



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

April 16, 2020

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

**RE: Notice of Exempt Modification for T-Mobile:
825983 - T-Mobile Site ID: CT11057C
90 Industrial Park Rd., Middletown, CT 06457
Latitude: 41° 35' 8.30"/ Longitude: -72° 42' 50.49"**

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) total antennas at the 185-foot mount on the existing 185-foot Monopole Tower, located at 90 Industrial Park Rd. Middletown, CT. The tower is owned by Crown Castle. The property is owned by 90 Industrial Park Road LLC. T-Mobile now intends to replace six (6) existing antennas with three (3) new 600/700 MHz antennas and three (3) new 1900/2100 MHz antennas. All antennas to be installed at the 185-foot mount.

The tower was approved by the City of Middletown, CT on January 28, 1998 with no conditions. The City approval documents are included.

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.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mayor Ben Florsheim, City of Middletown, Chief Building Official, Mr. Dean Lisitano, City of Middletown, as well as the property owner, and Crown Castle is the tower owner.

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

Melanie A. Bachman

Page 2

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
201-236-9224
annemarie.zsamba@crowncastle.com

Attachments

cc:

City Mayor Ben Florsheim (*via email to mayor@MiddletownCT.gov*)
City of Middletown
245 DeKoven Drive
Middletown, CT 06457
860-638-4801

Chief Building Official Mr. Dean Lisitano (*via email to dean.lisitano@MiddletownCT.gov*)
City of Middletown
245 DeKoven Drive
Middletown, CT 06457
860-638-4870

90 Industrial Park Road LLC (*via Fedex delivery*)
90 Industrial Park Road
Middletown, CT 06457

Crown Castle, Tower Owner

From: [Zsamba, Anne Marie](#)
To: dean.lisitano@MiddletownCT.gov
Subject: T-Mobile Exempt Modification Notice - 90 Industrial Park Road
Date: Thursday, April 16, 2020 10:54:00 AM
Attachments: [EM-T-MOBILE 90 Industrial Park Road Middletown 825983 CT11057C 2.pdf](#)

Good morning Mr. Lisitano:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today April 16, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Network Real Estate Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

From: [Zsamba, Anne Marie](#)
To: mayor@MiddletownCT.gov
Subject: T-Mobile Exempt Modification Notice - 90 Industrial Park Road
Date: Thursday, April 16, 2020 10:54:00 AM
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CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

ORIGIN ID: SCHA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE
GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 16APR20
ACTWGT: 2.00 LB
CAD: 104924194/IN/ET4220

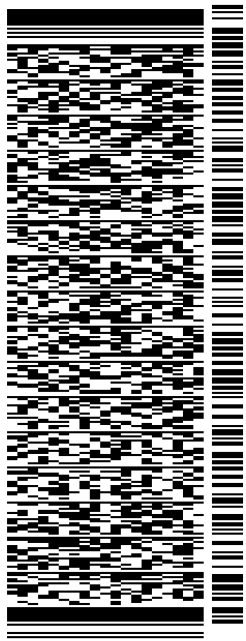
BILL SENDER

TO 90 INDUSTRIAL PARK ROAD LLC

90 INDUSTRIAL PARK ROAD

MIDDLETOWN CT 06457

(201) 236-9224 REF: 1734.7890
INV: DEPT:
PO:

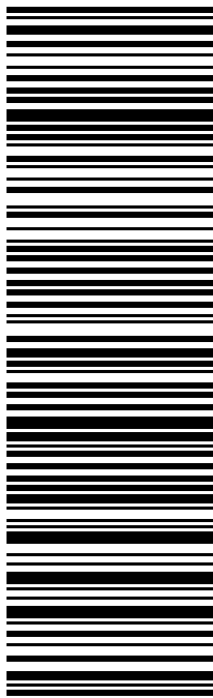


J201020011301uv

56BJ47B3AFE4A

TRK# 7702 5192 8282 FRI - 17 APR 3:00P
0201 STANDARD OVERNIGHT

EB BDLA 06457
CT-US BDL



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Exhibit A

Original Facility Approval

LEGAL NOTICE

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

1. Denied without prejudice a request for release of the cash bond for Wesleyan Hills PRD, Red Area Section III. Applicant/agent Larsen, St. John & Johnson, P.C./Atty. Frank St. John PRD
2. Denied without prejudice a request for release of the cash bond for Longhill Meadows Subdivision located off South Main Street. Applicant/agent Krasow, Garlick & Hadley, LLC/Atty. Herbert A. Krasow S87-32
3. Denied without prejudice a request for release of the cash bond for Richards Brook Subdivision, Lots #2 and #3, located on Kenneth Dooley Drive. Applicant/agent Tyler Cooper & Alcorn, LLP/Atty. Barry M. Winnick S89-6
4. Granted Final Approval of a portion of Pond Place in Section 3 of The Meadows at Riverbend Subdivision located off East Street with the condition that all departmental comments be addressed and that a cash bond in the amount of \$45,000 be posted. Applicant/agent Tuttle Road Associates/Robert C. Fusari, President S93-3
5. Granted a one (1) year extension of the Special Exception approval for the Connecticut Beverage Mart Plaza located at 955 Washington Street. Applicant/agent 3127 Berlin Turnpike Associates/Brigham S. Metcalfe SE95-6
6. Denied without prejudice a proposed Zoning Code text amendment to modify Section 42 Protection of Water Sources. Applicant/agent City of Middletown Water and Sewer Department/Guy P. Russo, Director Z97-7
7. Granted a Special Exception for construction of a 185 foot monopole and installation of associated antennae and equipment for up to three (3) wireless communication providers at the Dainty Rubbish facility at 90 Industrial Park Road with the condition that all staff comments and conditions be addressed and adhered to. Applicant/agent Omnipoint Communications, Inc./Thomas M. Gilligan SE97-18
8. Granted a Special Exception to convert a former insurance business to a new use as a home for the aged and a rest home at 26 Silver Street with the following conditions: 1) there be no nurse on the premises; 2) no residents are to be older than fifty-five (55) years of age; 3) all residents are to administer their own medication; and 4) any modification to the structure are to be approved by the Design Preservation Board. Applicant/agent Deonarine and Neeta Dhanraj/Atty. Owen P. Eagan SE97-19

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

W. Lee Osborne, Chairman
 Planning and Zoning Commission

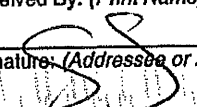
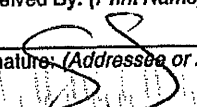
P. O. No. 061920, Account No. 067419

The above legal notice to appear in the Hartford Courant ONCE

Thursday, February 5, 1998

THE MUNICIPAL BUILDING IS WHEELCHAIR ACCESSIBLE

P 348 778 241
 US Postal Service

Is your RETURN ADDRESS completed on the reverse side?	SENDER: ■ Complete items 1 and/or 2 for additional services. ■ Complete items 3, 4a, and 4b. ■ Print your name and address on the reverse of this form so that we can return this card to you. ■ Attach this form to the front of the mailpiece, or on the back if space does not permit. ■ Write "Return Receipt Requested" on the mailpiece below the article number. ■ The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.	
	3. Article Addressed to: OmniPoint Communications, Inc. 25 Van Zant St. 4th floor Norwalk, CT 06855		4a. Article Number P348 778 241	
	5. Received By: (Print Name) 		4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD	
	6. Signature: (Addressee or Agent) <input checked="" type="checkbox"/> 		7. Date of Delivery 2/5/98	
		8. Addressee's Address (Only if requested and fee is paid)		

Thank you for using Return Receipt Service.

