:v	0.003826	1.379	-0.4264	-1.8394	0.0032	-0.0004	0.003826	16.54	119.8
Davit1:a	0.003891	1.393	-0.6156	-1.9152	0.0032	-0.0005	0.003891	22.31	120.1
Davit1:t	0.003905	1.392	-0.6827	-1.9241	0.0032	-0.0005	0.003905	24.31	120
Davit2:O	0.003727	1.349	0.01109	-1.2417	0.0032	0.0000	0.003727	0.1848	118.9
Davit2:v	0.003872	1.372	0.2363	-0.6822	0.0032	0.0004	0.003872	-13.79	120.4
Davit2:a	0.003955	1.378	0.3008	-0.6123	0.0032	0.0005	0.003955	-19.54	121
Davit2:t	0.003975	1.378	0.3219	-0.6036	0.0032	0.0005	0.003975	-21.54	121
Davit3:O	0.002527	0.8847	-0.03613	-1.0937	0.0029	0.0000	0.002527	2.317	96.51
Davit3:v	0.0026	0.9094	-0.3253	-1.6386	0.0029	-0.0003	0.0026	14.34	97.38
Davit3:t	0.002608	0.9085	-0.3836	-1.6768	0.0029	-0.0003	0.002608	16.34	97.33
Davit4:O	0.002531	0.8853	0.01856	-1.0937	0.0029	0.0000	0.002531	-0.5473	96.56
Davit4:v	0.002631	0.9033	0.1899	-0.5668	0.0029	0.0003	0.002631	-12.53	97.9
Davit4:t	0.002643	0.9034	0.2087	-0.5284	0.0029	0.0003	0.002643	-14.53	97.92
Davit5:O	0.001524	0.5164	-0.02937	-0.8229	0.0023	0.0000	0.001524	2.223	74.51
Davit5:v	0.001592	0.5367	-0.2618	-1.3685	0.0023	-0.0003	0.001592	14.24	75.45
Davit5:t	0.0016	0.5362	-0.3106	-1.4067	0.0023	-0.0003	0.0016	16.24	75.4
Davit6:O	0.001527	0.5167	0.01966	-0.8229	0.0023	0.0000	0.001527	-1.19	74.56
Davit6:v	0.00161	0.5286	0.1343	-0.2952	0.0023	0.0003	0.00161	-13.18	75.84
Davit6:t	0.001621	0.5286	0.1435	-0.2567	0.0023	0.0003	0.001621	-15.18	75.85

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 Force (kips)	Comp. Uplift Usage %	Result. 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 %
24063:g	-0.09	0.0	-20.93	0.0	0.0	-111.77	0.0	0.0	113.71	0.0	1989.97	0.0	-6.5	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole 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)	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.
24063	24063:t	Origin	0.00	16.47	0.05	-0.17	-0.00	-0.00	0.0	-0.08	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	5
24063	24063:Arm1	End	1.10	16.19	0.04	-0.17	0.01	-0.00	0.0	-0.08	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	0.0	2
24063	24063:Arm1	Origin	1.10	16.19	0.04	-0.17	9.57	-0.02	0.0	-20.81	6.06	-0.01	-0.63	0.50	0.10	0.00	1.14	1.7	2
24063	24063:WVGD1	End	4.50	15.30	0.04	-0.16	30.14	-0.07	0.0	-20.81	6.06	-0.01	-0.60	1.46	0.09	0.00	2.07	3.2	2
24063	24063:WVGD1	Origin	4.50	15.30	0.04	-0.16	30.14	-0.07	0.0	-22.36	6.35	-0.02	-0.65	1.46	0.10	0.00	2.11	3.3	2
24063	24063:TopConn	End	5.00	15.17	0.04	-0.16	33.31	-0.08	0.0	-22.36	6.35	-0.02	-0.65	1.59	0.10	0.00	2.25	3.5	2
24063	24063:TopConn	Origin	5.00	15.17	0.04	-0.16	33.31	-0.08	0.0	-22.65	10.95	-0.02	-0.65	1.59	0.17	0.00	2.27	3.5	2
24063	Tube 1	End	9.75	13.95	0.04	-0.14	85.33	-0.15	0.0	-22.65	10.95	-0.02	-0.62	3.72	0.16	0.00	4.35	6.7	2
24063	Tube 1	Origin	9.75	13.95	0.04	-0.14	85.33	-0.15	0.0	-23.38	11.06	-0.02	-0.64	3.72	0.16	0.00	4.37	6.7	2
24063	24063:BotConT	End	14.50	12.76	0.04	-0.13	137.87	-0.24	0.0	-23.38	11.06	-0.02	-0.62	5.49	0.15	0.00	6.12	9.4	2
24063	24063:BotConT	Origin	14.50	12.76	0.04	-0.13	137.87	-0.24	0.0	-23.59	20.63	-0.02	-0.62	5.49	0.29	0.00	6.14	9.4	2
24063	24063:BotConn	End	15.00	12.64	0.04	-0.13	148.18	-0.25	0.0	-23.59	20.63	-0.02	-0.62	5.85	0.29	0.00	6.49	10.0	2
24063	24063:BotConn	Origin	15.00	12.64	0.04	-0.13	148.18	-0.25	0.0	-30.17	17.82	-0.02	-0.79	5.85	0.25	0.00	6.66	10.2	2
24063	24063:BotConB	End	15.50	12.51	0.04	-0.13	157.09	-0.26	0.0	-30.17	17.82	-0.02	-0.79	6.15	0.25	0.00	6.95	10.7	2
24063	24063:BotConB	Origin	15.50	12.51	0.04	-0.13	157.09	-0.26	0.0	-30.77	8.37	-0.02	-0.80	6.15	0.12	0.00	6.95	10.7	2
24063	24063:WVGD2	End	20.00	11.43	0.03	-0.11	194.77	-0.35	0.0	-30.77	8.37	-0.02	-0.77	7.03	0.11	0.00	7.81	12.0	2
24063	24063:WVGD2	Origin	20.00	11.43	0.03	-0.11	194.77	-0.35	0.0	-32.29	8.63	-0.02	-0.81	7.03	0.11	0.00	7.84	12.1	2
24063	24063:Arm2	End	23.46	10.62	0.03	-0.11	224.60	-0.43	0.0	-32.29	8.63	-0.02	-0.79	7.64	0.11	0.00	8.43	13.0	2
24063	24063:Arm2	Origin	23.46	10.62	0.03	-0.11	229.38	-0.44	0.0	-49.30	13.14	-0.03	-1.20	7.80	0.17	0.00	9.01	13.9	2
24063	Tube 1	End	26.73	9.88	0.03	-0.10	272.35	-0.55	0.0	-49.30	13.14	-0.03	-1.17	8.77	0.16	0.00	9.94	15.3	2
24063	Tube 1	Origin	26.73	9.88	0.03	-0.10	272.35	-0.55	0.0	-49.88	13.20	-0.03	-1.18	8.77	0.17	0.00	9.95	15.3	2
24063	24063:WVGD3	End	30.00	9.17	0.03	-0.09	315.52	-0.66	0.0	-49.88	13.20	-0.03	-1.15	9.63	0.16	0.00	10.78	16.6	2
24063	24063:WVGD3	Origin	30.00	9.17	0.03	-0.09	315.52	-0.66	0.0	-51.50	13.44	-0.04	-1.19	9.63	0.16	0.00	10.82	16.6	2
24063	Tube 1	End	35.00	8.14	0.02	-0.08	382.71	-0.84	0.0	-51.50	13.44	-0.04	-1.14	10.79	0.16	0.00	11.94	18.4	2
24063	Tube 1	Origin	35.00	8.14	0.02	-0.08	382.71	-0.84	0.0	-52.45	13.53	-0.04	-1.17	10.79	0.16	0.00	11.96	18.4	2

24063	24063:WVGD4	End	40.00	7.17	0.02	-0.07	450.35	-1.03	0.0	-52.45	13.53	-0.04	-1.12	11.77	0.15	0.00	12.89	19.8
2																			
24063	24063:WVGD4	Origin	40.00	7.17	0.02	-0.07	450.35	-1.03	0.0	-54.14	13.76	-0.04	-0.87	8.80	0.12	0.00	9.66	14.9
2																			
24063	Tube 2	End	42.73	6.68	0.02	-0.06	487.91	-1.13	0.0	-54.14	13.76	-0.04	-0.85	9.15	0.11	0.00	10.00	15.4
2																			
24063	Tube 2	Origin	42.73	6.68	0.02	-0.06	487.91	-1.13	0.0	-54.84	13.82	-0.04	-0.86	9.15	0.11	0.00	10.01	15.4
2																			
24063	24063:Arm3	End	45.46	6.20	0.02	-0.06	525.64	-1.25	0.0	-54.84	13.82	-0.04	-0.84	9.48	0.11	0.00	10.32	15.9
2																			
24063	24063:Arm3	Origin	45.46	6.20	0.02	-0.06	530.33	-1.26	0.0	-72.25	18.27	-0.05	-1.11	9.56	0.15	0.00	10.68	16.4
2																			
24063	24063:WVGD5	End	50.00	5.44	0.02	-0.05	613.29	-1.49	0.0	-72.25	18.27	-0.05	-1.08	10.37	0.14	0.00	11.45	17.6
2																			
24063	24063:WVGD5	Origin	50.00	5.44	0.02	-0.05	613.29	-1.49	0.0	-74.20	18.50	-0.05	-1.10	10.37	0.15	0.00	11.48	17.7
2																			
24063	Tube 2	End	53.58	4.87	0.01	-0.05	679.60	-1.68	0.0	-74.20	18.50	-0.05	-1.08	10.95	0.14	0.00	12.03	18.5
2																			
24063	Tube 2	Origin	53.58	4.87	0.01	-0.05	679.60	-1.68	0.0	-75.20	18.57	-0.06	-1.09	10.95	0.14	0.00	12.04	18.5
2																			
24063	SpliceT	End	57.17	4.34	0.01	-0.04	746.14	-1.88	0.0	-75.20	18.57	-0.06	-1.07	11.46	0.14	0.00	12.52	19.3
2																			
24063	SpliceT	Origin	57.17	4.34	0.01	-0.04	746.14	-1.88	0.0	-76.49	18.64	-0.06	-1.09	11.46	0.14	0.00	12.54	19.3
2																			
24063	24063:WVGD6	End	60.00	3.94	0.01	-0.04	798.93	-2.04	0.0	-76.49	18.64	-0.06	-0.97	11.04	0.13	0.00	12.01	18.5
2																			
24063	24063:WVGD6	Origin	60.00	3.94	0.01	-0.04	798.93	-2.04	0.0	-78.96	18.86	-0.06	-1.00	11.04	0.13	0.00	12.05	18.5
2																			
24063	SpliceB	End	63.00	3.55	0.01	-0.03	855.50	-2.22	0.0	-78.96	18.86	-0.06	-0.98	11.37	0.12	0.00	12.35	19.0
2																			
24063	SpliceB	Origin	63.00	3.55	0.01	-0.03	855.50	-2.22	0.0	-80.37	18.92	-0.06	-1.00	11.37	0.12	0.00	12.37	19.0
2																			
24063	Tube 3	End	66.50	3.11	0.01	-0.03	921.73	-2.43	0.0	-80.37	18.92	-0.06	-0.98	11.71	0.12	0.00	12.69	19.5
2																			
24063	Tube 3	Origin	66.50	3.11	0.01	-0.03	921.73	-2.43	0.0	-81.52	18.99	-0.06	-0.99	11.71	0.12	0.00	12.70	19.5
2																			
24063	24063:WVGD7	End	70.00	2.70	0.01	-0.03	988.19	-2.64	0.0	-81.52	18.99	-0.06	-0.97	12.01	0.12	0.00	12.98	20.0
2																			
24063	24063:WVGD7	Origin	70.00	2.70	0.01	-0.03	988.19	-2.64	0.0	-83.56	19.21	-0.06	-0.99	12.01	0.12	0.00	13.00	20.0
2																			
24063	Tube 3	End	73.63	2.31	0.01	-0.02	1057.84	-2.87	0.0	-83.56	19.21	-0.06	-0.97	12.29	0.12	0.00	13.27	20.4
2																			
24063	Tube 3	Origin	73.63	2.31	0.01	-0.02	1057.84	-2.87	0.0	-84.80	19.29	-0.07	-0.99	12.29	0.12	0.00	13.28	20.4
2																			
24063	SpliceT	End	77.25	1.96	0.01	-0.02	1127.75	-3.11	0.0	-84.80	19.29	-0.07	-0.97	12.55	0.12	0.00	13.51	20.8
2																			
24063	SpliceT	Origin	77.25	1.96	0.01	-0.02	1127.75	-3.11	0.0	-85.95	19.35	-0.07	-0.88	11.28	0.10	0.00	12.16	18.7
2																			
24063	24063:WVGD8	End	80.00	1.71	0.01	-0.02	1180.96	-3.29	0.0	-85.95	19.35	-0.07	-0.87	11.43	0.10	0.00	12.30	18.9
2																			
24063	24063:WVGD8	Origin	80.00	1.71	0.01	-0.02	1180.96	-3.29	0.0	-88.32	19.59	-0.07	-0.89	11.43	0.10	0.00	12.32	19.0
2																			
24063	Tube 4	End	85.00	1.31	0.00	-0.02	1278.91	-3.64	0.0	-88.32	19.59	-0.07	-0.86	11.68	0.10	0.00	12.55	19.3
2																			
24063	Tube 4	Origin	85.00	1.31	0.00	-0.02	1278.91	-3.64	0.0	-90.32	19.70	-0.07	-0.88	11.68	0.10	0.00	12.57	19.3
2																			
24063	24063:WVGD9	End	90.00	0.96	0.00	-0.01	1377.43	-4.00	0.0	-90.32	19.70	-0.07	-0.86	11.90	0.10	0.00	12.76	19.6
2																			
24063	24063:WVGD9	Origin	90.00	0.96	0.00	-0.01	1377.43	-4.00	0.0	-92.93	19.95	-0.07	-0.88	11.90	0.10	0.00	12.78	19.7

2																		
24063	Tube 4	End	93.63	0.74	0.00	-0.01	1449.76	-4.27	0.0	-92.93	19.95	-0.07	-0.87	12.03	0.10	0.00	12.90	19.8
2																		
24063	Tube 4	Origin	93.63	0.74	0.00	-0.01	1449.76	-4.27	0.0	-94.45	20.04	-0.08	-0.88	12.03	0.10	0.00	12.92	19.9
2																		
24063	SpliceT	End	97.25	0.55	0.00	-0.01	1522.39	-4.55	0.0	-94.45	20.04	-0.08	-0.86	12.15	0.10	0.00	13.02	20.0
2																		
24063	SpliceT	Origin	97.25	0.55	0.00	-0.01	1522.39	-4.55	0.0	-95.81	20.11	-0.08	-0.88	12.15	0.10	0.00	13.03	20.0
2																		
24063	24063:WVGD10	End	100.00	0.42	0.00	-0.01	1577.70	-4.77	0.0	-95.81	20.11	-0.08	-0.86	12.23	0.10	0.00	13.10	20.2
2																		
24063	24063:WVGD10	Origin	100.00	0.42	0.00	-0.01	1577.70	-4.77	0.0	-98.35	20.36	-0.08	-0.89	12.23	0.10	0.00	13.12	20.2
2																		
24063	Tube 5	End	105.00	0.24	0.00	-0.01	1679.48	-5.17	0.0	-98.35	20.36	-0.08	-0.86	12.37	0.09	0.00	13.23	20.4
2																		
24063	Tube 5	Origin	105.00	0.24	0.00	-0.01	1679.48	-5.17	0.0	-100.57	20.48	-0.08	-0.88	12.37	0.10	0.00	13.25	20.4
2																		
24063	24063:WVGD11	End	110.00	0.11	0.00	-0.00	1781.86	-5.59	0.0	-100.57	20.48	-0.08	-0.86	12.47	0.09	0.00	13.34	20.5
2																		
24063	24063:WVGD11	Origin	110.00	0.11	0.00	-0.00	1781.86	-5.59	0.0	-103.70	20.75	-0.09	-0.89	12.47	0.09	0.00	13.36	20.6
2																		
24063	Tube 5	End	115.00	0.03	0.00	-0.00	1885.60	-6.02	0.0	-103.70	20.75	-0.09	-0.87	12.57	0.09	0.00	13.43	20.7
2																		
24063	Tube 5	Origin	115.00	0.03	0.00	-0.00	1885.60	-6.02	0.0	-106.03	20.87	-0.09	-0.89	12.57	0.09	0.00	13.45	20.7
2																		
24063	24063:g	End	120.00	0.00	0.00	0.00	1989.97	-6.48	0.0	-106.03	20.87	-0.09	-0.87	12.64	0.09	0.00	13.51	20.8
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:O	Origin	0.00	16.18	0.04	-0.47	-155.52	-0.11	-0.0	2.10	10.32	0.01	0.11	21.48	0.00	0.00	21.59	33.2	1
Davit1	#Davit1:0	End	5.00	16.30	0.04	-1.91	-103.93	-0.08	-0.0	2.10	10.32	0.01	0.12	18.69	0.00	0.00	18.81	28.9	1
Davit1	#Davit1:0	Origin	5.00	16.30	0.04	-1.91	-103.93	-0.08	-0.0	2.16	10.03	0.01	0.13	18.69	0.00	0.00	18.81	28.9	1
Davit1	#Davit1:1	End	9.53	16.42	0.05	-3.43	-58.48	-0.05	-0.0	2.16	10.03	0.01	0.15	13.82	0.00	0.00	13.96	21.5	1
Davit1	#Davit1:1	Origin	9.53	16.42	0.05	-3.43	-58.48	-0.05	-0.0	2.20	9.80	0.01	0.15	13.82	0.00	0.00	13.97	21.5	1
Davit1	Davit1:v	End	14.06	16.55	0.05	-5.12	-14.10	-0.02	-0.0	2.20	9.80	0.01	0.17	4.57	0.00	0.00	4.75	7.3	1
Davit1	Davit1:v	Origin	14.06	16.55	0.05	-5.12	-14.10	-0.02	-0.0	0.62	1.92	0.00	0.05	4.57	0.00	0.00	4.62	7.1	1
Davit1	#Davit1:2	End	16.95	16.63	0.05	-6.24	-8.55	-0.01	-0.0	0.62	1.92	0.00	0.05	3.49	0.00	0.00	3.55	5.5	1
Davit1	#Davit1:2	Origin	16.95	16.63	0.05	-6.24	-8.55	-0.01	-0.0	0.62	1.81	0.00	0.06	3.49	0.00	0.00	3.55	5.5	1
Davit1	Davit1:a	End	19.83	16.72	0.05	-7.39	-3.32	-0.00	-0.0	0.62	1.81	0.00	0.06	1.76	0.00	0.00	1.83	2.8	1
Davit1	Davit1:a	Origin	19.83	16.72	0.05	-7.39	-3.32	-0.00	0.0	0.78	1.66	0.00	0.08	1.76	0.00	0.00	1.84	2.8	1
Davit1	Davit1:t	End	21.83	16.70	0.05	-8.19	0.00	0.00	0.0	0.78	1.66	0.00	0.09	0.00	0.38	0.00	0.67	1.0	3
Davit2	Davit2:O	Origin	0.00	16.19	0.04	0.13	-146.05	0.11	0.0	-3.85	9.71	-0.01	-0.20	20.17	0.00	0.00	20.37	31.3	1
Davit2	#Davit2:0	End	5.00	16.31	0.05	1.30	-97.49	0.08	0.0	-3.85	9.71	-0.01	-0.23	17.53	0.00	0.00	17.76	27.3	1
Davit2	#Davit2:0	Origin	5.00	16.31	0.05	1.30	-97.49	0.08	0.0	-3.79	9.45	-0.01	-0.22	17.53	0.00	0.00	17.75	27.3	1
Davit2	#Davit2:1	End	9.53	16.39	0.05	2.15	-54.69	0.05	0.0	-3.79	9.45	-0.01	-0.26	12.92	0.00	0.00	13.18	20.3	1
Davit2	#Davit2:1	Origin	9.53	16.39	0.05	2.15	-54.69	0.05	0.0	-3.74	9.23	-0.01	-0.25	12.92	0.00	0.00	13.17	20.3	1
Davit2	Davit2:v	End	14.06	16.46	0.05	2.84	-12.86	0.02	0.0	-3.74	9.23	-0.01	-0.29	4.17	0.00	0.00	4.46	6.9	1
Davit2	Davit2:v	Origin	14.06	16.46	0.05	2.84	-12.86	0.02	0.0	-0.87	1.73	-0.00	-0.07	4.17	0.00	0.00	4.24	6.5	1
Davit2	#Davit2:2	End	16.95	16.50	0.05	3.23	-7.87	0.01	0.0	-0.87	1.73	-0.00	-0.08	3.22	0.00	0.00	3.29	5.1	1
Davit2	#Davit2:2	Origin	16.95	16.50	0.05	3.23	-7.87	0.01	0.0	-0.86	1.62	-0.00	-0.08	3.22	0.00	0.00	3.29	5.1	1
Davit2	Davit2:a	End	19.83	16.54	0.05	3.61	-3.21	0.00	0.0	-0.86	1.62	-0.00	-0.09	1.70	0.00	0.00	1.79	2.8	1
Davit2	Davit2:a	Origin	19.83	16.54	0.05	3.61	-3.21	0.00	0.0	-0.71	1.60	-0.00	-0.07	1.70	0.00	0.00	1.77	2.7	1

Davit2	Davit2:t	End	21.83	16.54	0.05	3.86	-0.00	0.00	0.0	-0.71	1.60	-0.00	-0.08	0.00	0.37	0.00	0.65	1.0	3
Davit3	Davit3:O	Origin	0.00	10.62	0.03	-0.43	-112.36	-0.06	-0.0	1.44	8.24	0.00	0.08	17.34	0.00	0.00	17.42	26.8	1
Davit3	#Davit3:0	End	5.00	10.73	0.03	-1.70	-71.14	-0.04	-0.0	1.44	8.24	0.00	0.10	16.43	0.00	0.00	16.52	25.4	1
Davit3	#Davit3:0	Origin	5.00	10.73	0.03	-1.70	-71.14	-0.04	-0.0	1.49	8.01	0.00	0.10	16.43	0.00	0.00	16.53	25.4	1
Davit3	#Davit3:1	End	8.53	10.82	0.03	-2.74	-42.86	-0.02	-0.0	1.49	8.01	0.00	0.12	13.95	0.00	0.00	14.06	21.6	1
Davit3	#Davit3:1	Origin	8.53	10.82	0.03	-2.74	-42.86	-0.02	-0.0	1.52	7.86	0.00	0.12	13.95	0.00	0.00	14.07	21.6	1
Davit3	Davit3:v	End	12.06	10.91	0.03	-3.90	-15.14	-0.01	-0.0	1.52	7.86	0.00	0.15	7.45	0.00	0.00	7.60	11.7	1
Davit3	Davit3:v	Origin	12.06	10.91	0.03	-3.90	-15.14	-0.01	0.0	2.29	7.57	0.00	0.22	7.45	0.00	0.00	7.67	11.8	1
Davit3	Davit3:t	End	14.06	10.90	0.03	-4.60	-0.00	0.00	0.0	2.29	7.57	0.00	0.25	0.00	1.75	0.00	3.04	4.7	3
Davit4	Davit4:O	Origin	0.00	10.62	0.03	0.22	-107.58	0.06	0.0	-2.97	7.83	-0.00	-0.16	16.60	0.00	0.00	16.76	25.8	1
Davit4	#Davit4:0	End	5.00	10.73	0.03	1.24	-68.45	0.04	0.0	-2.97	7.83	-0.00	-0.20	15.81	0.00	0.00	16.01	24.6	1
Davit4	#Davit4:0	Origin	5.00	10.73	0.03	1.24	-68.45	0.04	0.0	-2.92	7.61	-0.00	-0.19	15.81	0.00	0.00	16.00	24.6	1
Davit4	#Davit4:1	End	8.53	10.79	0.03	1.82	-41.59	0.02	0.0	-2.92	7.61	-0.00	-0.23	13.53	0.00	0.00	13.76	21.2	1
Davit4	#Davit4:1	Origin	8.53	10.79	0.03	1.82	-41.59	0.02	0.0	-2.89	7.47	-0.00	-0.23	13.53	0.00	0.00	13.76	21.2	1
Davit4	Davit4:v	End	12.06	10.84	0.03	2.28	-15.23	0.01	0.0	-2.89	7.47	-0.00	-0.28	7.50	0.00	0.00	7.78	12.0	1
Davit4	Davit4:v	Origin	12.06	10.84	0.03	2.28	-15.23	0.01	0.0	-2.14	7.62	-0.00	-0.21	7.50	0.00	0.00	7.70	11.9	1
Davit4	Davit4:t	End	14.06	10.84	0.03	2.50	-0.00	0.00	0.0	-2.14	7.62	-0.00	-0.24	0.00	1.76	0.00	3.06	4.7	3
Davit5	Davit5:O	Origin	0.00	6.20	0.02	-0.35	-112.47	-0.06	-0.0	1.41	8.25	0.00	0.08	17.36	0.00	0.00	17.43	26.8	1
Davit5	#Davit5:0	End	5.00	6.28	0.02	-1.34	-71.21	-0.04	-0.0	1.41	8.25	0.00	0.09	16.44	0.00	0.00	16.54	25.4	1
Davit5	#Davit5:0	Origin	5.00	6.28	0.02	-1.34	-71.21	-0.04	-0.0	1.45	8.02	0.00	0.10	16.44	0.00	0.00	16.54	25.4	1
Davit5	#Davit5:1	End	8.53	6.36	0.02	-2.18	-42.91	-0.02	-0.0	1.45	8.02	0.00	0.11	13.96	0.00	0.00	14.08	21.7	1
Davit5	#Davit5:1	Origin	8.53	6.36	0.02	-2.18	-42.91	-0.02	-0.0	1.49	7.87	0.00	0.12	13.96	0.00	0.00	14.08	21.7	1
Davit5	Davit5:v	End	12.06	6.44	0.02	-3.14	-15.16	-0.01	-0.0	1.49	7.87	0.00	0.14	7.46	0.00	0.00	7.60	11.7	1
Davit5	Davit5:v	Origin	12.06	6.44	0.02	-3.14	-15.16	-0.01	0.0	2.25	7.58	0.00	0.22	7.46	0.00	0.00	7.68	11.8	1
Davit5	Davit5:t	End	14.06	6.43	0.02	-3.73	0.00	0.00	0.0	2.25	7.58	0.00	0.25	0.00	1.75	0.00	3.04	4.7	3
Davit6	Davit6:O	Origin	0.00	6.20	0.02	0.24	-107.77	0.06	0.0	-2.94	7.84	-0.00	-0.16	16.63	0.00	0.00	16.79	25.8	1
Davit6	#Davit6:0	End	5.00	6.28	0.02	0.97	-68.57	0.04	0.0	-2.94	7.84	-0.00	-0.20	15.83	0.00	0.00	16.03	24.7	1
Davit6	#Davit6:0	Origin	5.00	6.28	0.02	0.97	-68.57	0.04	0.0	-2.89	7.63	-0.00	-0.19	15.83	0.00	0.00	16.03	24.7	1
Davit6	#Davit6:1	End	8.53	6.32	0.02	1.35	-41.66	0.02	0.0	-2.89	7.63	-0.00	-0.23	13.55	0.00	0.00	13.78	21.2	1
Davit6	#Davit6:1	Origin	8.53	6.32	0.02	1.35	-41.66	0.02	0.0	-2.85	7.48	-0.00	-0.23	13.55	0.00	0.00	13.78	21.2	1
Davit6	Davit6:v	End	12.06	6.34	0.02	1.61	-15.25	0.01	0.0	-2.85	7.48	-0.00	-0.28	7.51	0.00	0.00	7.78	12.0	1
Davit6	Davit6:v	Origin	12.06	6.34	0.02	1.61	-15.25	0.01	0.0	-2.10	7.63	-0.00	-0.20	7.51	0.00	0.00	7.71	11.9	1
Davit6	Davit6:t	End	14.06	6.34	0.02	1.72	-0.00	0.00	0.0	-2.10	7.63	-0.00	-0.23	0.00	1.76	0.00	3.06	4.7	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	7.874	80.00	80.00	9.84
Clamp2	1.808	80.00	80.00	2.26
Clamp3	7.874	80.00	80.00	9.84
Clamp4	7.878	80.00	80.00	9.85
Clamp5	7.874	80.00	80.00	9.84
Clamp6	7.878	80.00	80.00	9.85
Clamp9	1.294	80.00	80.00	1.62
Clamp10	0.863	80.00	80.00	1.08
Clamp11	0.863	80.00	80.00	1.08
Clamp12	0.863	80.00	80.00	1.08
Clamp13	0.863	80.00	80.00	1.08
Clamp14	0.863	80.00	80.00	1.08
Clamp15	0.863	80.00	80.00	1.08

Clamp16	0.863	80.00	80.00	1.08
Clamp17	0.863	80.00	80.00	1.08
Clamp18	0.863	80.00	80.00	1.08
Clamp19	0.863	80.00	80.00	1.08
Clamp20	7.077	80.00	80.00	8.85
Clamp21	4.540	80.00	80.00	5.67
Clamp22	9.507	80.00	80.00	11.88
Clamp23	9.507	80.00	80.00	11.88
Clamp24	7.878	80.00	80.00	9.85
Clamp25	1.723	80.00	80.00	2.15

*** 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)
24063	58.21	NESC Extreme Wind	34	36946.9

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 %
24063	NESC Heavy Wind	1	2.215	1.683	0.350	2.760	25.837	9.165	46.246	5	58.866	1.466	3.750	15.27
24063	NESC Heavy Wind	2	2.760	0.350	1.683	2.215	25.837	5.634	28.428	5	46.687	1.149	3.750	9.39
24063	NESC Heavy Wind	3	2.565	-1.050	2.565	1.050	25.192	1.616	7.951	4	22.488	0.615	3.750	2.69
24063	NESC Heavy Wind	4	1.683	-2.215	2.760	-0.350	25.837	4.232	21.356	5	-38.784	0.996	3.750	7.05
24063	NESC Heavy Wind	5	0.350	-2.760	2.215	-1.683	25.837	7.732	39.019	5	-50.731	1.346	3.750	12.89
24063	NESC Heavy Wind	6	-1.050	-2.565	1.050	-2.565	25.192	6.661	32.776	4	-50.731	1.250	3.750	11.10
24063	NESC Heavy Wind	7	-2.215	-1.683	-0.350	-2.760	25.837	7.689	38.802	5	-50.651	1.342	3.750	12.82
24063	NESC Heavy Wind	8	-2.760	-0.350	-1.683	-2.215	25.837	4.158	20.984	5	-38.471	0.987	3.750	6.93
24063	NESC Heavy Wind	9	-2.565	1.050	-2.565	-1.050	25.192	1.616	7.951	4	22.945	0.615	3.750	2.69
24063	NESC Heavy Wind	10	-1.683	2.215	-2.760	0.350	25.837	5.707	28.800	5	46.999	1.157	3.750	9.51
24063	NESC Heavy Wind	11	-0.350	2.760	-2.215	1.683	25.837	9.208	46.463	5	58.946	1.469	3.750	15.35
24063	NESC Heavy Wind	12	1.050	2.565	-1.050	2.565	25.192	7.757	38.169	4	58.946	1.348	3.750	12.93
24063	NESC Heavy Wind	13	1.465	2.357	0.270	2.677	14.844	8.007	23.214	3	58.866	1.370	3.750	13.35
24063	NESC Heavy Wind	14	2.458	1.297	1.297	2.458	19.700	5.557	21.381	4	52.240	1.141	3.750	9.26
24063	NESC Heavy Wind	15	2.677	0.270	2.357	1.465	14.844	2.916	8.453	3	31.499	0.827	3.750	4.86
24063	NESC Heavy Wind	16	2.357	-1.465	2.677	-0.270	14.844	1.817	5.267	3	-23.705	0.653	3.750	3.03
24063	NESC Heavy Wind	17	1.297	-2.458	2.458	-1.297	19.700	4.534	17.445	4	-44.265	1.031	3.750	7.56
24063	NESC Heavy Wind	18	0.270	-2.677	1.465	-2.357	14.844	6.864	19.900	3	-50.731	1.268	3.750	11.44
24063	NESC Heavy Wind	19	-1.465	-2.357	-0.270	-2.677	14.844	6.844	19.840	3	-50.651	1.266	3.750	11.41
24063	NESC Heavy Wind	20	-2.458	-1.297	-1.297	-2.458	19.700	4.490	17.276	4	-44.024	1.026	3.750	7.48
24063	NESC Heavy Wind	21	-2.677	-0.270	-2.357	-1.465	14.844	1.752	5.079	3	-23.284	0.641	3.750	2.92
24063	NESC Heavy Wind	22	-2.357	1.465	-2.677	0.270	14.844	2.981	8.642	3	31.921	0.836	3.750	4.97
24063	NESC Heavy Wind	23	-1.297	2.458	-2.458	1.297	19.700	5.601	21.551	4	52.481	1.146	3.750	9.33
24063	NESC Heavy Wind	24	-0.270	2.677	-1.465	2.357	14.844	8.028	23.274	3	58.946	1.372	3.750	13.38
24063	NESC Extreme Wind	1	2.215	1.683	0.350	2.760	25.837	20.035	101.103	5	129.719	2.167	3.750	33.39
24063	NESC Extreme Wind	2	2.760	0.350	1.683	2.215	25.837	11.836	59.726	5	101.489	1.666	3.750	19.73
24063	NESC Extreme Wind	3	2.565	-1.050	2.565	1.050	25.192	3.758	18.492	4	45.269	0.939	3.750	6.26
24063	NESC Extreme Wind	4	1.683	-2.215	2.760	-0.350	25.837	11.110	56.061	5	-97.298	1.614	3.750	18.52
24063	NESC Extreme Wind	5	0.350	-2.760	2.215	-1.683	25.837	19.263	97.206	5	-125.180	2.125	3.750	32.11
24063	NESC Extreme Wind	6	-1.050	-2.565	1.050	-2.565	25.192	16.457	80.972	4	-125.180	1.964	3.750	27.43
24063	NESC Extreme Wind	7	-2.215	-1.683	-0.350	-2.760	25.837	19.199	96.881	5	-125.060	2.121	3.750	32.00
24063	NESC Extreme Wind	8	-2.760	-0.350	-1.683	-2.215	25.837	10.999	55.504	5	-96.830	1.606	3.750	18.33
24063	NESC Extreme Wind	9	-2.565	1.050	-2.565	-1.050	25.192	3.758	18.492	4	45.952	0.939	3.750	6.26
24063	NESC Extreme Wind	10	-1.683	2.215	-2.760	0.350	25.837	11.946	60.283	5	101.957	1.673	3.750	19.91
24063	NESC Extreme Wind	11	-0.350	2.760	-2.215	1.683	25.837	20.100	101.428	5	129.839	2.170	3.750	33.50
24063	NESC Extreme Wind	12	1.050	2.565	-1.050	2.565	25.192	17.078	84.030	4	129.839	2.001	3.750	28.46
24063	NESC Extreme Wind	13	1.465	2.357	0.270	2.677	14.844	17.609	51.050	3	129.719	2.032	3.750	29.35
24063	NESC Extreme Wind	14	2.458	1.297	1.297	2.458	19.700	12.004	46.188	4	114.374	1.677	3.750	20.01
24063	NESC Extreme Wind	15	2.677	0.270	2.357	1.465	14.844	5.785	16.772	3	66.211	1.164	3.750	9.64
24063	NESC Extreme Wind	16	2.357	-1.465	2.677	-0.270	14.844	5.222	15.140	3	-62.183	1.106	3.750	8.70
24063	NESC Extreme Wind	17	1.297	-2.458	2.458	-1.297	19.700	11.465	44.114	4	-110.076	1.639	3.750	19.11

24063	NESC Extreme Wind	18	0.270	-2.677	1.465	-2.357	14.844	16.979	49.226	3	-125.180	1.995	3.750	28.30
24063	NESC Extreme Wind	19	-1.465	-2.357	-0.270	-2.677	14.844	16.949	49.136	3	-125.060	1.993	3.750	28.25
24063	NESC Extreme Wind	20	-2.458	-1.297	-1.297	-2.458	19.700	11.399	43.860	4	-109.715	1.635	3.750	19.00
24063	NESC Extreme Wind	21	-2.677	-0.270	-2.357	-1.465	14.844	5.125	14.858	3	-61.552	1.096	3.750	8.54
24063	NESC Extreme Wind	22	-2.357	1.465	-2.677	0.270	14.844	5.882	17.053	3	66.842	1.174	3.750	9.80
24063	NESC Extreme Wind	23	-1.297	2.458	-2.458	1.297	19.700	12.070	46.442	4	114.735	1.682	3.750	20.12
24063	NESC Extreme Wind	24	-0.270	2.677	-1.465	2.357	14.844	17.639	51.139	3	129.839	2.033	3.750	29.40
24063	NESC Extreme Ice w/ Wind	1	2.215	1.683	0.350	2.760	25.837	7.258	36.626	5	46.584	1.304	3.750	12.10
24063	NESC Extreme Ice w/ Wind	2	2.760	0.350	1.683	2.215	25.837	4.474	22.576	5	36.993	1.024	3.750	7.46
24063	NESC Extreme Ice w/ Wind	3	2.565	-1.050	2.565	1.050	25.192	1.276	6.276	4	17.906	0.547	3.750	2.13
24063	NESC Extreme Ice w/ Wind	4	1.683	-2.215	2.760	-0.350	25.837	3.314	16.723	5	-30.476	0.881	3.750	5.52
24063	NESC Extreme Ice w/ Wind	5	0.350	-2.760	2.215	-1.683	25.837	6.080	30.682	5	-39.931	1.194	3.750	10.13
24063	NESC Extreme Ice w/ Wind	6	-1.050	-2.565	1.050	-2.565	25.192	5.244	25.802	4	-39.931	1.109	3.750	8.74
24063	NESC Extreme Ice w/ Wind	7	-2.215	-1.683	-0.350	-2.760	25.837	6.055	30.554	5	-39.883	1.191	3.750	10.09
24063	NESC Extreme Ice w/ Wind	8	-2.760	-0.350	-1.683	-2.215	25.837	3.271	16.504	5	-30.293	0.876	3.750	5.45
24063	NESC Extreme Ice w/ Wind	9	-2.565	1.050	-2.565	-1.050	25.192	1.276	6.276	4	18.175	0.547	3.750	2.13
24063	NESC Extreme Ice w/ Wind	10	-1.683	2.215	-2.760	0.350	25.837	4.517	22.795	5	37.177	1.029	3.750	7.53
24063	NESC Extreme Ice w/ Wind	11	-0.350	2.760	-2.215	1.683	25.837	7.283	36.754	5	46.631	1.307	3.750	12.14
24063	NESC Extreme Ice w/ Wind	12	1.050	2.565	-1.050	2.565	25.192	6.138	30.201	4	46.631	1.199	3.750	10.23
24063	NESC Extreme Ice w/ Wind	13	1.465	2.357	0.270	2.677	14.844	6.338	18.375	3	46.584	1.219	3.750	10.56
24063	NESC Extreme Ice w/ Wind	14	2.458	1.297	1.297	2.458	19.700	4.405	16.949	4	41.369	1.016	3.750	7.34
24063	NESC Extreme Ice w/ Wind	15	2.677	0.270	2.357	1.465	14.844	2.323	6.736	3	25.015	0.738	3.750	3.87
24063	NESC Extreme Ice w/ Wind	16	2.357	-1.465	2.677	-0.270	14.844	1.412	4.095	3	-18.562	0.575	3.750	2.35
24063	NESC Extreme Ice w/ Wind	17	1.297	-2.458	2.458	-1.297	19.700	3.561	13.700	4	-34.810	0.914	3.750	5.93
24063	NESC Extreme Ice w/ Wind	18	0.270	-2.677	1.465	-2.357	14.844	5.401	15.659	3	-39.931	1.125	3.750	9.00
24063	NESC Extreme Ice w/ Wind	19	-1.465	-2.357	-0.270	-2.677	14.844	5.389	15.624	3	-39.883	1.124	3.750	8.98
24063	NESC Extreme Ice w/ Wind	20	-2.458	-1.297	-1.297	-2.458	19.700	3.535	13.600	4	-34.669	0.910	3.750	5.89
24063	NESC Extreme Ice w/ Wind	21	-2.677	-0.270	-2.357	-1.465	14.844	1.374	3.984	3	-18.315	0.568	3.750	2.29
24063	NESC Extreme Ice w/ Wind	22	-2.357	1.465	-2.677	0.270	14.844	2.362	6.847	3	25.263	0.744	3.750	3.94
24063	NESC Extreme Ice w/ Wind	23	-1.297	2.458	-2.458	1.297	19.700	4.431	17.049	4	41.511	1.019	3.750	7.38
24063	NESC Extreme Ice w/ Wind	24	-0.270	2.677	-1.465	2.357	14.844	6.350	18.411	3	46.631	1.220	3.750	10.58