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

GENERAL INFORMATION ABOUT THE PEOPLE INVOLVED Date 11-6-97
Applicant: OMNIPONT COMMUNICATIONS, INC. Phone# (203) 359-1280
Address: 1515 SUMMER ST City STAMFORD State CT Zip 06905
Agent: THOMAS M. GILLIGAN Phone# (203) 359-1280
Address: 1515 SUMMER ST City STAMFORD State CT Zip 06905

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

- Add an addition to a single/two family dwelling to be used for
- Construct a single family dwelling (A-2 survey required)
- Add an addition to a multi-family or non-residential building to be used for (A-2 survey required)
- Convert an existing building from present use as _____ to a new use as _____
- Construct one or more new buildings to be used for (A-2 survey required)
- Subdivide land into building lots (A-2 survey required)
- Change the text of the Zoning Code or amend the Zoning Map
- Install a sign
- Start a Residential Unit Business Pursuit
- Application for Zoning Board of Appeals
- Extract Natural Resources like sand or gravel or fill an area
- Other WIRELESS COMMUNICATIONS MIDDLETOWN, ASSOCIATED ANTENNAE AND EQUIPMENT DESIGNED FOR UP TO THREE CARRIERS

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

FACTS ABOUT LAND PROPOSED FOR USE

Landowner: PHILIP ARMETTA Location: 90 INDUSTRIAL PARK ROAD
Zone IT Lot Area 2,54A Tax Assessor's Map 6 Block 22 Lot 6B1
Is this project within 500' of a Municipal Boundary? Yes _____ No
Is this project located in a FEMA 100 or 500 year flood plain? Yes _____ No
Utilities Available: City Water ; Private Well (); City Sewer ; Private Septic ()

[Signature]
SIGNATURE OF I.W.A. STAFF

DATE APPLIED _____
 PERMIT REQUIRED
 PERMIT NOT REQUIRED
 IWA REVIEW REQUIRED

Meets Zoning Requirements

Wayne J. Bell
ZONING ENFORCEMENT OFFICER
MARCH 6, 1998
DATE
9/17/97
DATE OF APPROVED PLANS

[Signature]
SIGNATURE OF APPLICANT/AGENT**
Philip C. Armetta
SIGNATURE OF OWNER**

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

pd \$110.00
ck # 1846
11/7/97

INITIAL APPLICATION FOR LAND-USE IN MIDDLETOWN, CT

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

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

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

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

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

SPECIAL EXCEPTION FORM
 MIDDLETOWN, CONNECTICUT
 PLANNING & ZONING COMMISSION

A. GENERAL INFORMATION ABOUT APPLICANT (Please type or print clearly)
 Name OMNIBUS COMMUNICATIONS, INC Date 11-6-97
 Address 1515 SUMNER STREET Phone 203-359-1280
 Agent THOMAS W. GILLMAN Phone 203-359-1280

B. DESCRIPTION OF PREMISES
 Owner of Record PHILIP ARMETTA
 Location 90 INDUSTRIAL PARK ROAD
 Deed Filed in Town Clerk's Office on _____
 Map File# _____ Vol. & Page# 505 ; 134
 Zone FT Current Use OFFICE & BULKY WASTE TRANSFER STA.
 Relevant Zoning Code Provision SECTION 61

NOTE: A legal description of the premises to be affected by the Special Exception must be attached to this form.

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

[Signature]
 Signature of Applicant or Agent
[Signature]
 Signature of Owner
 *Both Signatures Required

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

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

Staff Comments _____

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

E. MATERIAL FILED IN TOWN CLERK'S OFFICE
 This Form Site Plan
 Other Legal description ; Date 2/6/98

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

Exhibit B

Property Card

90 INDUSTRIAL PARK RD

Location 90 INDUSTRIAL PARK RD

Map-Lot 06/ / 0018/ /

Acct# R00347

Owner 90 INDUSTRIAL PARK ROAD
LLC

Municipality

Assessment \$1,324,110

Appraisal \$1,891,590

PID 396

Building Count 1

Assessing Distr...