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Segment Number	Weight (lbs)
Davit1	36.46	NESC Heavy Wind	1	1053.0
Davit2	34.33	NESC Heavy Wind	1	1053.0
Davit3	30.27	NESC Heavy Wind	1	653.2
Davit4	29.05	NESC Heavy Wind	1	653.2
Davit5	30.31	NESC Heavy Wind	1	653.2
Davit6	29.11	NESC Heavy Wind	1	653.2

*** 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	36.46	Davit1	Tubular Davit
NESC Extreme Wind	58.21	24063	Steel Pole
NESC Extreme Ice w/ Wind	33.22	Davit1	Tubular Davit

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Steel Pole Segment Usage %	Label	Number
NESC Heavy Wind	26.27	24063	34
NESC Extreme Wind	58.21	24063	34
NESC Extreme Ice w/ Wind	20.79	24063	24

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	24063	11	25.837	131.448	2520.907	-11.005	9.208	46.463	5	58.946	1.469	15.35
NESC Extreme Wind	24063	11	25.837	74.542	5863.088	-16.462	20.100	101.428	5	129.839	2.170	33.50
NESC Extreme Ice w/ Wind	24063	11	25.837	107.212	1989.972	-6.476	7.283	36.754	5	46.631	1.307	12.14

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Tubular Davit Segment Usage %	Label	Number
NESC Heavy Wind	36.46	Davit1	1
NESC Extreme Wind	20.87	Davit1	1
NESC Extreme Ice w/ Wind	33.22	Davit1	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
Clamp1	Clamp	11.03	NESC Heavy Wind	0.0
Clamp2	Clamp	2.26	NESC Extreme Ice w/ Wind	0.0
Clamp3	Clamp	11.03	NESC Heavy Wind	0.0
Clamp4	Clamp	11.03	NESC Heavy Wind	0.0
Clamp5	Clamp	11.03	NESC Heavy Wind	0.0
Clamp6	Clamp	11.03	NESC Heavy Wind	0.0
Clamp9	Clamp	1.78	NESC Heavy Wind	0.0
Clamp10	Clamp	1.18	NESC Heavy Wind	0.0
Clamp11	Clamp	1.18	NESC Heavy Wind	0.0
Clamp12	Clamp	1.18	NESC Heavy Wind	0.0
Clamp13	Clamp	1.18	NESC Heavy Wind	0.0
Clamp14	Clamp	1.18	NESC Heavy Wind	0.0
Clamp15	Clamp	1.18	NESC Heavy Wind	0.0
Clamp16	Clamp	1.18	NESC Heavy Wind	0.0
Clamp17	Clamp	1.18	NESC Heavy Wind	0.0
Clamp18	Clamp	1.18	NESC Heavy Wind	0.0
Clamp19	Clamp	1.18	NESC Heavy Wind	0.0
Clamp20	Clamp	19.98	NESC Extreme Wind	0.0
Clamp21	Clamp	29.70	NESC Extreme Wind	0.0
Clamp22	Clamp	62.46	NESC Extreme Wind	0.0
Clamp23	Clamp	62.46	NESC Extreme Wind	0.0
Clamp24	Clamp	11.03	NESC Heavy Wind	0.0
Clamp25	Clamp	2.15	NESC Extreme Ice w/ 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	0.003	2.443	8.477	8.822
NESC Heavy Wind	Clamp2	Clamp	Davit1:t	0.002	0.790	1.544	1.734
NESC Heavy Wind	Clamp3	Clamp	Davit3:t	0.003	2.443	8.477	8.822
NESC Heavy Wind	Clamp4	Clamp	Davit4:t	0.003	2.443	8.477	8.822
NESC Heavy Wind	Clamp5	Clamp	Davit5:t	0.003	2.443	8.477	8.822
NESC Heavy Wind	Clamp6	Clamp	Davit6:t	0.003	2.443	8.477	8.822
NESC Heavy Wind	Clamp9	Clamp	24063:WVGD1	0.000	0.337	1.380	1.421
NESC Heavy Wind	Clamp10	Clamp	24063:WVGD2	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp11	Clamp	24063:WVGD3	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp12	Clamp	24063:WVGD4	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp13	Clamp	24063:WVGD5	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp14	Clamp	24063:WVGD6	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp15	Clamp	24063:WVGD7	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp16	Clamp	24063:WVGD8	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp17	Clamp	24063:WVGD9	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp18	Clamp	24063:WVGD10	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp19	Clamp	24063:WVGD11	0.000	0.225	0.920	0.947
NESC Heavy Wind	Clamp20	Clamp	24063:BotConn	0.000	-4.168	7.919	8.949
NESC Heavy Wind	Clamp21	Clamp	24063:TopConn	0.000	6.440	0.000	6.440
NESC Heavy Wind	Clamp22	Clamp	24063:BotConT	0.000	13.459	0.000	13.459
NESC Heavy Wind	Clamp23	Clamp	24063:BotConB	0.000	-13.459	0.000	13.459
NESC Heavy Wind	Clamp24	Clamp	Davit2:v	0.003	2.443	8.477	8.822
NESC Heavy Wind	Clamp25	Clamp	Davit2:t	0.001	0.736	1.468	1.642
NESC Extreme Wind	Clamp1	Clamp	Davit1:v	0.021	5.184	4.797	7.063
NESC Extreme Wind	Clamp2	Clamp	Davit1:t	0.005	1.068	0.749	1.304
NESC Extreme Wind	Clamp3	Clamp	Davit3:t	0.021	5.184	4.797	7.063
NESC Extreme Wind	Clamp4	Clamp	Davit4:t	0.021	5.184	4.801	7.066
NESC Extreme Wind	Clamp5	Clamp	Davit5:t	0.021	5.184	4.797	7.063
NESC Extreme Wind	Clamp6	Clamp	Davit6:t	0.021	5.184	4.801	7.066
NESC Extreme Wind	Clamp9	Clamp	24063:WVGD1	0.000	1.118	0.374	1.179
NESC Extreme Wind	Clamp10	Clamp	24063:WVGD2	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp11	Clamp	24063:WVGD3	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp12	Clamp	24063:WVGD4	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp13	Clamp	24063:WVGD5	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp14	Clamp	24063:WVGD6	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp15	Clamp	24063:WVGD7	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp16	Clamp	24063:WVGD8	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp17	Clamp	24063:WVGD9	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp18	Clamp	24063:WVGD10	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp19	Clamp	24063:WVGD11	0.000	0.746	0.250	0.787
NESC Extreme Wind	Clamp20	Clamp	24063:BotConn	0.000	-15.490	3.935	15.982
NESC Extreme Wind	Clamp21	Clamp	24063:TopConn	0.000	23.761	0.000	23.761
NESC Extreme Wind	Clamp22	Clamp	24063:BotConT	0.000	49.972	0.000	49.972
NESC Extreme Wind	Clamp23	Clamp	24063:BotConB	0.000	-49.972	0.000	49.972
NESC Extreme Wind	Clamp24	Clamp	Davit2:v	0.021	5.184	4.801	7.066
NESC Extreme Wind	Clamp25	Clamp	Davit2:t	0.004	0.877	0.710	1.128
NESC Extreme Ice w/ Wind	Clamp1	Clamp	Davit1:v	0.004	2.064	7.599	7.874
NESC Extreme Ice w/ Wind	Clamp2	Clamp	Davit1:t	0.002	0.728	1.655	1.808
NESC Extreme Ice w/ Wind	Clamp3	Clamp	Davit3:t	0.004	2.064	7.599	7.874
NESC Extreme Ice w/ Wind	Clamp4	Clamp	Davit4:t	0.004	2.064	7.603	7.878
NESC Extreme Ice w/ Wind	Clamp5	Clamp	Davit5:t	0.004	2.064	7.599	7.874
NESC Extreme Ice w/ Wind	Clamp6	Clamp	Davit6:t	0.004	2.064	7.603	7.878
NESC Extreme Ice w/ Wind	Clamp9	Clamp	24063:WVGD1	0.000	0.222	1.275	1.294

NESC Extreme Ice w/ Wind	Clamp10	Clamp	24063:WVGD2	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp11	Clamp	24063:WVGD3	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp12	Clamp	24063:WVGD4	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp13	Clamp	24063:WVGD5	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp14	Clamp	24063:WVGD6	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp15	Clamp	24063:WVGD7	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp16	Clamp	24063:WVGD8	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp17	Clamp	24063:WVGD9	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp18	Clamp	24063:WVGD10	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp19	Clamp	24063:WVGD11	0.000	0.148	0.850	0.863
NESC Extreme Ice w/ Wind	Clamp20	Clamp	24063:BotConn	0.000	-2.945	6.435	7.077
NESC Extreme Ice w/ Wind	Clamp21	Clamp	24063:TopConn	0.000	4.540	0.000	4.540
NESC Extreme Ice w/ Wind	Clamp22	Clamp	24063:BotConT	0.000	9.507	0.000	9.507
NESC Extreme Ice w/ Wind	Clamp23	Clamp	24063:BotConB	0.000	-9.507	0.000	9.507
NESC Extreme Ice w/ Wind	Clamp24	Clamp	Davit2:v	0.004	2.064	7.603	7.878
NESC Extreme Ice w/ Wind	Clamp25	Clamp	Davit2:t	0.002	0.690	1.579	1.723

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	21.043	0.021	72.373	2099.567	2.124	-0.023
NESC Extreme Wind	49.898	0.135	37.062	4975.002	13.418	-0.023
NESC Extreme Ice w/ Wind	17.099	0.028	65.050	1714.127	2.832	-0.000

*** Weight of structure (lbs):
    Weight of Tubular Davit Arms: 4718.8
    Weight of Steel Poles: 36946.9
    Total: 41665.7

*** End of Report

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Subject:	Anchor Bolt Analysis Pole #24063
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 15267.006

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force = $T_{Max} := 130 \cdot kips$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use ASTM A615 Grade 75

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

Bolt "Column" Distance = $l := 3.0 \cdot in$ (User Input)

Bolt Ultimate Strength = $F_u := 100 \cdot ksi$ (User Input)

Bolt Yeild Strength= $F_y := 75 \cdot ksi$ (User Input)

Bolt Modulus = $E := 29000 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D := 2.25 \cdot in$ (User Input)

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

Anchor Bolt Analysis:

Calculated Anchor Bolt Properties:

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

Bolt Tension Check:

Allowable Tensile Force (Net Area) = $T_{ALL.Net} := 1.0 \cdot \left(A_n \cdot F_y \right) = 243.576 \cdot kips$

Bolt Tension % of Capacity = $\frac{T_{Max}}{T_{ALL.Net}} = 53.4 \cdot \%$

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

Condition1 = "OK"

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Subject:	CAISSON FOUNDATION ANALYSIS
Location:	Orange, CT
Rev. 0: 2/4/16	Prepared by: TJL Checked by: C.F.C. Job No. 15267.006

Caisson Foundation:

Input Data:

Shear Force =	$S := 64.18k \cdot 1.1 = 70.6 \cdot kips$	*USER INPUT-FROM PLS-Pole*
Overturning Moment =	$M := 5863.09ft \cdot k \cdot 1.1 = 6449 \cdot ft \cdot k$	*USER INPUT-FROM PLS-Pole*
Applied Axial Load =	$A1 := 79.10k \cdot 1.1 = 87 \cdot kips$	*USER INPUT-FROM PLS-Pole*
Bending Moment =	$Mu := 6795ft \cdot k$	*USER INPUT–FROM LPILE*
Moment Capacity =	$Mn := 11610ft \cdot k$	*USER INPUT–FROM LPILE*
Foundation Diameter =	$d := 7.5ft$	*USER INPUT*
Overall Length of Caisson =	$L_c := 28ft$	*USER INPUT*
Depth From Top of Caisson to Grade =	$L_{pag} := 1.0ft$	*USER INPUT*
Number of Rebar =	$n := 45$	*USER INPUT*
Area of Rebar =	$Ar := 1.56in^2$	*USER INPUT*
Rebar Yield Strength =	$fy := 60ksi$	*USER INPUT*
Concrete Comp Strength =	$f'c := 3.5ksi$	*USER INPUT*

Check Moment Capacity:

Factor of Safety = $FS := \frac{Mn}{Mu} = 1.71$

Factor of Safety Required = $FS_{reqd} := 1.0$

$FOSCheck := if(FS \geq FS_{reqd}, "OK", "NO GOOD")$

FOSCheck = "OK"

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

This program is licensed to:

TJL
Centek Engineering

Files Used for Analysis

Path to file locations: J:\Jobs\152670O.WI\OO6_Orange Offload for CT2343\04_Structural\Backup Documentation\L-Pile\
Name of input data file: Caisson Analysis.lpd
Name of output file: Caisson Analysis.lpo
Name of plot output file: Caisson Analysis.lpp
Name of runtime file: Caisson Analysis.lpr

Time and Date of Analysis

Date: February 5, 2016 Time: 10:14:28

Problem Title

15267.OO6/ CT2343 - Orange/ Structure #24063

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 summary table of values for pile-head deflection, maximum bending moment, and shear force only
- 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 = 250
- Deflection tolerance for convergence = 1.0000E-04 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:
- Only summary tables of pile-head deflection, maximum bending moment, and maximum shear force are to be printed in output file.

Pile Structural Properties and Geometry

Pile Length = 336.00 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	90.00000000	3220623.	6361.7000	3300000.
2	336.0000	90.00000000	3220623.	6361.7000	3300000.

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness 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 = 264.000 in
p-y subgrade modulus k for top of soil layer = 90.000 lbs/in**3
p-y subgrade modulus k for bottom of layer = 90.000 lbs/in**3

Layer 2 is weak rock, p-y criteria by Reese, 1997
Distance from top of pile to top of layer = 264.000 in
Distance from top of pile to bottom of layer = 336.000 in
Initial modulus of rock at top of layer = 5.0000E+05 lbs/in**2
Initial modulus of rock at bottom of layer = 5.0000E+05 lbs/in**2

(Depth of lowest layer extends 0.00 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	0.05800
2	264.00	0.05800
3	264.00	0.07800
4	336.00	0.07800

Shear Strength of Soils

Shear strength parameters with depth defined using 4 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k_rm	RQD %
1	12.000	0.00000	30.00	------	------
2	264.000	0.00000	30.00	------	------
3	264.000	250.00000	0.00	0.00050	50.0
4	336.000	250.00000	0.00	0.00050	50.0

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 = 70600.000 lbs
Bending moment at pile head = 77388000.000 in-lbs
Axial load at pile head = 87000.000 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 = 90.0000 in

Material Properties:

Compressive Strength of Concrete = 3.500 kip/in**2
Yield Stress of Reinforcement = 60. kip/in**2
Modulus of Elasticity of Reinforcement = 29000. kip/in**2
Number of Reinforcing Bars = 45
Area of Single Bar = 1.56000 in**2
Number of Rows of Reinforcing Bars = 45
Area of Steel = 70.200 in**2
Area of Shaft = 6361.725 in**2
Percentage of Steel Reinforcement = 1.103 percent
Cover Thickness (edge to bar center) = 3.780 in

Unfactored Axial Squash Load Capacity = 22929.29 kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
1	1.560	41.195
2	1.560	40.994
3	1.560	40.594
4	1.560	39.996
5	1.560	39.203
6	1.560	38.219
7	1.560	37.048
8	1.560	35.698
9	1.560	34.173
10	1.560	32.482
11	1.560	30.632
12	1.560	28.634
13	1.560	26.496
14	1.560	24.229
15	1.560	21.843
16	1.560	19.352
17	1.560	16.766
18	1.560	14.098
19	1.560	11.362
20	1.560	8.570
21	1.560	5.737
22	1.560	2.875
23	1.560	0.000
24	1.560	-2.875
25	1.560	-5.737
26	1.560	-8.570
27	1.560	-11.362
28	1.560	-14.098
29	1.560	-16.766
30	1.560	-19.352
31	1.560	-21.843
32	1.560	-24.229
33	1.560	-26.496
34	1.560	-28.634
35	1.560	-30.632
36	1.560	-32.482
37	1.560	-34.173

38	1.560	-35.698
39	1.560	-37.048
40	1.560	-38.219
41	1.560	-39.203
42	1.560	-39.996
43	1.560	-40.594
44	1.560	-40.994
45	1.560	-41.195

Axial Thrust Force = 87000.00 lbs

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches	Max. Concrete Stress psi	Max. Steel Stress psi
7905664.	1.264906E+13	6.250000E-07	0.00003192	51.07676044	106.03719	856.79866
15739114.	1.259129E+13	0.00000125	0.00006016	48.12913075	198.05394	1606.74575
23498688.	1.253263E+13	0.00000188	0.00008842	47.15665296	288.63192	2357.24014
31180740.	1.247230E+13	0.00000250	0.00011664	46.65523276	377.58743	3106.63389
31180740.	9.977837E+12	0.00000313	0.00008713	27.88246259	281.43951	5284.56372
31180740.	8.314864E+12	0.00000375	0.00010226	27.27044150	328.69135	6408.03376
31180740.	7.127026E+12	0.00000438	0.00011757	26.87334582	376.08235	7526.42090
31180740.	6.236148E+12	0.00000500	0.00013267	26.53303787	422.37584	8650.96854
31180740.	5.543243E+12	0.00000563	0.00014778	26.27189264	468.31546	9774.93893
31180740.	4.988918E+12	0.00000625	0.00016291	26.06618062	513.89989	10898.32856
31180740.	4.535380E+12	0.00000688	0.00017807	25.90080366	559.12784	12021.13344
31180740.	4.157432E+12	0.00000750	0.00019324	25.76569811	603.99804	13143.34921
31180740.	3.837630E+12	0.00000813	0.00020844	25.65389559	648.50918	14264.97178
31180740.	3.563513E+12	0.00000875	0.00022365	25.56042060	692.65995	15385.99658
32588288.	3.476084E+12	0.00000938	0.00023906	25.50000116	736.95740	16501.42287
34591099.	3.459110E+12	0.00001000	0.00025458	25.45793340	781.13622	17613.71738
36613231.	3.445951E+12	0.00001063	0.00026985	25.39732620	824.15286	18733.24931
38632711.	3.434019E+12	0.00001125	0.00028514	25.34545764	866.80815	19852.12727
40649517.	3.423117E+12	0.00001188	0.00030045	25.30095980	909.10056	20970.34718
42663639.	3.413091E+12	0.00001250	0.00031578	25.26274636	951.02879	22087.90203
44675050.	3.403813E+12	0.00001313	0.00033114	25.22992685	992.59111	23204.78906
46683741.	3.395181E+12	0.00001375	0.00034652	25.20178512	1033.78627	24321.00053
48689693.	3.387109E+12	0.00001438	0.00036193	25.17772302	1074.61271	25436.53144
50692884.	3.379526E+12	0.00001500	0.00037736	25.15724167	1115.06882	26551.37697
52693299.	3.372371E+12	0.00001563	0.00039281	25.13992533	1155.15312	27665.53082
54690912.	3.365595E+12	0.00001625	0.00040829	25.12541726	1194.86389	28778.98898
56685716.	3.359154E+12	0.00001688	0.00042379	25.11342242	1234.19977	29891.74314
58677684.	3.353011E+12	0.00001750	0.00043931	25.10368064	1273.15905	31003.78869
60666797.	3.347134E+12	0.00001813	0.00045486	25.09596929	1311.74005	32115.12014
62653037.	3.341495E+12	0.00001875	0.00047044	25.09009793	1349.94122	33225.73063
64636387.	3.336072E+12	0.00001938	0.00048604	25.08590028	1387.76092	34335.61354
66616822.	3.330841E+12	0.00002000	0.00050166	25.08322880	1425.19739	35444.76343
68594322.	3.325785E+12	0.00002063	0.00051732	25.08195475	1462.24891	36553.17433
70568866.	3.320888E+12	0.00002125	0.00053299	25.08196548	1498.91376	37660.83967
72540433.	3.316134E+12	0.00002188	0.00054869	25.08316174	1535.19022	38767.75254
74509004.	3.311511E+12	0.00002250	0.00056442	25.08545503	1571.07652	39873.90625
76474559.	3.307008E+12	0.00002313	0.00058018	25.08876756	1606.57094	40979.29329
78437063.	3.302613E+12	0.00002375	0.00059596	25.09302422	1641.67139	42083.90998
80396513.	3.298318E+12	0.00002438	0.00061177	25.09816870	1676.37641	43187.74479
84306122.	3.289995E+12	0.00002563	0.00064347	25.11088774	1744.59196	45393.04910
88203199.	3.281980E+12	0.00002688	0.00067528	25.12653574	1811.20234	47595.14851
92087547.	3.274224E+12	0.00002813	0.00070720	25.14479354	1876.19180	49793.98484
95958977.	3.266689E+12	0.00002938	0.00073923	25.16540363	1939.54445	51989.49360
99817282.	3.259340E+12	0.00003063	0.00077139	25.18814877	2001.24370	54181.61196
1.036622E+08	3.252149E+12	0.00003188	0.00080366	25.21284923	2061.27254	56370.27384
1.074937E+08	3.245092E+12	0.00003313	0.00083605	25.23935482	2119.61349	58555.41088
1.111751E+08	3.234186E+12	0.00003438	0.00086817	25.25584772	2175.53995	60000.00000
1.140987E+08	3.202771E+12	0.00003563	0.00089817	25.21184877	2225.97213	60000.00000
1.165764E+08	3.161394E+12	0.00003688	0.00092691	25.13657525	2272.67499	60000.00000
1.187809E+08	3.115565E+12	0.00003813	0.00095488	25.04590318	2316.63459	60000.00000
1.207530E+08	3.066743E+12	0.00003938	0.00098216	24.94371638	2358.12062	60000.00000
1.225275E+08	3.016062E+12	0.00004063	0.00100885	24.83314767	2397.36368	60000.00000
1.241395E+08	2.964526E+12	0.00004188	0.00103503	24.71718237	2434.58900	60000.00000
1.256234E+08	2.913006E+12	0.00004313	0.00106082	24.59867969	2470.01503	60000.00000
1.270121E+08	2.862244E+12	0.00004438	0.00108632	24.48037550	2503.85116	60000.00000
1.282869E+08	2.811768E+12	0.00004563	0.00111144	24.36033860	2536.02442	60000.00000
1.294680E+08	2.761984E+12	0.00004688	0.00113625	24.23995569	2566.66144	60000.00000
1.305953E+08	2.713668E+12	0.00004813	0.00116090	24.12269488	2596.00738	60000.00000
1.316191E+08	2.665704E+12	0.00004938	0.00118518	24.00354847	2623.80784	60000.00000
1.326687E+08	2.620617E+12	0.00005063	0.00121240	23.94863024	2653.85913	60000.00000
1.335781E+08	2.574999E+12	0.00005188	0.00123586	23.82381901	2678.53945	60000.00000
1.344348E+08	2.530537E+12	0.00005313	0.00125912	23.70109186	2702.02570	60000.00000
1.352738E+08	2.487795E+12	0.00005438	0.00128235	23.58353332	2724.51742	60000.00000
1.360168E+08	2.445245E+12	0.00005563	0.00130513	23.46294120	2745.60547	60000.00000
1.367564E+08	2.404509E+12	0.00005688	0.00132795	23.34852353	2765.81120	60000.00000
1.374641E+08	2.364974E+12	0.00005813	0.00135065	23.23694631	2784.98158	60000.00000
1.381017E+08	2.325924E+12	0.00005938	0.00137300	23.12413797	2802.94297	60000.00000
1.387363E+08	2.288434E+12	0.00006063	0.00139539	23.01677719	2820.05025	60000.00000
1.393668E+08	2.252392E+12	0.00006188	0.00141783	22.91442946	2836.29265	60000.00000
1.399106E+08	2.216406E+12	0.00006313	0.00143977	22.80828103	2851.29231	60000.00000
1.404516E+08	2.181773E+12	0.00006438	0.00146176	22.70697668	2865.46421	60000.00000
1.409898E+08	2.148416E+12	0.00006563	0.00148380	22.61024818	2878.80300	60000.00000

1.415125E+08	2.116075E+12	0.00006688	0.00150579	22.51649961	2891.25178	60000.00000
1.420615E+08	2.085306E+12	0.00006813	0.00153253	22.49580905	2905.32912	60000.00000
1.425058E+08	2.054137E+12	0.00006938	0.00155358	22.39388511	2915.40527	60000.00000
1.429476E+08	2.024037E+12	0.00007063	0.00157467	22.29620710	2924.71472	60000.00000
1.433871E+08	1.994950E+12	0.00007188	0.00159581	22.20255777	2933.25231	60000.00000
1.437865E+08	1.966311E+12	0.00007313	0.00161667	22.10828885	2940.89448	60000.00000
1.441556E+08	1.938226E+12	0.00007438	0.00163733	22.01450542	2947.69975	60000.00000
1.448869E+08	1.884707E+12	0.00007688	0.00167878	21.83779880	2959.07348	60000.00000
1.455936E+08	1.834250E+12	0.00007938	0.00172026	21.67259350	2967.40598	60000.00000
1.461951E+08	1.785589E+12	0.00008188	0.00176099	21.50821701	2972.61519	60000.00000
1.467880E+08	1.739710E+12	0.00008438	0.00180188	21.35563955	2974.89285	60000.00000
1.473663E+08	1.696302E+12	0.00008688	0.00184296	21.21388212	2968.75587	60000.00000
1.478467E+08	1.654228E+12	0.00008938	0.00188322	21.07097402	2970.63781	60000.00000
1.488328E+08	1.619949E+12	0.00009188	0.00192938	21.00000009	2974.32000	60000.00000
1.488729E+08	1.577462E+12	0.00009438	0.00197161	20.89119896	2972.78921	60000.00000
1.493127E+08	1.541292E+12	0.00009688	0.00201113	20.76004967	2965.41344	60000.00000
1.496708E+08	1.506121E+12	0.00009938	0.00204968	20.62572464	2969.94827	60000.00000
1.500259E+08	1.472647E+12	0.00010188	0.00208837	20.49935773	2973.22199	60000.00000
1.503778E+08	1.440746E+12	0.00010438	0.00212720	20.38040176	2974.82797	60000.00000
1.507245E+08	1.410288E+12	0.00010688	0.00216625	20.26900694	2971.43892	60000.00000
1.510454E+08	1.380986E+12	0.00010938	0.00220511	20.16102657	2965.02288	60000.00000
1.513222E+08	1.352601E+12	0.00011188	0.00224338	20.05257413	2966.57800	60000.00000
1.515971E+08	1.325439E+12	0.00011438	0.00228176	19.94980529	2970.52846	60000.00000
1.518701E+08	1.299424E+12	0.00011688	0.00232024	19.85236332	2973.24771	60000.00000
1.521412E+08	1.274481E+12	0.00011938	0.00235884	19.75993171	2974.71975	60000.00000
1.524090E+08	1.250535E+12	0.00012188	0.00239760	19.67259362	2973.11767	60000.00000
1.526486E+08	1.227326E+12	0.00012438	0.00243605	19.58637133	2967.60561	60000.00000
1.528617E+08	1.204821E+12	0.00012688	0.00247409	19.50018391	2962.18640	60000.00000
1.528928E+08	1.181780E+12	0.00012938	0.00252281	19.49999884	2965.35911	60000.00000
1.533964E+08	1.163196E+12	0.00013188	0.00256459	19.44715396	2969.57898	60000.00000
1.535826E+08	1.142940E+12	0.00013438	0.00260187	19.36277166	2972.13704	60000.00000
1.537531E+08	1.123311E+12	0.00013688	0.00263991	19.28702071	2973.93486	60000.00000
1.539198E+08	1.104358E+12	0.00013938	0.00267817	19.21557203	2974.86668	60000.00000
1.540724E+08	1.085973E+12	0.00014188	0.00271717	19.15184811	2972.73502	60000.00000
1.541944E+08	1.068013E+12	0.00014438	0.00275566	19.08681259	2968.03184	60000.00000
1.543044E+08	1.050583E+12	0.00014688	0.00279386	19.02200505	2963.39212	60000.00000
1.544063E+08	1.033682E+12	0.00014938	0.00283254	18.96259949	2958.64734	60000.00000
1.545025E+08	1.017301E+12	0.00015188	0.00287156	18.90741304	2958.43757	60000.00000
1.545980E+08	1.001445E+12	0.00015438	0.00291066	18.85448501	2962.79444	60000.00000
1.546928E+08	9.860896E+11	0.00015688	0.00294983	18.80371884	2966.50121	60000.00000
1.547869E+08	9.712116E+11	0.00015938	0.00298908	18.75501797	2969.54991	60000.00000
1.548703E+08	9.567277E+11	0.00016188	0.00302900	18.71196851	2971.99713	60000.00000
1.549510E+08	9.426679E+11	0.00016438	0.00306912	18.67142424	2973.73419	60000.00000
1.550309E+08	9.290242E+11	0.00016688	0.00310932	18.63263413	2974.73535	60000.00000
1.550990E+08	9.157136E+11	0.00016938	0.00314919	18.59299377	2974.40340	60000.00000
1.551498E+08	9.026898E+11	0.00017188	0.00318866	18.55220810	2970.30243	60000.00000
1.552003E+08	8.900373E+11	0.00017438	0.00322818	18.51288155	2966.19047	60000.00000
1.552905E+08	8.657312E+11	0.00017938	0.00330808	18.44224021	2957.78221	60000.00000
1.553690E+08	8.426792E+11	0.00018438	0.00338894	18.38069424	2950.78043	60000.00000
1.554455E+08	8.208345E+11	0.00018938	0.00347005	18.32371876	2959.69537	60000.00000
1.555201E+08	8.001035E+11	0.00019438	0.00355143	18.27099726	2966.61974	60000.00000
1.555927E+08	7.804023E+11	0.00019938	0.00363306	18.22225079	2971.50554	60000.00000
1.556548E+08	7.616135E+11	0.00020438	0.00371569	18.18073556	2974.33916	60000.00000
1.556820E+08	7.435560E+11	0.00020938	0.00379791	18.13928202	2973.38915	60000.00000
1.556973E+08	7.262846E+11	0.00021438	0.00388021	18.10012177	2966.08877	60000.00000

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 154809.67643 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 = 70600.000 lbs
Specified moment at pile head = 77388000.000 in-lbs
Specified axial load at pile head = 87000.000 lbs

Output Verification:

Computed forces and moments are within specified convergence limits.

Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

Type 1 = Shear and Moment, y = pile-head displacment 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= 70600.	M= 7.74E+07	87000.0000	1.2769	8.1541E+07	-658571.

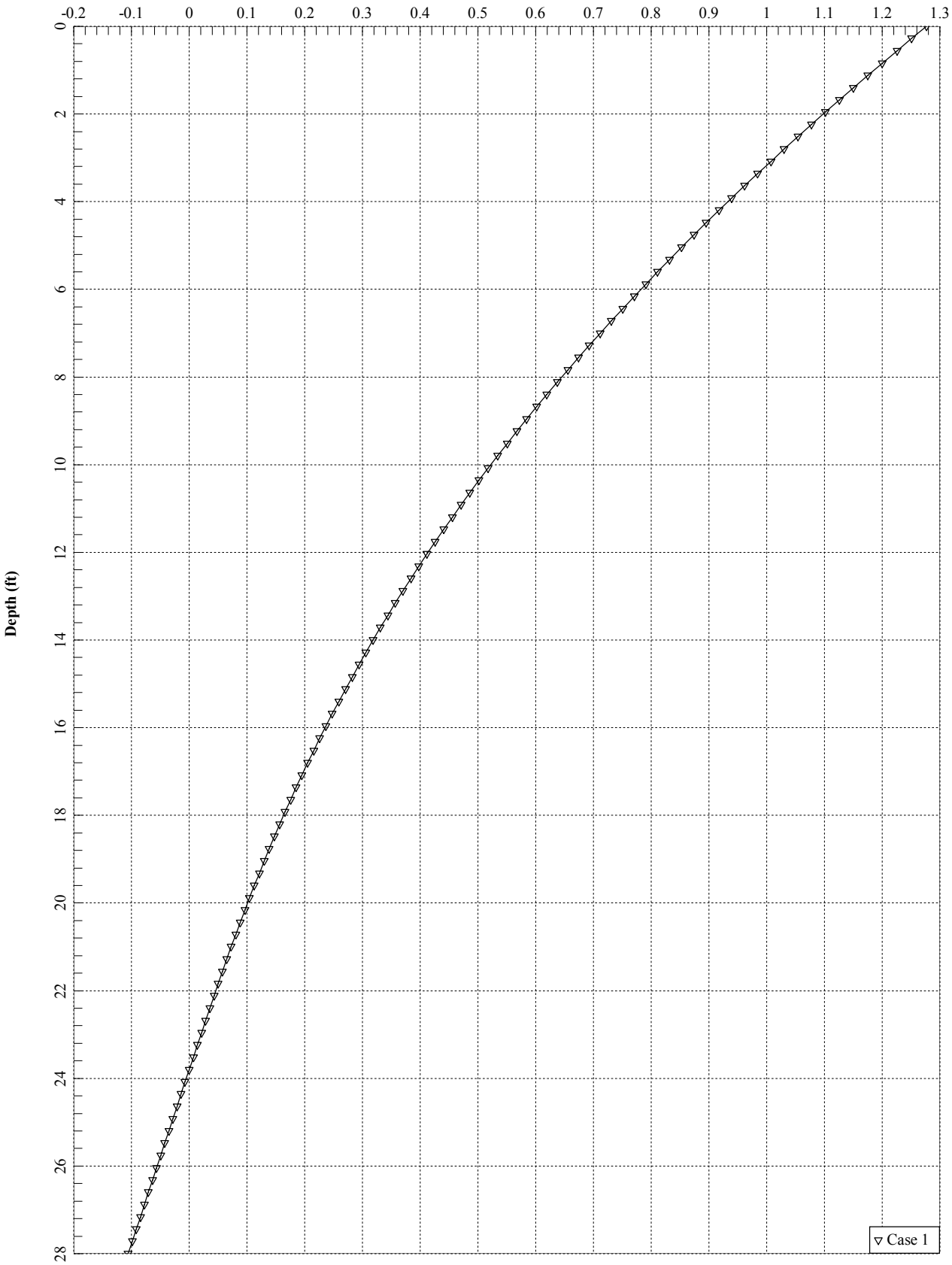
Computed Pile-head Stiffness Matrix Members
K22, K23, K32, K33 for Superstructure

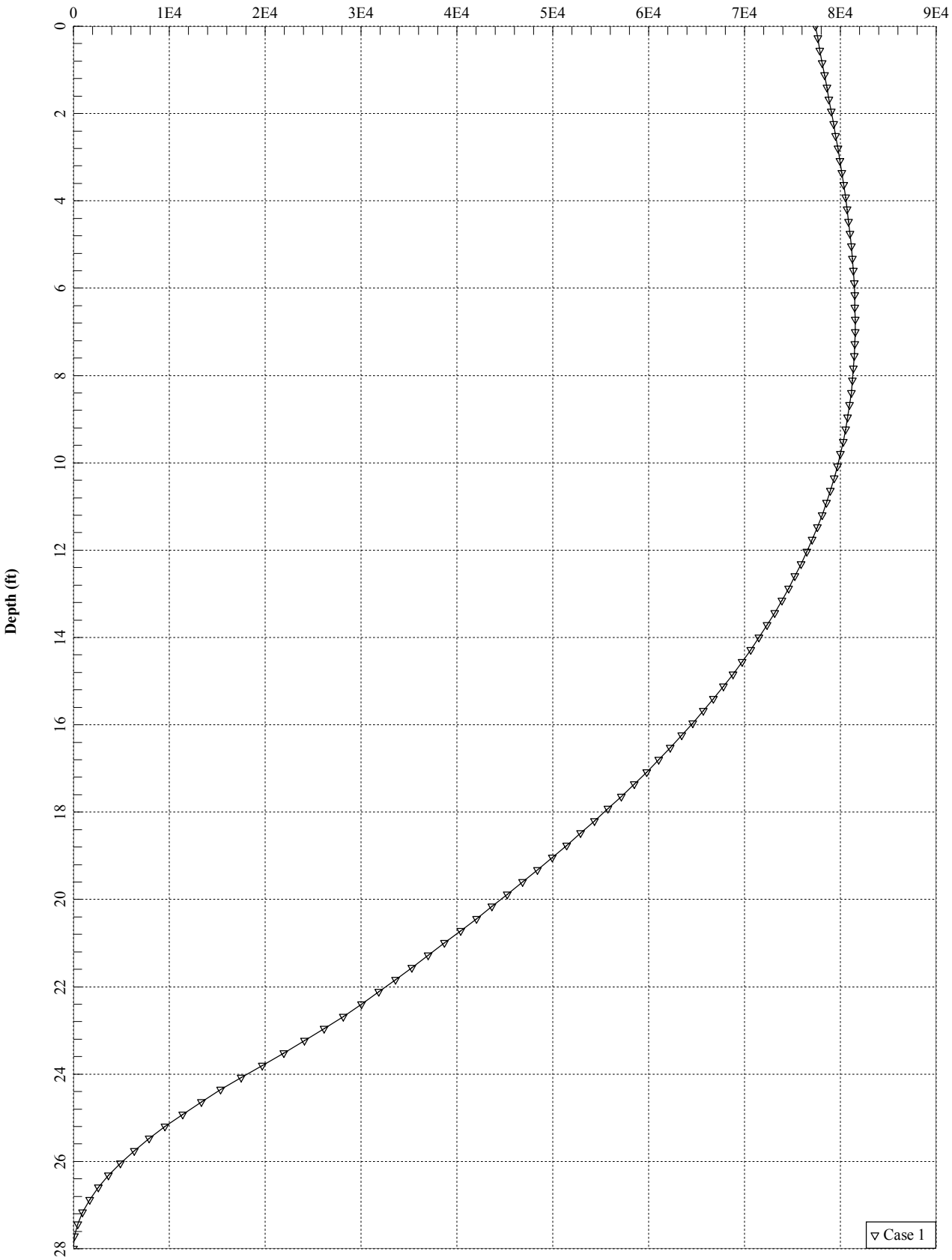
Top y in	Shear React. lbs	Mom. React. in-lbs	K22 lbs/in	K32 in-lbs/in
0.00110351	7060.00011	990481.25495	6397771.	8.975740E+08
0.00374146	21252.71769	3083214.	5680320.	8.240660E+08
0.00670466	33684.76058	5073279.	5024079.	7.566792E+08
0.00915129	42505.43539	6567558.	4644746.	7.176643E+08
0.01129497	49347.28231	7779276.	4368963.	6.887384E+08
0.01316908	54937.47828	8796127.	4171702.	6.679378E+08
0.01475957	59663.92162	9660071.	4042389.	6.544954E+08
0.01622849	63758.15308	10422915.	3928778.	6.422601E+08
0.01749884	67369.52117	11094039.	3849941.	6.339870E+08
0.01864954	70600.00000	11697484.	3785617.	6.272266E+08