Current Value

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

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

Parcel Addresses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner 90 INDUSTRIAL PARK ROAD LLC

Sale Price \$0

Co-Owner

Certificate

Address 90 INDUSTRIAL PARK RD
MIDDLETOWN, CT 06457

Book & Page 1843/0205

Sale Date 06/11/2015

Instrument 29

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
90 INDUSTRIAL PARK ROAD LLC	\$0		1843/0205	29	06/11/2015
ARMETTA PHILIP C	\$0		0505/0134	29	02/22/1978

Building Information

Building 1 : Section 1

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

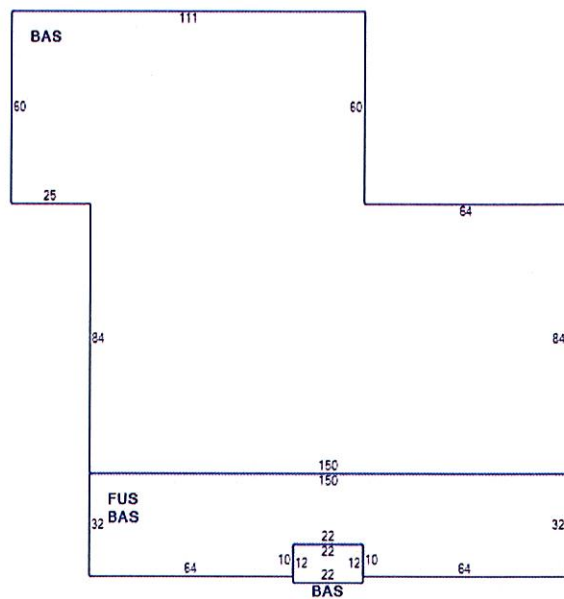
Building Attributes	
Field	Description
STYLE	Office/Warehs
MODEL	Industrial
Grade	C
Stories	1
Occupancy	2.00
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	Concrete
Roof Structure	Flat
Roof Cover	Tar and Gravel
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Air
AC Type	Partial
Struct Class	
Bldg Use	Industrial
Usrflid 215	
Usrflid 216	
Cov Parking	0
Uncov Parking	0
Percent Fin	100
1st Floor Use	
Heat/AC	Heat/AC Pkg
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Walls	Typical
Rooms/Prtns	Average
Wall Height	25.00
Usrflid 214	

Building Photo



(<http://images.vgsi.com/photos/MiddletownCTPhotos//\00\02\11>)

Building Layout



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

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

Extra Features

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

Land

Land Use

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

Land Line Valuation

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

Outbuildings

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

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$1,255,960	\$635,630	\$1,891,590
2017	\$1,255,960	\$635,630	\$1,891,590
2016	\$1,223,350	\$575,630	\$1,798,980

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$879,170	\$444,940	\$1,324,110
2017	\$879,170	\$444,940	\$1,324,110
2016	\$856,350	\$402,940	\$1,259,290

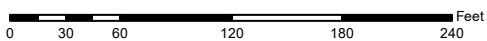
(c) 2019 Vision Government Solutions, Inc. All rights reserved.



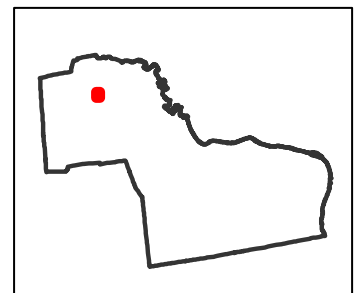
City of Middletown, Connecticut

Map generated 7/15/2019

Map Legend: <http://gis.cityofmiddletown.com/middletownct/legend.pdf>
 Property Card: <http://gis.vgsi.com/MiddletownCT/Parcel.aspx?pid=396>



1 in = 104 ft



MAP FOR REFERENCE ONLY - NOT A LEGAL DOCUMENT

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

Exhibit C

Construction Drawings



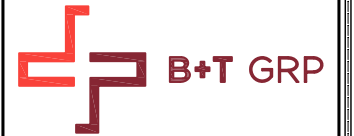
T-MOBILE SITE NAME:
MIDDLETOWN_1

T-MOBILE SITE NUMBER:
CT11057C

CROWN BU: 825983 / APP#: 479802
67D94DB HYBRID CONFIGURATION

90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457

EXISTING 185'-0" MONOPOLE



CT11057C
BU #: 825983
MIDDLETOWN_1
90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457
EXISTING 185'-0" MONOPOLE

PROJECT NO: 136918.001.01
CHECKED BY: FWP

ISSUED FOR:			
REV	DATE	DRWN	DESCRIPTION
0	07/22/19	JDP	CONSTRUCTION
1	9/24/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20



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

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

PROJECT SUMMARY

SITE TYPE: EXISTING EQUIPMENT UPGRADE
SITE ADDRESS: 90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457
JURISDICTION: MIDDLESEX COUNTY

NAD83
LATITUDE: 41.585590° N
LONGITUDE: 72.713852° W

TOWER OWNER: CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406
JASON SMITH
(610) 635-3225

CUSTOMER/APPLICANT: T-MOBILE
4 SYLVAN WAY
PARSIPPANY, NJ 07054
(973) 397-4800

OCCUPANCY TYPE: UNMANNED
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	1
A-1	OVERALL SITE PLAN	1
A-2	ANTENNA/CABLE SCHEDULE AND AZIMUTH PLANS	1
A-3	TOWER ELEVATION	1
A-4	ANTENNA AND RRU DETAILS	1
A-4.1	MOUNT MOD DETAILS	1
E-1	PANEL SCHEDULE AND ONE-LINE DIAGRAM	1

CONTACT INFORMATION

A&E FIRM: B+T GROUP
1717 S. BOULDER, STE. 300
TULSA, OK 74119
CONTACT: MIKE OAKES
PHONE: (918) 587-4630

ELECTRIC PROVIDER: N/A
TELCO PROVIDER: N/A

DRIVING DIRECTIONS

DEPART BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD, ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR, ROAD NAME CHANGES TO CT-20, TAKE RAMP ONTO I-91, AT EXIT 21, TURN RIGHT ONTO RAMP, BEAR RIGHT ONTO INDUSTRIAL PARK RD, TURN LEFT ONTO PARKING LOT, ARRIVE AT MIDDLETOWN_1.

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
T-MOBILE PROP:		
T-MOBILE R.F. MGR.:		
T-MOBILE NetOps:		
T-MOBILE CONST. MGR.:		
INTERCONNECT:		
T-MOBILE SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		

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

CODE COMPLIANCE

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

CODE TYPE	CODE
BUILDING/DWELLING	2018 BUILDING CODE OF CONNECTICUT
STRUCTURAL	2018 BUILDING CODE OF CONNECTICUT
MECHANICAL	2018 MECHANICAL CODE OF CONNECTICUT
ELECTRICAL	NEC 2017

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:
 • REMOVE (6) EXISTING ANTENNAS AT 185'-0".
 • REMOVE (3) EXISTING TMAS AT 185'-0".
 • REMOVE (3) EXISTING RRU'S AT 185'-0".
 • REMOVE (6) EXISTING 1 5/8" COAX.
 • REMOVE (1) XMU AND (1) DUS41 FROM EXISTING 6102.
 • REMOVE (6) RUS01 B2 AND (3) RUS01 B4 FROM EXISTING 6102.
 • REPLACE EXISTING MOUNT PER MOUNT ANALYSIS REPORT BY P-SEC DATED 5/28/19
 • INSTALL (6) NEW ANTENNAS AT 185'-0".
 • INSTALL (3) NEW RRU'S AT 185'-0".
 • INSTALL (3) NEW 6x12 HCS.
 • INSTALL (2) NEW BB6630.