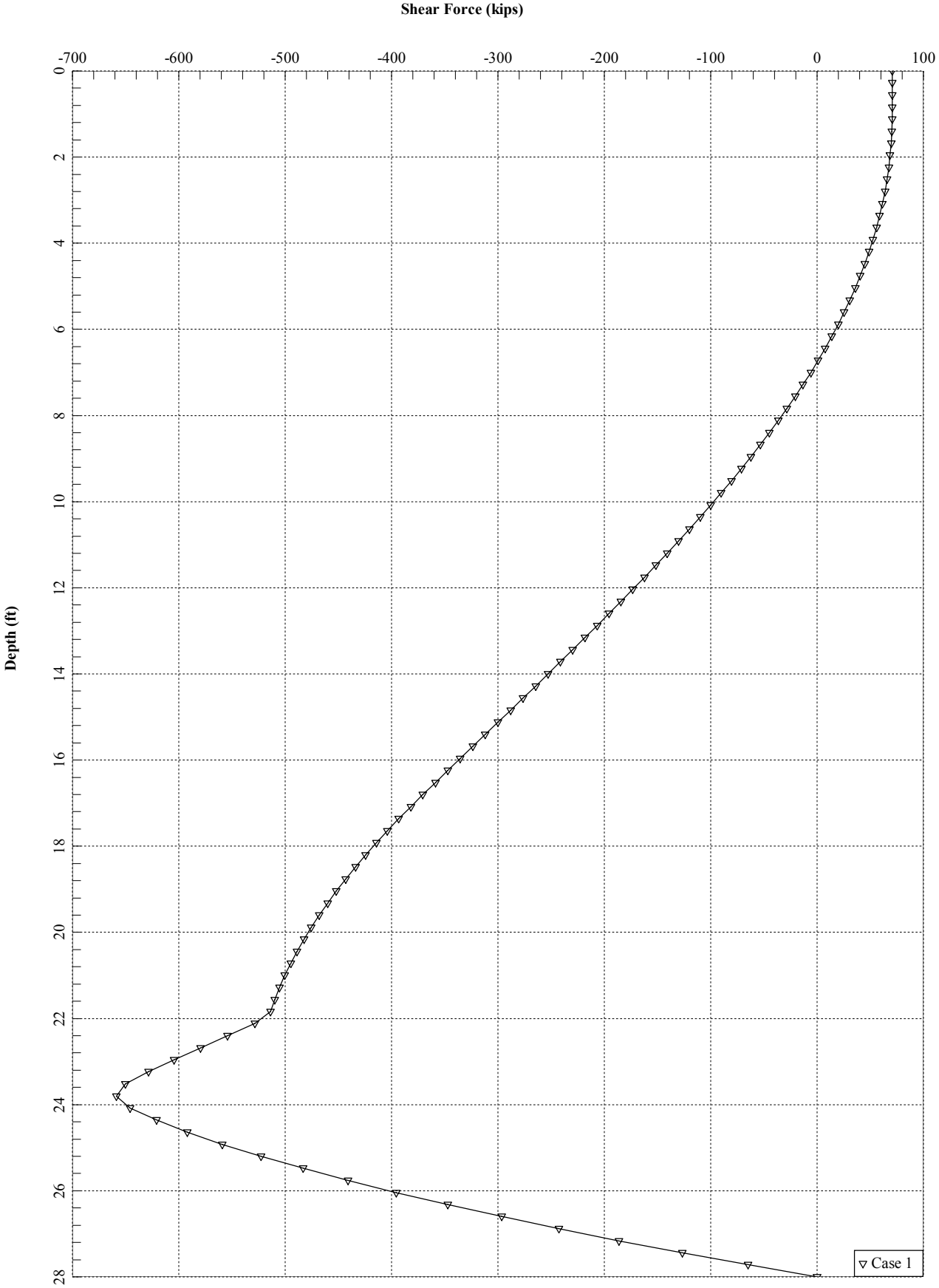
Top Rota. rad	Shear React. lbs	Mom. React. in-lbs	K23 lbs/rad	K33 in-lbs/rad
0.00004833	37496.24640	7738800.	7.758110E+08	1.601186E+11
0.00016138	101916.98930	23296109.	6.315443E+08	1.443579E+11
0.00045296	156863.95622	36923460.	3.463062E+08	8.151538E+10
0.00085952	204949.72958	46592219.	2.384469E+08	5.420730E+10
0.00111009	242563.26976	54091891.	2.185076E+08	4.872745E+10
0.00130264	273228.68913	60219569.	2.097494E+08	4.622875E+10
0.00146043	299041.30738	65400447.	2.047622E+08	4.478156E+10
0.00159337	321154.23098	69888328.	2.015564E+08	4.386192E+10
0.00171105	340795.96642	73846919.	1.991732E+08	4.315875E+10
0.00181271	357980.49068	77388000.	1.974834E+08	4.269185E+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.


Lateral Deflection (in)
-0.2
-0.1
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Case 1


Bending Moment (in-kips)
0
1E4
2E4
3E4
4E4
5E4
6E4
7E4
8E4
9E4
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Case 1


Shear Force (kips)
-700
-600
-500
-400
-300
-200
-100
0
100
Depth (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Case 1

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTL02343	DATE:	9/20/2015	RF DESIGN ENG:	Md Mateen	RF PERF ENG:	
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	8602586382	RF PERF PHONE:	
REVISION:	Final	RF MANAGER:	Cameron Syme	RF DESIGN EMAIL:	MM993Q@ATT.COM	RF PERF EMAIL:	
INITIATIVE / PROJECT:	LTE WCS will be 3C at the site with Bronze Standard configuration.// DUL TO DUS UPGRADE // ADD 2ND DUS.					TRIDENT:	
						GSM FREQUENCY:	
						UMTS FREQUENCY:	850,1900
						LTE FREQUENCY:	700,1900,WCS
						I-PLAN JOB # 1:	NER-RCTB-15-03305
						I-PLAN JOB # 2:	
						I-PLAN JOB # 3:	
						I-PLAN JOB # 4:	

RFDS PROGRAM TYPE:	2016 LTE Next Carrier
RFDS TECHNOLOGY:	LTE 3C
State:	Final
Status:	Approved
RFDS ID:	856048
Version:	3.00
Created By:	mm093q
Date Created:	9/20/2015
Date Updated:	12/17/2015
Updated By:	mm636e
Product Group || Sub Group #1:	LTE Next Carrier || LTE 3C
Product Group || Sub Group #2:	
Product Group || Sub Group #3:	
Product Group || Sub Group #4:	

Section 2 - LOCATION INFORMATION

USID:	121767	FA LOCATION CODE:	10152334	LOCATION NAME:	ORANGE OVERLAND DRIVE	ORACLE PRJT # 1:	2051A03JKC
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	
ADDRESS:	525 OVERLAND DRIVE	CITY:	ORANGE	STATE:	CT	ORACLE PRJT # 3:	
ZIP CODE:	06477	COUNTY:	NEW HAVEN	MSA / RSA:		ORACLE PRJT # 4:	
LATITUDE (D-M-S):	41d 17m 21.69996s	LONGITUDE (D-M-S):	-73d 0m -3.89988s	LAT (DEC DEG.):	41.2893611	SEARCH RING NAME:	ORANGE OFFLOAD FOR CT2064
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	15S TO EXIT 57 . . TAKE A RIGHT ONTO RACEBROOK RD. . TAKE A LEFT ONTO RUSSELL AVE THEN TAKE A LEFT ONTO NEW ENGLAND AVE AND ANOTHER LEFT ONTO OVERLAND DR. . SITE IS ON YOUR RIGHT ON POWERLINE . . CLP TRANSMISSION TOWER WITH SEPARATE GROUND LEASE. CASTIELLO CLSP POLE - CANDIDATE 2					SEARCH RING ID:	2837
						BTA:	
						LONG (DEC. DEG.):	-73.0010833
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	

SEARCH RING ID:	2837
BTA:	
LONG (DEC. DEG.):	-73.0010833
BORDER CELL WITH CONTOUR COORD:	
AM STUDY REQ'D (Y/N):	No
FREQ COORD:	
PACE JOB #1:	MRCTB016433
PACE JOB #2:	
PACE JOB #3:	
PACE JOB #4:	
CASPR INITIATIVE #1:	
CASPR INITIATIVE #2:	
CASPR INITIATIVE #3:	
CASPR INITIATIVE #4:	

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:	
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:		CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	Yes	GROUND ELEVATION (ft):	0	STRUCTURE TYPE:	UTILITY	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	130.00	FCC ASR NUMBER:	0	MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	130.00			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911	ORANGE POLICE DEPARTMENT	1377		INTRADO_MIAMI		0		
SECTOR B	ORANGE POLICE DEPARTMENT	1377		INTRADO_MIAMI		0		
SECTOR C	ORANGE POLICE DEPARTMENT	1377		INTRADO_MIAMI		0		
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR_A E-911	ORANGE POLICE DEPARTMENT	1377		INTRADO_MIAMI		0		
SECTOR B	ORANGE POLICE DEPARTMENT	1377		INTRADO_MIAMI		0		
SECTOR C	ORANGE POLICE DEPARTMENT	1377		INTRADO_MIAMI		0		
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 6 - RBS GENERAL INFORMATION - existing

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	UMTS 5TH RBS	UMTS 6TH RBS	LTE 1ST RBS	LTE 2ND RBS	LTE 3RD RBS	LTE 4TH RBS
RBS ID:			412745						443544			
CTS COMMON ID:			CTU2343						CTL02343			
BTA/BID:			318W						318L			
4-DIGIT SITE ID:			2343						2343			
COW OR TOY?:			No						No			
CELL SITE TYPE:			SECTORIZED						SECTORIZED			
SITE TYPE:			MACRO-CONVENTIONAL						MACRO-CONVENTIONAL			
BTS LOCATION ID:			INTERNAL						INTERNAL			
ORIGINATING CO:			CINGULAR						CINGULAR			
CELLULAR NETWORK:			GOLD						GOLD			
OPS DISTRICT:			CT-South						CT-South			
RF DISTRICT:			NPO Triage						NPO Triage			
OPS ZONE:			NE_CT_S_NHVN_SW_CS						NE_CT_S_NHVN_SW_CS			
RF ZONE:			Hotseat						Hotseat			
BASE STATION TYPE:			BASE						OVERLAY			
EQUIPMENT NAME:			ORANGE OFFLOAD FOR CT2064						ORANGE OFFLOAD FOR CT2064			
DISASTER PRIORITY:			0						0			

Section 6 - RBS GENERAL INFORMATION - final

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	UMTS 5TH RBS	UMTS 6TH RBS	LTE 1ST RBS	LTE 2ND RBS	LTE 3RD RBS	LTE 4TH RBS
RBS ID:			412745						443544	RFDS_11081047		
CTS COMMON ID:			CTU2343						CTL02343	CTL04343R		
BTA/BID:			318W						318L	318L		
4-DIGIT SITE ID:			2343						2343	4343		
COW OR TOY?:			No						No	No		
CELL SITE TYPE:			SECTORIZED						SECTORIZED	SECTORIZED		
SITE TYPE:			MACRO-CONVENTIONAL						MACRO-CONVENTIONAL	MACRO-CONVENTIONAL		
BTS LOCATION ID:			INTERNAL						INTERNAL	INTERNAL		
ORIGINATING CO:			CINGULAR						CINGULAR	CINGULAR		
CELLULAR NETWORK:			GOLD						GOLD	GOLD		
OPS DISTRICT:			CT-South						CT-South	CT-South		
RF DISTRICT:			NPO Triage						NPO Triage	NPO Triage		
OPS ZONE:			NE_CT_S_NHVN_SW_CS						NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS		
RF ZONE:			Hotseat						Hotseat	Hotseat		
BASE STATION TYPE:			BASE						OVERLAY	OVERLAY		
EQUIPMENT NAME:			ORANGE OFFLOAD FOR CT2064						ORANGE OFFLOAD FOR CT2064	ORANGE OFFLOAD FOR CT2064		
DISASTER PRIORITY:			0						0	0		

Section 7 - RBS SPECIFIC INFORMATION - existing

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	UMTS 5TH RBS	UMTS 6TH RBS	LTE 1ST RBS	LTE 2ND RBS	LTE 3RD RBS	LTE 4TH RBS
MSC:												
BSC/RNC/MME POOL ID:			BRPTCT04CR0R05						FF01			
LAC:			05991									
RAC:												
EQUIPMENT VENDOR:			ERICSSON						ERICSSON			
EQUIPMENT TYPE:			6601 MAIN UNIT UMTS						6601 INDOOR MU			
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:									CT			
AGPS:			Yes						Yes			
NODE B NUMBER:			0						2343			
PARENT NAME:			BRPTCT04CR0R05						FF01			

Section 7 - RBS SPECIFIC INFORMATION - final

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	UMTS 5TH RBS	UMTS 6TH RBS	LTE 1ST RBS	LTE 2ND RBS	LTE 3RD RBS	LTE 4TH RBS
MSC												
BSC/RNC/MME POOL ID			BRPTCT04CR0R05						FF01	FF01		
LAC			05991									
RAC												
EQUIPMENT VENDOR			ERICSSON						ERICSSON	ERICSSON		
EQUIPMENT TYPE			6601 MAIN UNIT UMTS						6601 INDOOR MU	6601 INDOOR MU		
LOCATION												
CABINET LOCATION												
MARKET STATE CODE									CT	CT		
AGPS			Yes						Yes	Yes		
NODE B NUMBER			0						2343	4343		
PARENT NAME			BRIDGEPORT CT RNC5									

Section 8- INDIVIDUAL CARRIER INFORMATION - existing

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
RBS ID					412745	412745	412745										443544		443544					
CELL ID/BCF					CTU2343	CTU2343	CTU2343										CTL02343		CTL02343					
CTS COMMON ID					CTU2343	CTU2343	CTU2343										CTL02343		CTL02343					
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
RBS ID																								
CELL ID/BCF																								
CTS COMMON ID																								

Section 8 - INDIVIDUAL CARRIER INFORMATION - final

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
RBS ID					412745	412745	412745										443544		443544		443544			
CELL ID/BCF					CTU2343	CTU2343	CTU2343										CTL02343		CTL02343		CTL02343			
CTS COMMON ID					CTU2343	CTU2343	CTU2343										CTL02343		CTL02343		CTL02343			
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
RBS ID																	RFDS_1108104 1		RFDS_1108104 8		RFDS_1108104 9			
CELL ID/BCF																	CTL04343R		CTL04343R		CTL04343R			
CTS COMMON ID																	CTL04343R		CTL04343R		CTL04343R			

Section 9 - SOFT SECTOR ID - existing

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
USEID (excluding Hard Sector)					121767.850.3G.1	121767.1900.3G.1	121767.850.3G.2										121767.700.4G.1		121767.1900.4G.1					
SECTOR_A SOFT_SECTOR_ID					CTV23431	CTU23437	CTV2343A										CTL02343_7A_1		CTL02343_9A_1					
SECTOR_B					CTV23432	CTU23438	CTV2343B										CTL02343_7B_1		CTL02343_9B_1					
SECTOR_C					CTV23433	CTU23439	CTV2343C										CTL02343_7C_1		CTL02343_9C_1					
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
USEID (excluding Hard Sector)																								
SECTOR_A SOFT_SECTOR_ID																								
SECTOR_B																								
SECTOR_C																								
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								

Section 9 - SOFT SECTOR ID - final

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
USEID (excluding Hard Sector)					121767.850.3G.1	121767.1900.3G.1	121767.850.3G.2										121767.700.4G.1		121767.1900.4G.1		121767.WCS.4G.111			
SECTOR_A SOFT_SECTOR_ID					CTV23431	CTU23437	CTV2343A										CTL02343_7A_1		CTL02343_9A_1		CTL02343_3A_1			
SECTOR_B					CTV23432	CTU23438	CTV2343B																	
SECTOR_C					CTV23433	CTU23439	CTV2343C										CTL02343_7C_1		CTL02343_9C_1		CTL02343_3C_1			
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
USEID (excluding Hard Sector)																	121767.700.4G.222		121767.1900.4G.222		121767.WCS.4G.222			
SECTOR_A SOFT_SECTOR_ID																								
SECTOR_B																	CTL04343_7B_1		CTL04343_9B_1		CTL04343_3B_1			
SECTOR_C																								
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								

Section 9 - SOFT SECTOR CELL NUMBER - existing

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
USEID (excluding Hard Sector)					121767.850.3G.1	121767.1900.3G.1	121767.850.3G.2										121767.700.4G.1		121767.1900.4G.1					
SECTOR_A CELL NUMBER					0	0	0										15		8					
SECTOR_B					0	0	0										16		9					
SECTOR_C					0	0	0										17		10					
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
USEID (excluding Hard Sector)																								
SECTOR_A CELL NUMBER																								
SECTOR_B																								
SECTOR_C																								
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								

Section 9 - SOFT SECTOR CELL NUMBER - final

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
USEID (excluding Hard Sector)					121767.850.3G.1	121767.1900.3G.1	121767.850.3G.2										121767.700.4G.1		121767.1900.4G.1		121767.WCS.4G.111			
SECTOR_A CELL NUMBER					0	0	0										15		8		149			
SECTOR_B					0	0	0																	
SECTOR_C					0	0	0										17		10		151			
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
USEID (excluding Hard Sector)																	121767.700.4G.222		121767.1900.4G.222		121767.WCS.4G.222			
SECTOR_A CELL NUMBER																								
SECTOR_B																	18		9		150			
SECTOR_C																								
SECTOR_D																								
SECTOR_E																								
SECTOR_F																								
OMNI																								

Section 10 - CID/SAC - existing

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900								
SECTOR A CID/SAC					23431	23437	23434																	
SECTOR B					23432	23438	23435																	
SECTOR C					23433	23439	23436																	
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - final

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900								
SECTOR A CID/SAC					23431	23437	23434																	
SECTOR B					23432	23438	23435																	
SECTOR C					23433	23439	23436																	
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 11 - CURRENT RADIO COUNTS existing

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
SECTOR A RADIO_COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
SECTOR A RADIO_COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 12 - CURRENT T1 COUNTS existing

	GSM 1ST Cabinet		GSM 2ND Cabinet		UMTS 1ST Cabinet		UMTS 2ND Cabinet		UMTS 3RD Cabinet		UMTS 4TH Cabinet		UMTS 5TH Cabinet		UMTS 6TH Cabinet		LTE 1ST Cabinet		LTE 2ND Cabinet		LTE 3RD Cabinet		LTE 4TH Cabinet	
# TIs																								
LINK PROFILE																								
RF COMBINING																								
FIBER or ETHERNET?																								
Tx Board Model																								
Tx Board Q'TY																								
RAX/ECU Board Model																								
RAX/ECU Board Q'TY																								
BBU Board Model																								
BBU Board Q'TY																								
RRU - location																								
FIBER JUMPER																								
DC CABLE																								
DC/Fiber Dem. Box																								
Bundled Fiber Cable																								
Bundled DC Cable																								

Section 13 - NEW/PROPOSED RADIO COUNTS

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
SECTOR A RADIO_COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
SECTOR A RADIO_COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 14 - NEW/PROPOSED T1 COUNTS

	GSM 1st Cabinet		GSM 2nd Cabinet		UMTS 1st Cabinet		UMTS 2nd Cabinet		UMTS 3rd Cabinet		UMTS 4th Cabinet		UMTS 5TH Cabinet		UMTS 6TH Cabinet		LTE 1ST Cabinet		LTE 2ND Cabinet		LTE 3RD Cabinet		LTE 4TH Cabinet	
# TIs																								
LINK PROFILE																								
RF COMBINING																								
FIBER or ETHERNET?																								
Tx Board Model																								
Tx Board Q'TY																								
RAX/ECU Board Model																								
RAX/ECU Board Q'TY																								
BBU Board Model																								
BBU Board Q'TY																								
RRU - location																								
FIBER JUMPER																								
DC CABLE																								
DC/Fiber Dem. Box																								
Bundled Fiber Cable																								
Bundled DC Cable																								

Section 15A - CURRENT SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	SBNH-1D6565B		SBNH-1D6565B	SBNH-1D6565B			
ANTENNA VENDOR	Andrew		Andrew	Andrew			
ANTENNA SIZE (H x W x D)	72.6X11.9X7.1		72.6X11.9X7.1	72.6X11.9X7.1			
ANTENNA WEIGHT	40.6		40.6	40.6			
AZIMUTH	30		30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130		130	130			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2		2	2			
Antenna RET Motor (QTY/MODEL)		Internal		Internal	Internal		
SURGE ARRESTOR (QTY/MODEL)			4	Andrew ABT-DPDM-ADBH			
DIPLEXER (QTY/MODEL)	2	CM1007-DBPXBC-003	2	CM1007-DBPXBC-003	2	CM1007-DBPXBC-003	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				LTE RRH Via TMA	1	Kathrein / 860-10006	
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1	DTMABP7819VG12A	1	DTMABP7819VG12A	1	DTMABP7819VG12A	
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	POLYPHASER 1000860				AISG Diplexer	
PDU FOR TMAS (QTY/MODEL)	1	(1900 AND 850 Bypass TMA)					
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1	RRUS-11			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1	RRUS-12			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2	GSM is Decom // Antenna 4 used only for RET purpose						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USE/D (CSSng)	USE/D (Atoll)	ATOLL TX/D	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXA/T KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HAT/CHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 1	PORT 1		121767.A.850.3G.1	CTV23431	CTV23431		UMTS 850	1D6565B_850MHz_02DT	13.41		2	Bottom	Commscope 1-5/8 (850)	150								
	PORT 2		121767.A.850.3G.2	CTV23431	CTV2343A		UMTS 850	1D6565B_850MHz_02DT	13.41		2	Bottom	Commscope 1-5/8 (850)	150								
	PORT 3		121767.A.1900.3G.1	CTU23437	CTU23437		UMTS 1900	1D6565B_1960MHz_02DT	17		2	Bottom	Commscope 1-5/8 (1900)	150								
ANTENNA POSITION 3	PORT 1		121767.A.700.4G.1	CTL02343_7A_1	CTL02343_7A_1		LTE 700	1D6565B_716MHz_02DT	15.3		2	Bottom	Commscope 1-5/8 (700)	150								
	PORT 3		121767.A.1900.4G.1	CTL02343_9A_1	CTL02343_9A_1		LTE 1900	1D6565B_1948MHz_02DT	16.2		2	Bottom	Commscope 1-5/8 (1900)	150								
ANTENNA POSITION 4	PORT 3					Decom	GSM 850															

Section 15B - CURRENT SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	SBNH-1D6565B		SBNH-1D6565B	SBNH-1D6565B			
ANTENNA VENDOR	Andrew		Andrew	Andrew			
ANTENNA SIZE (H x W x D)	72.6X11.9X7.1		72.6X11.9X7.1	72.6X11.9X7.1			
ANTENNA WEIGHT	40.6		40.6	40.6			
AZIMUTH	150		150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130		130	130			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2		2	2			
Antenna RET Motor (QTY/MODEL)		Internal		Internal	Internal		
SURGE ARRESTOR (QTY/MODEL)			4	Andrew ABT-DPDM-ADBH			
DIPLEXER (QTY/MODEL)	2	CM1007-DBPXBC-003	2	CM1007-DBPXBC-003	2	CM1007-DBPXBC-003	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				LTE RRH Via TMA			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1	DTMABP7819VG12A	1	DTMABP7819VG12A	1	DTMABP7819VG12A	
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	POLYPHASER 1000860				AISG Diplexer	
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1	RRUS-11			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1	RRUS-12			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2	GSM is Decom // Antenna 4 used only for RET purpose						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USE/D (CSSng)	USE/D (Atoll)	ATOLL TX/D	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXA/T KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HAT/CHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 1	PORT 1		121767.B.850.3G.1	CTV23432	CTV23432		UMTS 850	1D6565B_850MHz_02DT	13.41		2	Bottom	Commscope 1-5/8 (850)	150								
	PORT 2		121767.B.850.3G.2	CTV23432	CTV2343B		UMTS 850	1D6565B_850MHz_02DT	13.41		2	Bottom	Commscope 1-5/8 (850)	150								
	PORT 3		121767.B.1900.3G.1	CTU23438	CTU23438		UMTS 1900	1D6565B_1960MHz_02DT	17		2	Bottom	Commscope 1-5/8 (1900)	150								
ANTENNA POSITION 3	PORT 1		121767.B.700.4G.1	CTL02343_7B_1	CTL02343_7B_1		LTE 700	1D6565B_716MHz_02DT	15.3		2	Bottom	Commscope 1-5/8 (700)	150								
	PORT 3		121767.B.1900.4G.1	CTL02343_9B_1	CTL02343_9B_1		LTE 1900	1D6565B_1948MHz_02DT	16.2		2	Bottom	Commscope 1-5/8 (1900)	150								
ANTENNA POSITION 4	PORT 3					Decom	GSM 850															

Section 15C - CURRENT SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	SBNH-1D6565B		SBNH-1D6565B	SBNH-1D6565B			
ANTENNA VENDOR	Andrew		Andrew	Andrew			
ANTENNA SIZE (H x W x D)	72.6X11.9X7.1		72.6X11.9X7.1	72.6X11.9X7.1			
ANTENNA WEIGHT	40.6		40.6	40.6			
AZIMUTH	270		270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130		130	130			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2		2	2			
Antenna RET Motor (QTY/MODEL)	Internal		Internal	Internal			
SURGE ARRESTOR (QTY/MODEL)			4 Andrew ABT-DFDM-ADBH				
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003		2 CM1007-DBPXBC-003	2 CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH Via TMA				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819VG12A		1 DTMABP7819VG12A	1 DTMABP7819VG12A			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 POLYPHASER 1000B60			AISG Diplexer			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1 RRUS-12				
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2	GSM is Decom // Antenna 4 used only for RET purpose						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 1	PORT 1		121767.C.850.3G.1	CTV23433	CTV23433		UMTS 850	1D6565B_850MHz_02DT	13.41		2	Bottom	Commscope 1-5/8 (850)	150									
	PORT 2		121767.C.850.3G.2	CTV23433	CTV2343C		UMTS 850	1D6565B_850MHz_02DT	13.41		2	Bottom	Commscope 1-5/8 (850)	150									
	PORT 3		121767.C.1900.3G.1	CTU23439	CTU23439		UMTS 1900	1D6565B_1960MHz_02DT	17		2	Bottom	Commscope 1-5/8 (1900)	150									
ANTENNA POSITION 3	PORT 1		121767.C.700.4G.1	CTL02343_7C_1	CTL02343_7C_1		LTE 700	1D6565B_716MHz_02DT	15.3		2	Bottom	Commscope 1-5/8 (700)	150									
	PORT 3		121767.C.1900.4G.1	CTL02343_9C_1	CTL02343_9C_1		LTE 1900	1D6565B_1948MHz_02DT	16.2		2	Bottom	Commscope 1-5/8 (1900)	150									
ANTENNA POSITION 4	PORT 1					Decom	GSM 850															

Section 16A - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		QS66512-3					
ANTENNA VENDOR		Quintel					
ANTENNA SIZE (H x W x D)		72X12X9.6					
ANTENNA WEIGHT		105					
AZIMUTH		30					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		130					
ANTENNA TIP HEIGHT		133					
MECHANICAL DOWNTILT							
FEEDER AMOUNT		2					
Antenna RET Motor (QTY/MODEL)		Internal					
SURGE ARRESTOR (QTY/MODEL)		8 BOPDM-DB Broadband					
DIPLEXER (QTY/MODEL)		4 CCI Pentaplexer - 5PX-0726					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2117F00V1-1 (Twin PCS-					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)		1 RRUS-32					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE WCS will be 3C at the site with Bronze Standard config. // Replace the existing Spare GSM Antenna with an 6' Quintel 12-port Antenna and install at POS 2 // Install RRUS-32 for WCS at bottom // install 2 kaleus twin TMA at TOP and 4 Penta plexers at Bottom // Add 2 New Coax and 4 surge arrestors // Move LTE 700/1900 to POS4 from POS3, to keep the 6' separation // DUL to DUS upgrade, Add 2nd DUS.						
Local Market Note 2	GSM is Decom.						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 2	PORT 3	121767.A.WCS.4G.111		CTL02343_3A_1	CTL02343_3A_1	3	LTE WCS	3_2350MHz_02 DT	17.7	30	2	Bottom	Commscope 1-5/8	150								1285.2866

Section 16B - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		QS66512-3					
ANTENNA VENDOR		Quintel					
ANTENNA SIZE (H x W x D)		72X12X9.6					
ANTENNA WEIGHT		105					
AZIMUTH		150					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		130					
ANTENNA TIP HEIGHT		133					
MECHANICAL DOWNTILT							
FEEDER AMOUNT		2					
Antenna RET Motor (QTY/MODEL)		Internal					
SURGE ARRESTOR (QTY/MODEL)		8 BOPDM-DB Broadband					
DIPLEXER (QTY/MODEL)		4 CCI Pentaplexer - 5PX-0726					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2117F00V1-1 (Twin PCS-					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)		1 RRUS-32					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE WCS will be 3C at the site with Bronze Standard config. // Replace the existing Spare GSM Antenna with an 6' Quintel 12-port Antenna and install at POS 2 // Install RRUS-32 for WCS at bottom // install 2 kaleus twin TMA at TOP and 4 Penta plexers at Bottom // Add 2 New Coax and 4 surge arrestors // Move LTE 700/1900 to POS4 from POS3, to keep the 6' separation // DUL to DUS upgrade, Add 2nd DUS.						
Local Market Note 2	GSM is Decom.						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 2	PORT 3	121767.B.WCS.4G.222		CTL04343_3B_1	CTL04343_3B_1	11	LTE WCS	3_2350MHz_02 DT	17.7	150	2	Bottom	Commscope 1-5/8	150								1285.2866

Section 16C - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL			QS66512-3											
ANTENNA VENDOR			Quintel											
ANTENNA SIZE (H x W x D)			72X12X9.6											
ANTENNA WEIGHT			105											
AZIMUTH			270											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)			130											
ANTENNA TIP HEIGHT			133											
MECHANICAL DOWNTILT														
FEEDER AMOUNT			2											
Antenna RET Motor (QTY/MODEL)				Internal										
SURGE ARRESTOR (QTY/MODEL)			8	RFDM-DB Broadband										
DIPLEXER (QTY/MODEL)			4	CCI Pentaplexer - 5PX-0726										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)			2	TMA2117F60V1 1 (Twin PCS-										
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)														
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)			1	RRUS-32										
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	LTE WCS will be 3C at the site with Bronze Standard config. // Replace the existing Spare GSM Antenna with an 6' Quintel 12-port Antenna and install at POS 2 // Install RRUS-32 for WCS at bottom // install 2 kaleus twin TMA at TOP and 4 Penta plexers at Bottom // Add 2 New Coax and 4 surge arrestors // Move LTE 700/1900 to POS4 from POS3, to keep the 6' separation // DUL to DUS upgrade, Add 2nd DUS.													
Local Market Note 2	GSM is Decom.													
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCH/PLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 2	PORT 3	121767.C.WCS.4G.111		CTL02343_3C_1	CTL02343_3C_1	19	LTE WCS	3_2350MHz_02DT	17.7	270	2	Bottom	Commscope 1-5/8	150								1285.2866

Section 17A - FINAL SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	SBNH-1D6565B	QS66512-3		SBNH-1D6565B			
ANTENNA VENDOR	Andrew	Quintel		Andrew			
ANTENNA SIZE (H x W x D)	72.6X11.9X7.1	72X12X9.6		72.6X11.9X7.1			
ANTENNA WEIGHT	40.6	105		40.6			
AZIMUTH	30	30		30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130	130		130			
ANTENNA TIP HEIGHT	133	133		133			
MECHANICAL DOWNTILT	0			0			
FEEDER AMOUNT	2	4		2			
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)		8 BDFDM-DB Broadband		4 Andrew ABT-DFDM-ADBH			
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003	4 CCI Pentaplexer - 5PX-0726		2 CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				LTE RRH Via TMA			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819V G12A	2 TMA2117F00V1-1 (Twin PCS-		1 DTMABP7819V G12A			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 POLYPHASER 1000860						
PDU FOR TMAS (QTY/MODEL)	1 (1900 AND 850 Bypass TMA)						
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 RRUS-11			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 RRUS-12			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)		1 RRUS-32					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE WCS will be 3C at the site with Bronze Standard config. // Replace the existing Spare GSM Antenna with an 6' Quintel 12-port Antenna and install at POS 2 // Install RRUS-32 for WCS at bottom // install 2 kaleus twin TMA at TOP and 4 Penta plexers at Bottom // Add 2 New Coax and 4 surge arrestors // Move LTE 700/1900 to POS4 from POS3, to keep the 6' separation // DUL to DUS upgrade, Add 2nd DUS.						
Local Market Note 2	GSM is Decom.						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HAT/CHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 1	PORT 1	121767.A.850.3 G.1	121767.A.850.3 G.1	CTV23431	CTV23431		UMTS 850	1D6565B_850M Hz_02DT	13.41	30	2	Bottom	Commscope 1-5/8 (850)	150	1							
	PORT 2	121767.A.850.3 G.2	121767.A.850.3 G.2	CTV23431	CTV2343A		UMTS 850	1D6565B_850M Hz_02DT	13.41	30	2	Bottom	Commscope 1-5/8 (850)	150	2							
	PORT 3	121767.A.1900. 3G.1	121767.A.1900. 3G.1	CTU23437	CTU23437		UMTS 1900	1D6565B_1950 MHz_02DT	17	30	2	Bottom	Commscope 1-5/8 (850)	150	1							
ANTENNA POSITION 2	PORT 3	121767.A.WCS. 4G.111	121767.A.WCS. 4G.111	CTL02343_3A_ 1	CTL02343_3A_ 1		LTE WCS	3_2350MHz_02 DT	17.7	30	2	Bottom	Commscope 1-5/8	150	3							1285.2866
ANTENNA POSITION 4	PORT 1	121767.A.700.4 G.1	121767.A.700.4 G.1	CTL02343_7A_ 1	CTL02343_7A_ 1		LTE 700	1D6565B_716M Hz_02DT	15.3	30	2	Bottom	Commscope 1-5/8 (700)	150	7							1475.7065
	PORT 3	121767.A.1900. 4G.1	121767.A.1900. 4G.1	CTL02343_9A_ 1	CTL02343_9A_ 1		LTE 1900	1D6565B_1948 MHz_02DT	16.2	30	2	Bottom	Commscope 1-5/8 (700)	150	7							2421.029

Section 17B - FINAL SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	SBNH-1D6565B	QS66512-3		SBNH-1D6565B			
ANTENNA VENDOR	Andrew	Quintel		Andrew			
ANTENNA SIZE (H x W x D)	72.6X11.9X7.1	72X12X9.6		72.6X11.9X7.1			
ANTENNA WEIGHT	40.6	105		40.6			
AZIMUTH	150	150		150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130	130		130			
ANTENNA TIP HEIGHT	133	133		133			
MECHANICAL DOWNTILT	0			0			
FEEDER AMOUNT	2	4		2			
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)		8 BDFDM-DB Broadband		4 Andrew ABT-DFDM-ADBH			
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003	4 CCI Pentaplexer - 5PX-0726		2 CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				LTE RRH Via TMA			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819V G12A	2 TMA2117F00V1-1 (Twin PCS-		1 DTMABP7819V G12A			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 POLYPHASER 1000860						
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 RRUS-11			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 RRUS-12			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)		1 RRUS-32					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE WCS will be 3C at the site with Bronze Standard config. // Replace the existing Spare GSM Antenna with an 6' Quintel 12-port Antenna and install at POS 2 // Install RRUS-32 for WCS at bottom // install 2 kaleus twin TMA at TOP and 4 Penta plexers at Bottom // Add 2 New Coax and 4 surge arrestors // Move LTE 700/1900 to POS4 from POS3, to keep the 6' separation // DUL to DUS upgrade, Add 2nd DUS.						
Local Market Note 2	GSM is Decom.						
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HAT/CHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 1	PORT 1	121767.B.850.3 G.1	121767.B.850.3 G.1	CTV23432	CTV23432		UMTS 850	1D6565B_850M Hz_02DT	13.41	150	2	Bottom	Commscope 1-5/8 (850)	150	9							
	PORT 2	121767.B.850.3 G.2	121767.B.850.3 G.2	CTV23432	CTV2343B		UMTS 850	1D6565B_850M Hz_02DT	13.41	150	2	Bottom	Commscope 1-5/8 (850)	150	10							
	PORT 3	121767.B.1900. 3G.1	121767.B.1900. 3G.1	CTU23438	CTU23438		UMTS 1900	1D6565B_1950 MHz_02DT	17	150	2	Bottom	Commscope 1-5/8 (850)	150	9							
ANTENNA POSITION 2	PORT 3	121767.B.WCS. 4G.222	121767.B.WCS. 4G.222	CTL04343_3B_ 1	CTL04343_3B_ 1		LTE WCS	3_2350MHz_02 DT	17.7	150	2	Bottom	Commscope 1-5/8	150	11							1285.2866
ANTENNA POSITION 4	PORT 1	121767.B.700.4 G.222	121767.B.700.4 G.1	CTL04343_7B_ 1	CTL04343_7B_ 1		LTE 700	1D6565B_716M Hz_02DT	15.3	150	2	Bottom	Commscope 1-5/8 (700)	150	15							1475.7065
	PORT 3	121767.B.1900. 4G.222	121767.B.1900. 4G.1	CTL04343_9B_ 1	CTL04343_9B_ 1		LTE 1900	1D6565B_1948 MHz_02DT	16.2	150	2	Bottom	Commscope 1-5/8 (700)	150	15							2421.029

Section 17C - FINAL SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	SBNH-1D6565B	QS66512-3		SBNH-1D6565B			
ANTENNA VENDOR	Andrew	Quintel		Andrew			
ANTENNA SIZE (H x W x D)	72.6X11.9X7.1	72X12X9.6		72.6X11.9X7.1			
ANTENNA WEIGHT	40.6	105		40.6			
AZIMUTH	270	270		270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	130	130		130			
ANTENNA TIP HEIGHT	133	133		133			
MECHANICAL DOWNTILT	0			0			
FEEDER AMOUNT	2	4		2			
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)		8 BDFDM-DB Broadband		4 Andrew ABT-DFDM-ADBH			
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003	4 CCI Pentaplexer - 5PX-0726		2 CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				LTE RRH Via TMA			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819V G12A	2 TMA2117F00V1-1 (Twin PCS-		1 DTMABP7819V G12A			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 POLYPHASER 1000B60						
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)				1 RRUS-11			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)				1 RRUS-12			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)		1 RRUS-32					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE WCS will be 3C at the site with Bronze Standard config. // Replace the existing Spare GSM Antenna with an 6' Quintel 12-port Antenna and install at POS 2 // Install RRUS-32 for WCS at bottom // install 2 kaleus twin TMA at TOP and 4						
Local Market Note 2	Penta plexers at Bottom // Add 2 New Coax and 4 surge arrestors // Move LTE 700/1900 to POS4 from POS3, to keep the 6' separation // DUL to DUS upgrade, Add 2nd DUS.						
Local Market Note 3	GSM is Decom.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	CABLE NUMBER	CABLE ID(cssng)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)
ANTENNA POSITION 1	PORT 1	121767.C.850.3 G.1	121767.C.850.3 G.1	CTV23433	CTV23433		UMTS 850	1D6565B_850M Hz_02DT	13.41	270	2	Bottom	Commscope 1-5/8 (850)	150	17							
	PORT 2	121767.C.850.3 G.2	121767.C.850.3 G.2	CTV23433	CTV2343C		UMTS 850	1D6565B_850M Hz_02DT	13.41	270	2	Bottom	Commscope 1-5/8 (850)	150	18							
	PORT 3	121767.C.1900. 3G.1	121767.C.1900. 3G.1	CTU23439	CTU23439		UMTS 1900	1D6565B_1960 MHz_02DT	17	270	2	Bottom	Commscope 1-5/8 (850)	150	17							
ANTENNA POSITION 2	PORT 3	121767.C.WCS. 4G.111	121767.C.WCS. 4G.111	CTL02343_3C_ 1	CTL02343_3C_ 1		LTE WCS	3_2350MHz_02 DT	17.7	270	2	Bottom	Commscope 1-5/8	150	19							1285.2886
ANTENNA POSITION 4	PORT 1	121767.C.700.4 G.1	121767.C.700.4 G.1	CTL02343_7C_ 1	CTL02343_7C_ 1		LTE 700	1D6565B_716M Hz_02DT	15.3	270	2	Bottom	Commscope 1-5/8 (700)	150	23							1475.7065
	PORT 3	121767.C.1900. 4G.1	121767.C.1900. 4G.1	CTL02343_9C_ 1	CTL02343_9C_ 1		LTE 1900	1D6565B_1948 MHz_02DT	16.2	270	2	Bottom	Commscope 1-5/8 (700)	150	23							2421.029

Quintel®
New Dimensions in Wireless™

QS66512-3

6ft 65° XXX MultiServ™ 12-Port Antenna

2x698-787MHz / 2x824-894MHz / 2x1850-1990MHz / 2x1850-1990MHz / 2x1695-1780+2110-2400MHz / 2x1695-1780+2110-2400MHz

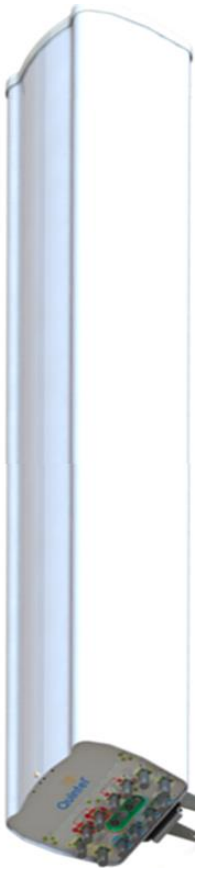
- Provides 12 antenna Ports in a slim-line form factor
- Optimized Azimuth patterns for Min Inter-Sector Interference
- Industry leading Minimal Wind-Load design

- 700, 850, PCS, AWS & WCS bands in one antenna
- AISG & 3GPP compliant internal remote electrical tilt (RET)
- AWS & PCS Cross band PIM >157dBc

The Quintel MultiServ™ Multiband 12 Port Antenna with patented QTilt™ technology uniquely delivers six independent services in a single slim-line antenna. This enables existing antenna network sites to be upgraded constraint free to add new services such as LTE for 700, 850, PCS, AWS and WCS bands with the replacement of one antenna. The QS66512-3 also provides 4x1695-1780+2110-2400MHz & 4x1850-1990MHz ports as two side-by-side (CLA-2X) arrays, each array having independent tilt to support independent service, or for connection to 2T4R/4T4R services.