DO NOT SCALE DRAWINGS

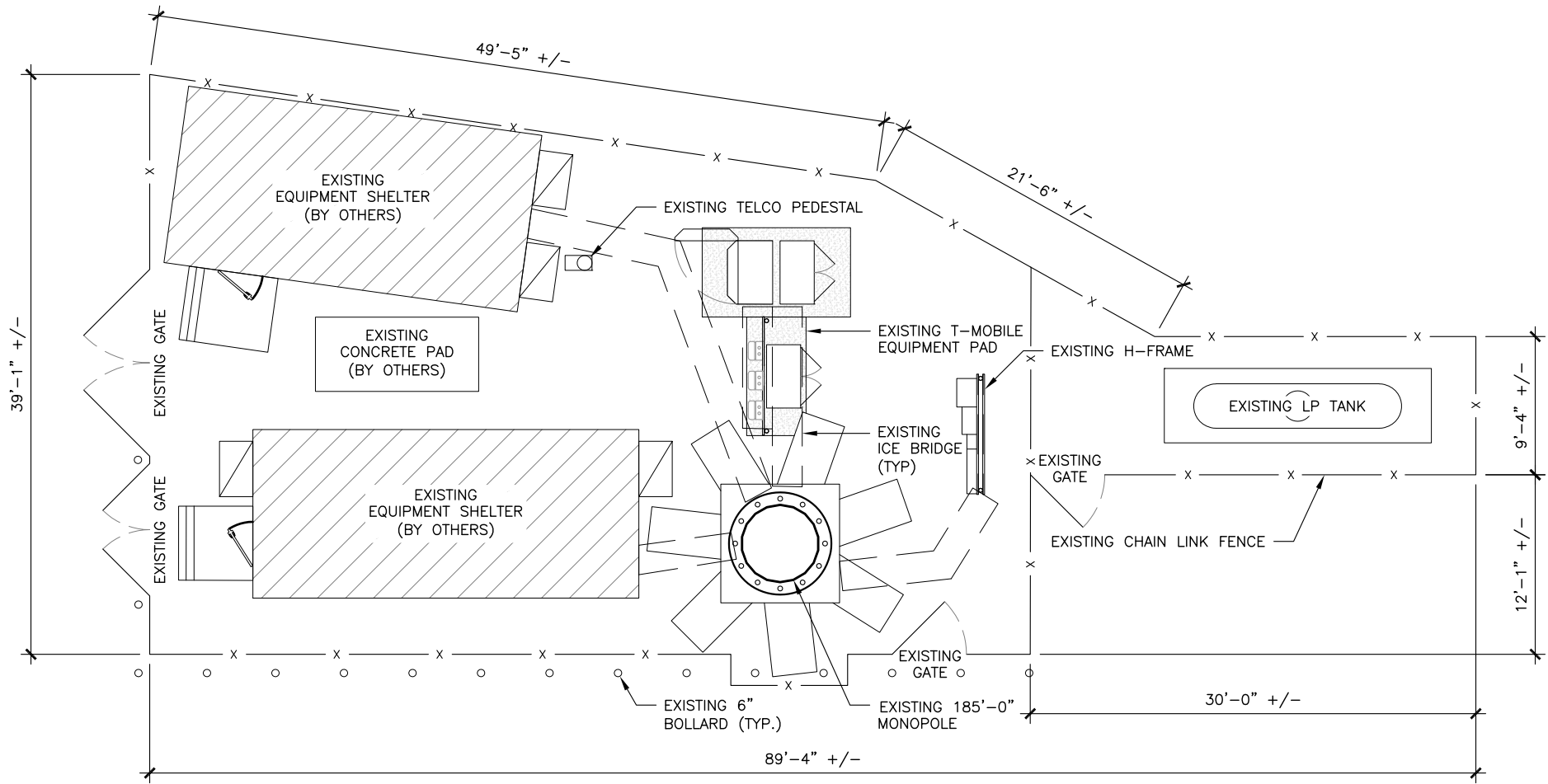
ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



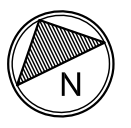
CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!



136918_825983_Middletown_1.dwg - Sheet:A-1 - User: fperkins - Sep 25, 2019 - 8:33am

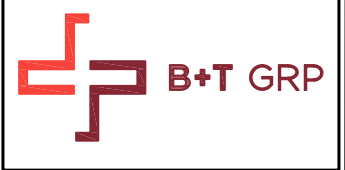


1 OVERALL SITE PLAN
 SCALE: 0' 4' 8' 16' 32'



- GENERAL NOTES:**
- SUBJECT PROPERTY IS SITUATED AT 90 INDUSTRIAL PARK ROAD, MIDDLETOWN, CT 06457.
 - APPLICANT: T-MOBILE
 A DELAWARE LIMITED LIABILITY COMPANY
 4 SYLVAN WAY
 PARSIPPANY, NEW JERSEY 07054
 (973) 397-4800

 TOWER OWNER: CROWN CASTLE INTERNATIONAL
 - THE APPLICANT IS TO UPDATE THEIR NETWORK BY INSTALLING SIX (6) NEW PANEL ANTENNAS, THREE (3) RRUS, AND THREE (3) ADDITIONAL CABLES MOUNTED ON AN EXISTING MONOPOLE.
 - THIS FACILITY SHALL BE VISITED ON THE AVERAGE OF ONCE A MONTH FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.
 - THE EXISTING SITE IS LOCATED AT LATITUDE OF 41.585590' N± AND LONGITUDE OF 72.713852' W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).
 - THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION"
 - ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:
 - CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
 - CURRENT PREVAILING UTILITY COMPANY AUTHORITY SPECIFICATIONS, STANDARDS AND REQUIREMENTS.
 - THE CONTRACTOR SHALL NOTIFY B+T GROUP, P.A. IMMEDIATELY IF ANY FIELD-CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE AND/OR INEFFECTIVE.
 - THE CONTRACTOR IS RESPONSIBLE TO PROTECT, REPAIR AND/OR REPLACE ANY DAMAGED STRUCTURES, UTILITIES OR LANDSCAPED AREA WHICH MAY BE DISTURBED DURING THE CONSTRUCTION OF THIS FACILITY.
 - THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
 - SITE INFORMATION SHOWN TAKEN FROM CROWN CASTLE SITE PLANS AND FROM CROWN CASTLE INSPECTION PHOTOS.
 - NO GUARANTEE IS MADE NOR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE HORIZONTAL OR VERTICAL LOCATIONS. ALL PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN PRIOR TO CONSTRUCTION ACTIVITIES.
 - ALL IMPROVEMENTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE TOWNSHIP ENGINEER WHO WILL BE GIVEN PROPER NOTIFICATION PRIOR TO THE START OF ANY CONSTRUCTION.



CT11057C
 BU #: 825983
 MIDDLETOWN_1
 90 INDUSTRIAL PARK ROAD
 MIDDLETOWN, CT 06457
 EXISTING 185'-0" MONOPOLE

PROJECT NO: 136918.001.01
 CHECKED BY: FWP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	07/22/19	JDP	CONSTRUCTION
1	9/24/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/20



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

SHEET NUMBER: **A-1** REVISION: **1**



CT11057C
 BU #: 825983
 MIDDLETOWN_1
 90 INDUSTRIAL PARK ROAD
 MIDDLETOWN, CT 06457
 EXISTING 185'-0" MONOPOLE

PROJECT NO: 136918.001.01
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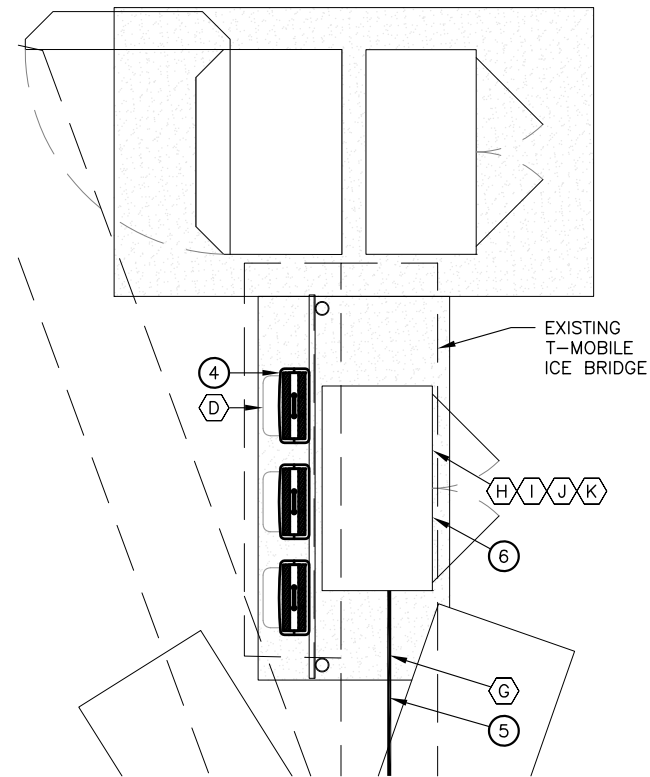