Electrical Characteristics	2x Ports 1&2	2x Ports 3&4	4x Ports 5-8			4 Ports 9-12
Operating Frequency (MHz	698-787	824-894	1695-1780 and 2110-2400			1850-1990
	698-787	824-894	1695-1780	2110-2180	2300-2400	1850-1990
Azimuth beamwidth[1]	68°	67°	69°	63°	58°	69°
Elevation beamwidth[1]	12°	10°	6.5°	5.5°	4.5°	5.5°
Gain[1] (dBi)	13.0	13.5	16.0	16.5	17.0	16.0
Polarization	±45°	±45°		±45° ±45°		±45° ±45°
Electrical down-tilt range	2°-10°	2°-10°		2° – 7° 2° – 7°		2° – 7° 2° – 7°
Upper SLL (20° > mainbeam)[1]	-15dB	-15.5dB	-16dB	-16dB	-15dB	-16dB
Front to Back Ratio(180°±10°)[1]	≥26dB	≥30dB	≥27dB	≥28dB	≥28dB	≥27dB
Port to Port isolation[1]	≥28dB	≥30dB	≥28dB	≥30dB	≥30dB	≥30dB
Return loss (VSWR)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB(1.5)	14dB (1.5)	14dB(1.5)
Squint[1]	<±3°	<±3°	<±3°	<±3°	<±4°	<±3°
Tracking[1]	<±2.5dB	<±3dB	<±3dB	<±3dB	<±3dB	<±4dB
X Polar Discrimination (at 0°)	>18dB	>17dB	>20dB	>20dB	>18dB	>20dB
Max Power handling (per any port)	500 watts	500 watts		250 watts		250 watts
Total Composite Power (all ports)				1750 watts		
PIM (3rd Order) (2x43dBm)	>150dBc	>150dBc		>150dBc		>150dBc
XBand PIM (3rd Order) (2x43dBm)				>157dBc		

[1] *Typical Performance across frequency and Downtilt.*



Mechanical Characteristics	
Dimensions	L 72"(1828mm) x W 12"(304mm) x D 9.6"(245mm)
Weight (excl mounting brackets)	112lbs (50.8kg)
No. of Connectors	12x 4.3-10.0 DIN Female Long Neck
Max Wind Speed	150mph (67m/s)
Equivalent Flat Plate Area	2.96ft² (0.275m²)
Wind Load @160km/h (45m/s)	Front: 587N (132 lbs), Side: 382N (86 lbs)
Operating Temperature	-40°C to +65°C

Fully Integrated RET Characteristics	
AISG Standards	V1.1,V 2.0 and 3GPP
Factory Default	AISG 2.0
Surge immunity	IEC 61000-4-5:2005 4KV(AISG PIN)
Device Type	SRET Type 1
AISG Data rate	9.6 kbps
RET Configuration	RET1 I/O RF Ports 1-4. RET 2 I/O RF Ports 5-12
No of connectors	RET1 1in/1out. RET2 1in/1out
Connector type	IEC 60130-9 (Ed 3.0)
MTBF	36,000 Operational moves

All specifications are subject to change without notice. Please contact your Quintel representative for complete information.

TMA2117F00V1-1

PCS / WCS Dual Band Twin TMA, with 700/850 bypass, AISG2.0

Designed to be deployed in co-located PCS & WCS systems with wideband antennas, the Kaelus TMA provides internal diplexing and gain in both bands while allowing 700/850 services to pass through to a separate antenna, thereby saving hardware costs.

PRODUCT FEATURES

- Improved base station sensitivity through gain in PCS and WCS bands
- Hardware and software configuration using AISG "Personality" upload
- High Linearity and low noise performance; Bypass provided for 700/850MHz services
- Fail safe bypass mode with lightning protection

TECHNICAL SPECIFICATIONS

Downlink Path, Band 1	PCS
Passband	1930 - 1990
Insertion Loss	0.5dB typ
Return Loss	18dB min
Max Average input power (W)	160
Max PEP Input Power (W)	2000
Intermodulation, 2 x 43dBm TX carriers (dBc)	-153dBc max
Uplink Path, Band 1	
Passband	1850 - 1910
Gain (dB)	3dB to 13dB in 1dB steps
Gain window	+/- 1dB max
Return Loss (Operating)	18dB min
Return Loss (Bypass)	12dB min
Noise Figure	1.4dB typ
Bypass Loss	2.5dB typ

Supply Current, alarm mode	320 +/- 30mA per port (programmable)

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)

AISG Version	2
AISG Supply Current	400mA @ 8.5V, 120mA @ 30V typical
AISG Connector	IEC60130-9, 8-pin female
AISG Connector Current rating	< 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

ENVIRONMENTAL

Temperature range	-40ºC to +65ºC | -40º to +149ºF
Environmental sealing	IP67
Lightning protection	RF port: +/- 5kA max (8/20us), AISG port: +/- 2kA max (8/20us) IEC61312-1
MTBF	>1,000,000 hours
Compliance	EMC:EN301 489, Ingress ETSI EN 300 019 class 4.1, RoHS

MECHANICAL

Connectors	DIN 4.3-10 (F) x 8 long shank, AISG (F) x 1
Dimensions, H x D x W	216 x 300 x 107mm | 8.46 x 11.81 x 4.21in
Finish	Powder coated, light grey (RAL7035)
Weight	8 kg | 17.6lbs est
Mounting	Pole / wall bracket supplied with two metal clamps for 45-178 mm diameter poles

ELECTRICAL BLOCK DIAGRAM

WIRELESS COMMUNICATIONS FACILITY
CT2343 - LTE 3C
EVERSOURCE STRUCTURE NO. 24063
ORANGE OVERLAND DRIVE
525 OVERLAND DRIVE
ORANGE, CT 06477

PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   - A. REMOVE AND REPLACE EXISTING POSITION 3 ANTENNA WITH NEW (12) PORT ANTENNA AND INSTALL ON POSITION 2.
   - B. REMOVE (3) EXISTING CCI TMA'S FROM POSITION 3 ANTENNA & ADD (6) NEW KAELUS TMA'S MOUNTED BEHIND ANTENNA POSITION 2.
   - C. INSTALL (3) NEW ERICSSON RRUS-32 MOUNTED ON NEW EXTERIOR EQUIPMENT FRAME.
   - D. INSTALL (6) 1 5/8" COAX TO FOLLOW EXISTING

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
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 BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. 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.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. 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.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. 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 PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. 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

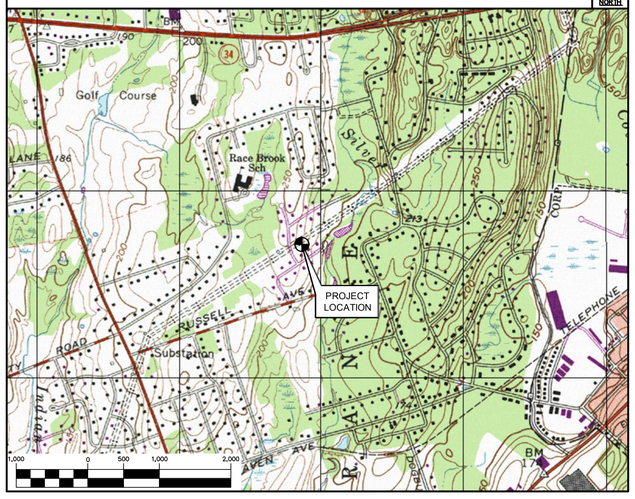
FROM: 500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

TO: 525 OVERLAND DRIVE
ORANGE, CT

1.	TURN LEFT ONTO CAPITOL BLVD	0.3 mi
2.	TURN LEFT ONTO WEST STREET	0.3 mi
3.	TAKE RAMP LEFT FOR I-91 S	9.6 mi
4.	AT EXIT 17, TAKE RAMP RIGHT FOR CT-15 SOUTH TOWARD NEW HAVEN	22.1 mi
5.	AT EXIT 57, TAKE RAMP RIGHT FOR CT-34 EAST TOWARD ORANGE	1.2 mi
6.	TURN RIGHT ONTO RACEBROOK RD	1.1 mi
7.	TURN LEFT ONTO RUSSELL AVE	0.5 mi
8.	TAKE 1ST LEFT ONTO NEW ENGLAND LN	0.2 mi
9.	TAKE 1ST LEFT ONTO OVERLAND DR	0.1 mi
10.	END AT 525 OVERLAND DRIVE (ON RIGHT)	0.0 mi

VICINITY MAP

SCALE: 1" = 1000'



PROJECT INFORMATION

AT&T SITE NUMBER:	CT2343
AT&T SITE NAME:	ORANGE OVERLAND DRIVE
SITE ADDRESS:	EVERSOURCE STRUCTURE NO. 24063 525 OVERLAND DRIVE ORANGE, CT 06477
PROPERTY OWNER:	THOMAS J. FRANCES CASTIELLO 525 OVERLAND DRIVE ORANGE, CT
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
CONTACT PERSON:	TIM BURKS SAI COMMUNICATIONS (860) 989-0001
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-17'-21.73" N LONGITUDE: 73°-00'-3.89" W GROUND ELEVATION: ±242.3' AMSL (THE ABOVE COORDINATES AND GROUND ELEVATION ALONG WITH ELEVATIONS SHOWN HEREIN ARE REFERENCED FROM FAA 1-A SURVEY CERTIFICATION AS PREPARED BY MARTINEZ COUCH AND ASSOCIATES, LLC. DATED FEBRUARY 8, 2012)

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
N-1	NOTES AND SPECIFICATIONS	0
C-1	PLANS, ELEVATION AND DETAILS	1
C-2	LTE 3C EQUIPMENT DETAILS AND ELEVATIONS	1
E-1	LTE SCHEMATIC DIAGRAM AND NOTES	0
E-2	LTE WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	03/10/16	WMW	CAG	CONSTRUCTION DRAWINGS - REV. PER CLIENT'S COMMENTS
0	02/03/16	KAW	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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DATE: 01/21/16
SCALE: AS NOTED
JOB NO. 15267.006

TITLE SHEET

T-1

NOTES AND SPECIFICATIONS

DESIGN BASIS

1. GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.

2. TIA/EIA-222-F-1996, ASCE MANUAL NO. 72 – "DESIGN OF STEEL TRANSMISSION POLE STRUCTURES SECOND EDITION", NESC C2-2012 AND NORTHEAST UTILITIES DESIGN CRITERIA.

3. DESIGN CRITERIA

   WIND LOAD: (PCS MAST)
   BASIC WIND SPEED (V) =85 MPH (FASTEST MILE); BASED ON TIA/EIA-222F AND NU MAST DESIGN CRITERIA EXCEPTION 1.

   WIND LOAD: (UTILITY POLE & FOUNDATION)
   BASIC WIND SPEED (V) =110 MPH (3-SECOND GUST) BASED ON NESC 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 NORTHEAST UTILITIES

10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.

11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.

12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.

13. NO DRILLING WELDING OR TAPING ON CL&P OWNED EQUIPMENT.

14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.

3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.

4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.

5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.

6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.

7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.

8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.

9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".

10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.

12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.

13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.

14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.

15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

16. FABRICATE BEAMS WITH MILL CAMBER UP.

17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.

18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.

20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:

   A. SHERWIN WILLIAMS POLANE-B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.

2. COAXIAL CABLES:

   A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.

2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.

3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.

4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.

5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.

6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.

7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.

8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.

9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.

10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).

11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.

3. APPLY EACH COAT TO UNIFORM FINISH.

4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.

5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.

6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.

7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.

2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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0	02/03/16	KAW	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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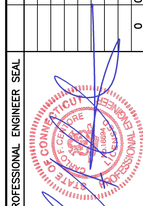

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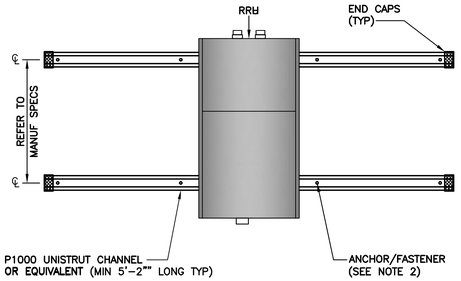
NOTES AND SPECIFICATIONS

N-1

Sheet No. 2 of 7



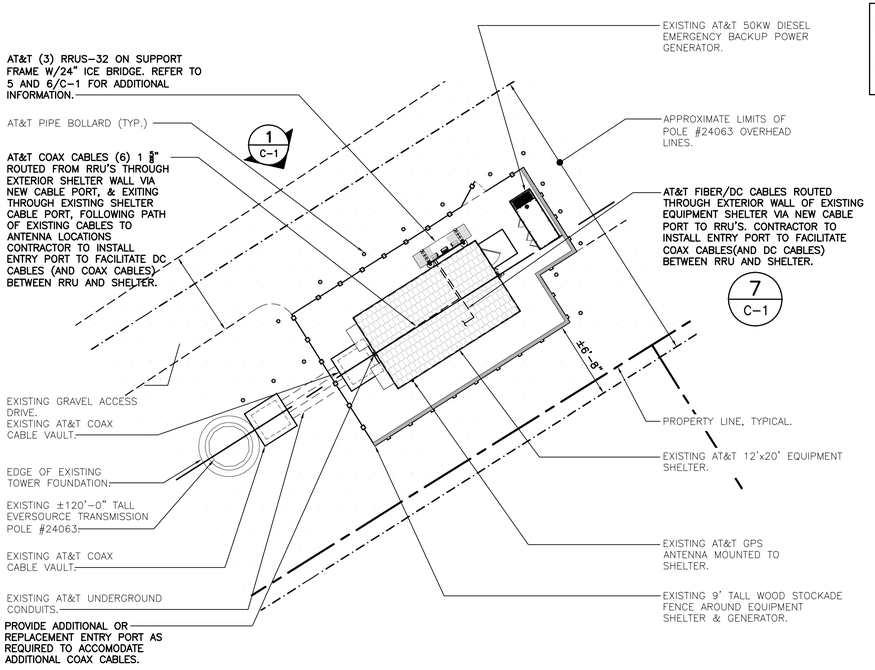
ELEVATION

NOTES:

1. INSTALL ANCHORS/FASTENERS TO EXISTING POSTS USING ½"ø U-BOLTS.
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.

3 C-1 TYPICAL RRU MOUNTING DETAILS

SCALE: 1 1/2" = 1'-0"



2 C-1 PROPOSED EQUIPMENT PLAN

SCALE: 1" = 10'

APPROX. NORTH

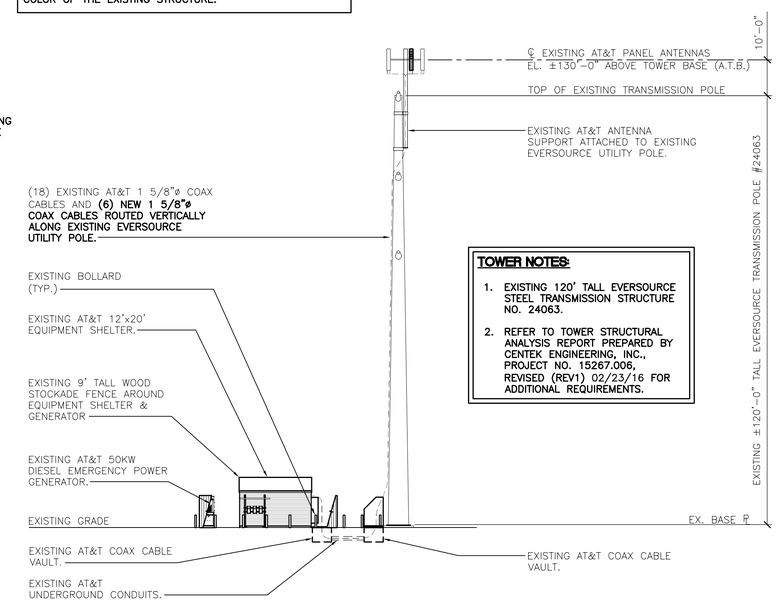
GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

PAINT TO MATCH NOTE:

THE PROPOSED ANTENNAS, COAXIAL CABLES, MAST ASSEMBLY AND ALL OTHER PROPOSED COMPONENTS EXPOSED ON THE EXISTING UTILITY STRUCTURE TO BE PAINTED TO MATCH THE COLOR OF THE EXISTING STRUCTURE.



TOWER NOTES:

1. EXISTING 120' TALL EVERSOURCE STEEL TRANSMISSION STRUCTURE NO. 24063.
2. REFER TO TOWER STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJECT NO. 15267.006, REVISED (REV1) 02/23/16 FOR ADDITIONAL REQUIREMENTS.

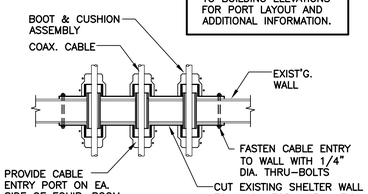
1 C-1 NORTHWEST ELEVATION

SCALE: 1" = 20'

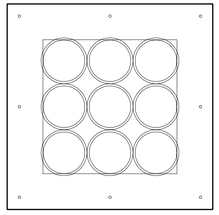
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



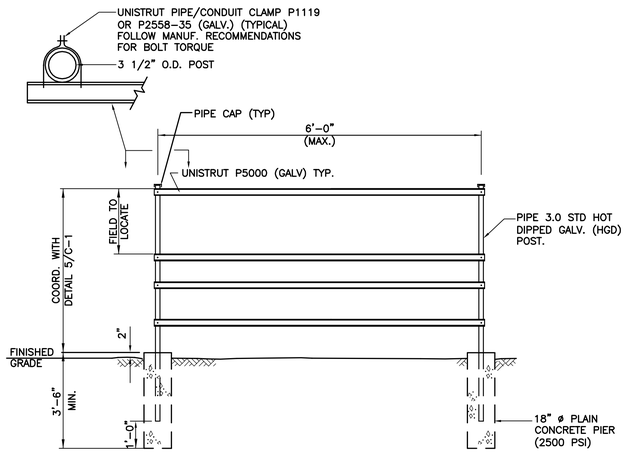
SECTION



FRONT VIEW

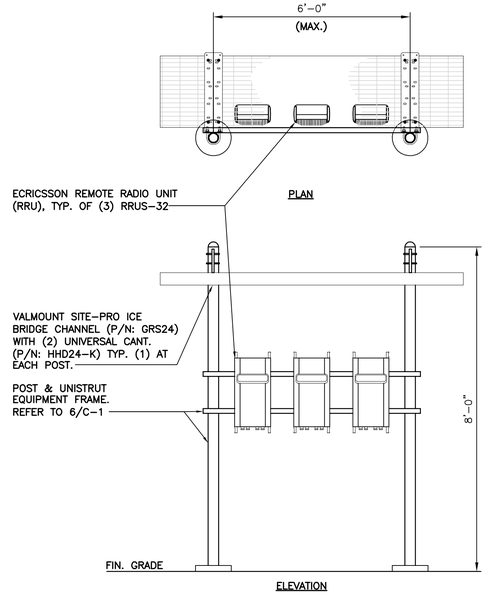
7 C-1 TYPICAL WAVEGUIDE ENTRYPORT DETAIL

SCALE: 1 1/2" = 1'-0"



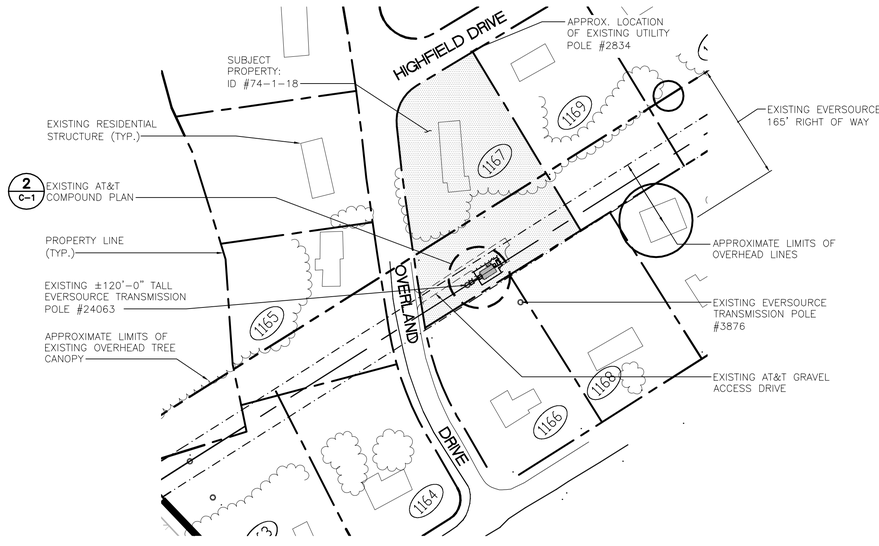
6 C-1 UTILITY SUPPORT FRAME (TYP.)

SCALE: NTS



5 C-1 RRU MOUNTING CONFIGURATION

SCALE: 1/2" = 1'-0"



4 C-1 SITE LOCATION PLAN

SCALE: 1" = 100'

APPROX. NORTH

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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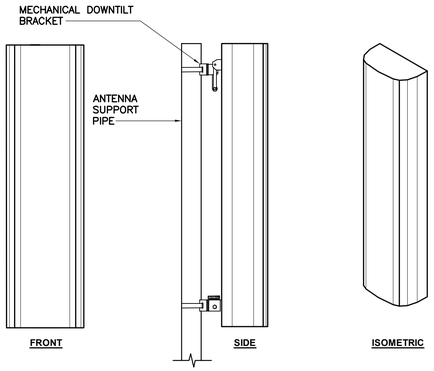
PLANS, ELEVATION AND DETAILS

C-1

Sheet No. 3 of 7



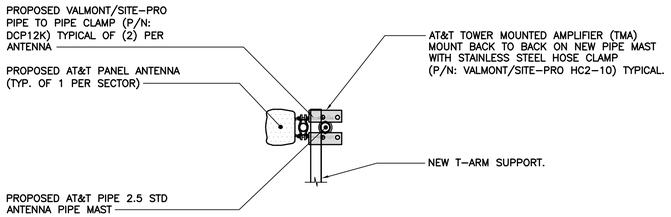
BOTTOM

ALPHA/BETA/GAMMA ANTENNA			
EQUIPMENT		DIMENSIONS	WEIGHT
MAKE: MODEL:	QUINTEL QS66512-3	72"H x 12"W x 9.6"D	112-LBS

5 C-2 PROPOSED ANTENNA DETAIL

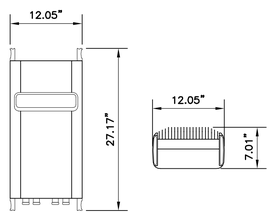
SCALE: NTS

NOTES:
1. INSTALL ANTENNA TO EXISTING PIPE MAST USING MANUFACTURERS SUPPLIED BRACKETS AND MOUNTING HARDWARE
2. SET MECHANICAL DOWNTILT TO VALUE SPECIFIED IN LATEST RFDS



6 C-2 PROPOSED TMA MOUNTING PLAN

1/2" = 1'-0"

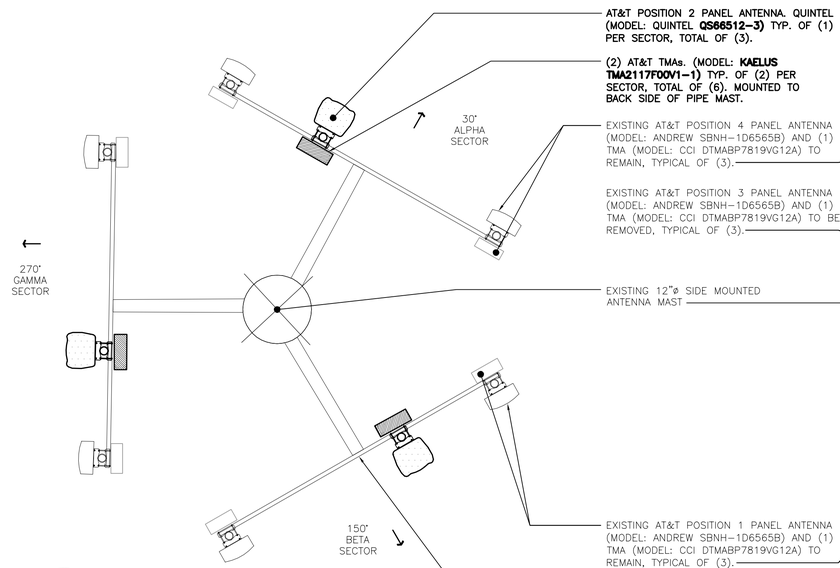


RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 32	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

7 C-2 ERICSSON RRUS 32 DETAIL

SCALE: 1" = 1'-0"



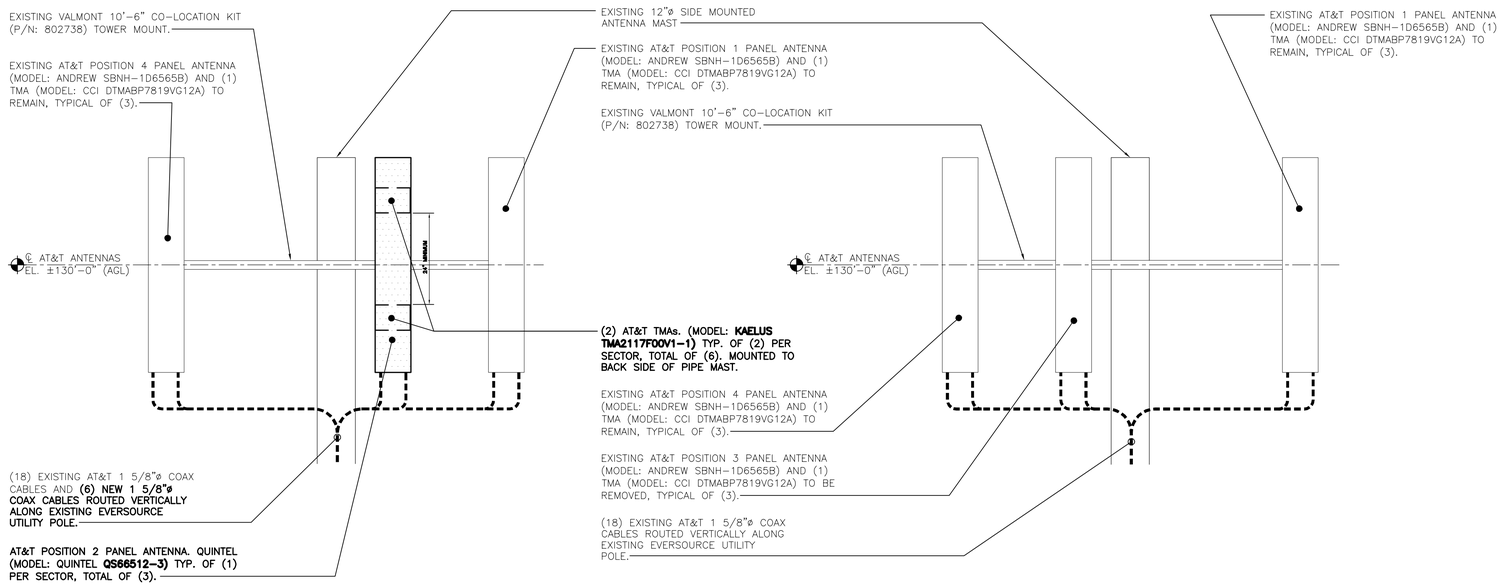
2 C-2 PROPOSED ANTENNA PLAN

SCALE: 1/2" = 1'-0"

1 C-2 EXISTING ANTENNA PLAN

SCALE: 1/2" = 1'-0"

NOTES:
1. PROVIDE MOUNTING PIPES, CROSSOVERS & ASSOCIATED HARDWARE TO COMPLETE THE PROPOSED UPGRADE.
2. REFER TO CENTEK ENGINEERING, INC. STRUCTURAL REPORT AND FINAL AT&T RF DATA SHEET PRIOR TO INSTALLATION OF TOWER MOUNTED LTE RELATED ANTENNAS, CABLES AND RELATED EQUIPMENT



4 C-2 PROPOSED ANTENNA PLAN

SCALE: 1/2" = 1'-0"

3 C-2 EXISTING ANTENNA PLAN

SCALE: 1/4" = 1'-0"

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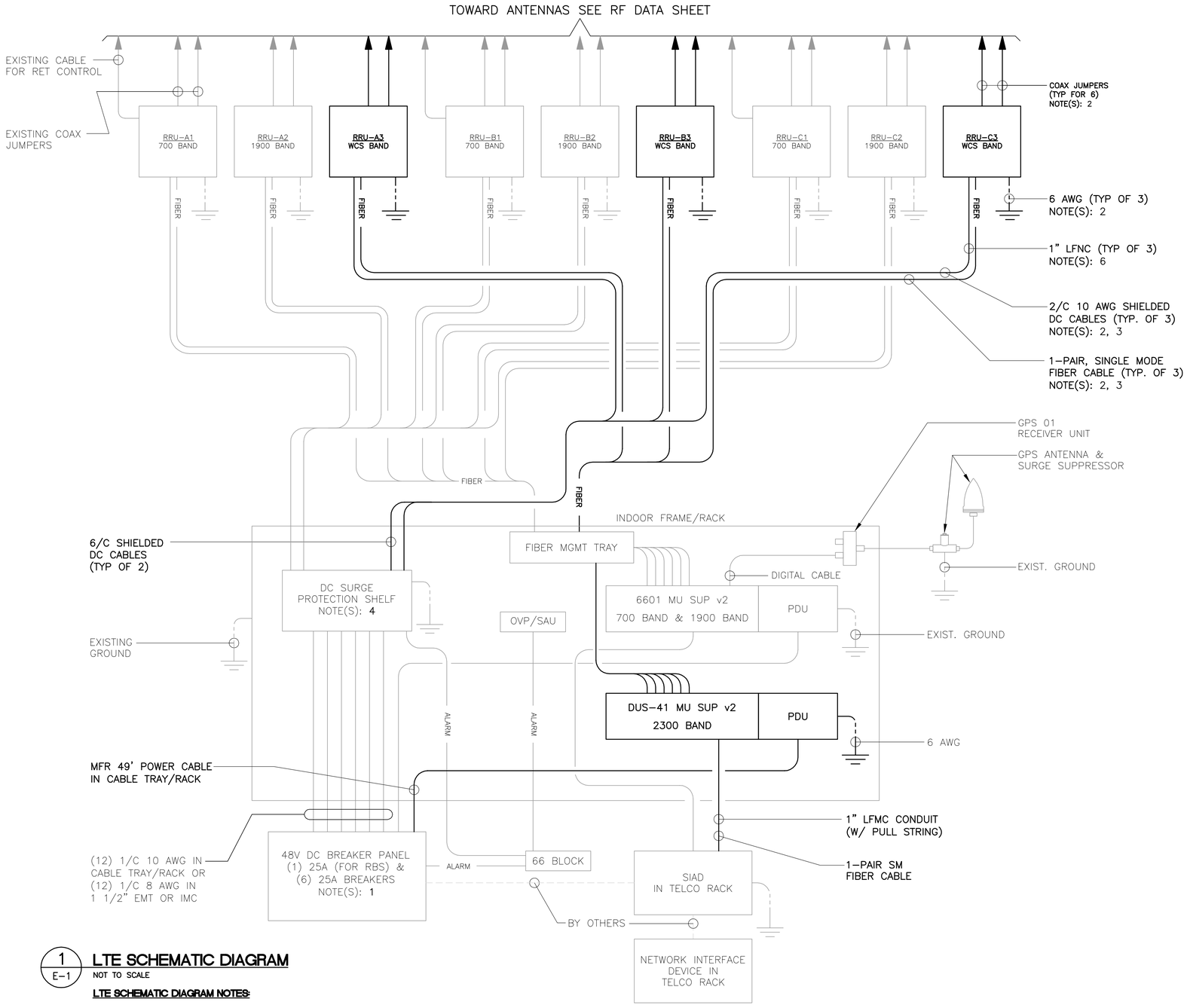
LTE 3C EQUIPMENT DETAILS AND ELEVATIONS

C-2

Sheet No. 4 of 7



1 / E-1

LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-8F. SEE DETAIL 1410 OR 1410B FOR INTERNAL WIRING DIAGRAM.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6AWG UNLESS NOTED OTHERWISE.

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

   TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

   THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

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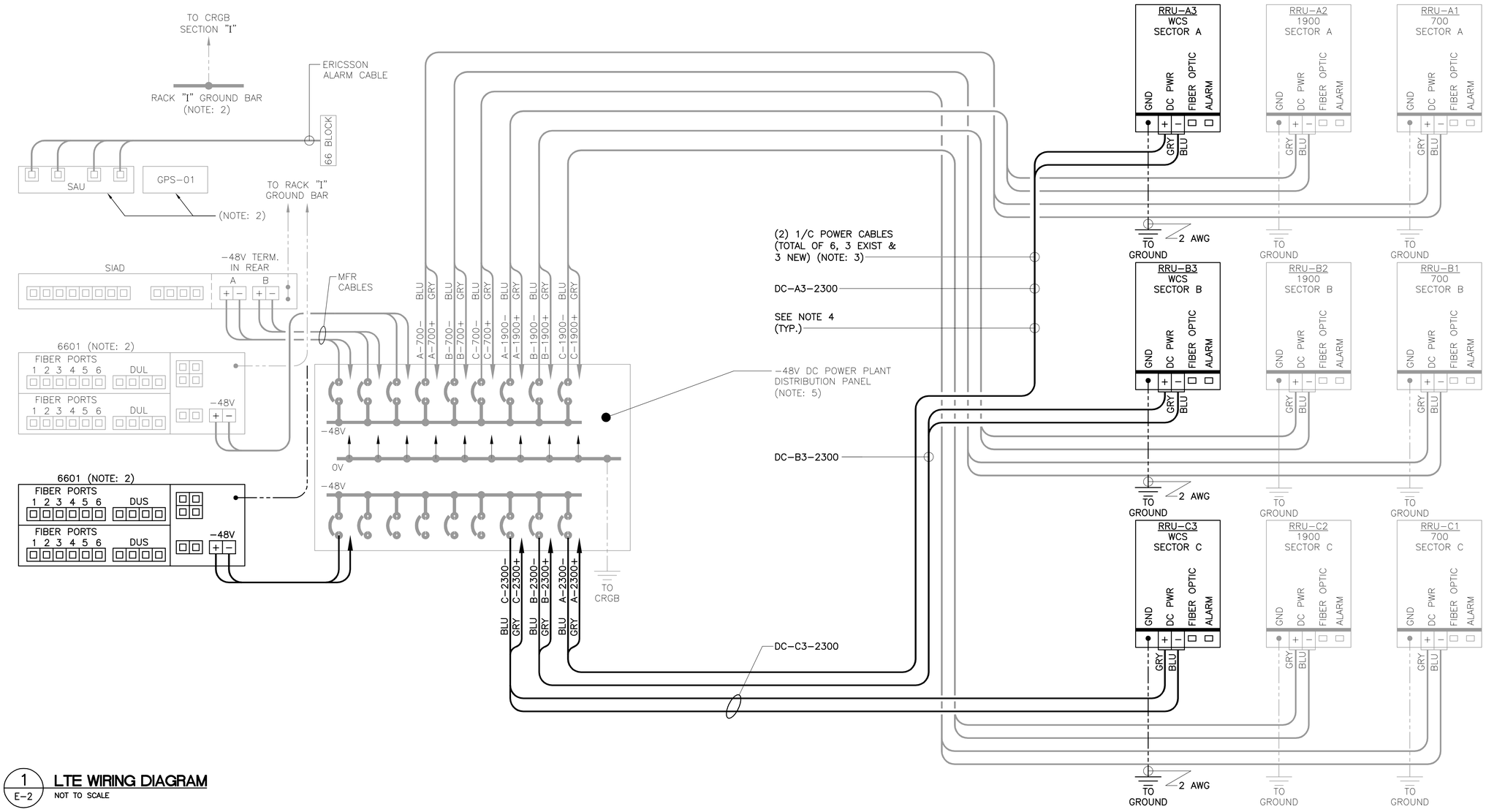
JOB NO. 15267.006

LTE SCHEMATIC DIAGRAM AND NOTES

E-1

Sheet No. 5 of 7



1 / E-2 LTE WIRING DIAGRAM

NOT TO SCALE

LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-2300+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. MAXIMUM CABLE LENGTH IS 49 FEET WITHOUT SURGE PROTECTION AT RRU. INCREASE CONDUCTOR SIZE TO 10 OR 8 AWG WHERE BREAKER RATING IS GREATER THAN 20A.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

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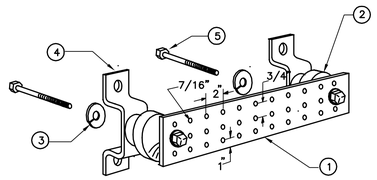
LTE WIRING DIAGRAM

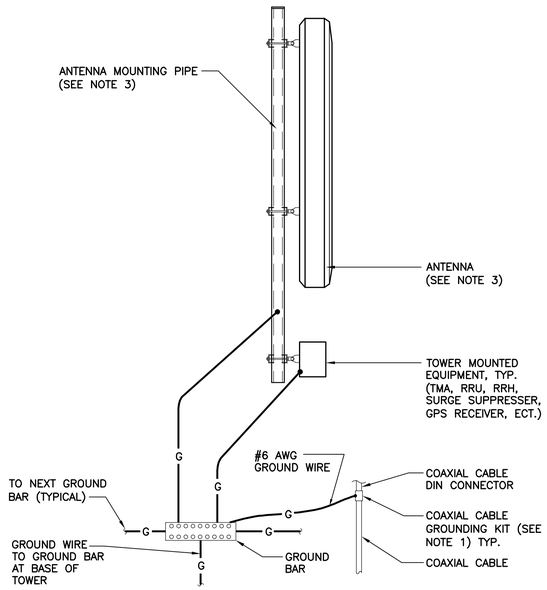
E-2



LEGEND

1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061–4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015–8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. 4. CAT NO. A–6056.
5. STAINLESS STEEL SECURITY SCREWS.

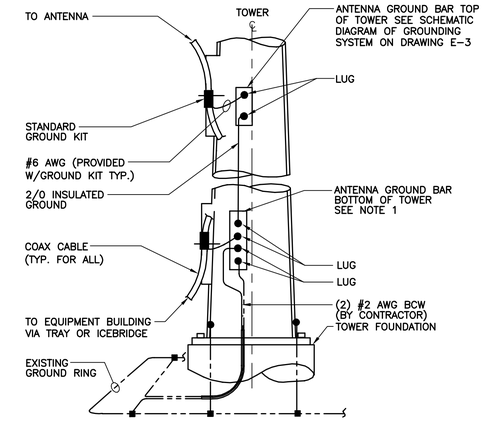
3 E-3 **GROUND BAR DETAIL**
NOT TO SCALE



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

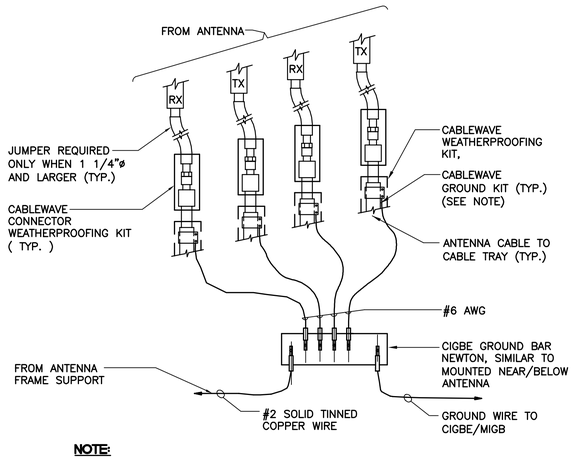
2 E-3 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

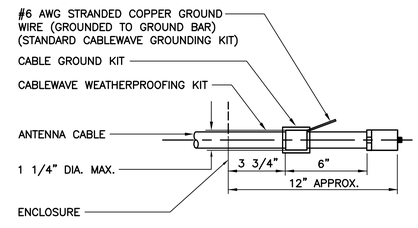
1 E-3 **ANTENNA CABLE GROUNDING - TOWER**
NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

5 E-3 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

4 E-3 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 7 of 7