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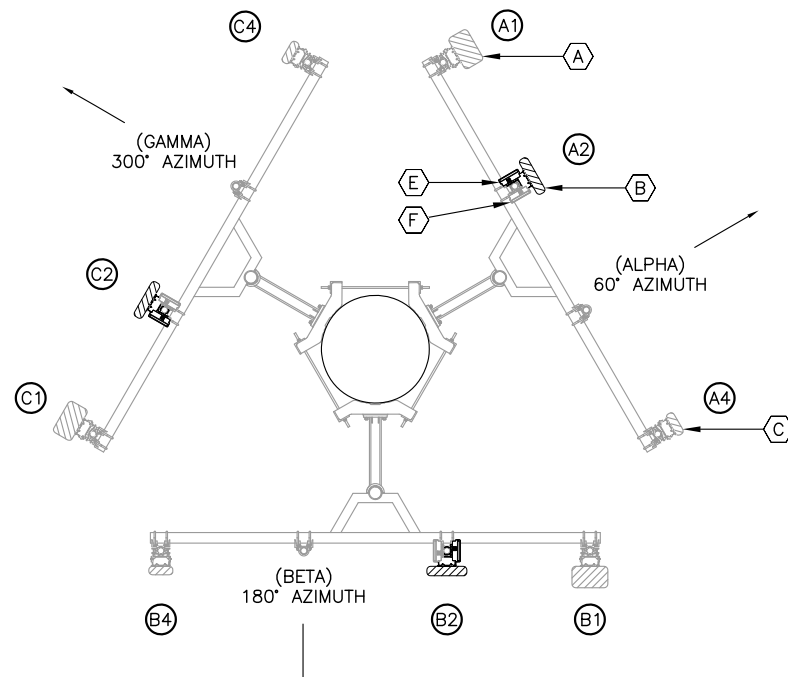
SHEET NUMBER: **A-2** REVISION: **1**

ANTENNA AND CABLE SCHEDULE											
SECTOR	POSITION	EXISTING ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
60° - ALPHA	A2	RFS APX16DWV-16DWV-S-E-A20	U2100	B2 B4	4°	0°	185'-0"	1/0	(2) 1 5/8" COAX	DC/FIBER & 1/2" COAX	235'-0"
	A3	RFS APXVAARR24_43-U-NA20	L700/L600	B71 B12	2°/2°	0°		0/1	(1) 6x12 HCS FIBER	DC/FIBER	235'-0"
	A4	ERICSSON AIR32 KRD901146-1_B66A_B2A	L2100/L1900/G1900	B66 B2	4°/2°/2°	0°		0/0	(1) 6x12 HCS FIBER (SHARED)	DC/FIBER	235'-0"
180° - BETA	B2	RFS APX16DWV-16DWV-S-E-A20	U2100	B2 B4	2°	0°	185'-0"	1/0	(2) 1 5/8" COAX	DC/FIBER & 1/2" COAX	235'-0"
	B3	RFS APXVAARR24_43-U-NA20	L700/L600	B71 B12	2°/2°	0°		0/1	(1) 6x12 HCS FIBER	DC/FIBER	235'-0"
	B4	ERICSSON AIR32 KRD901146-1_B66A_B2A	L2100/L1900/G1900	B66 B2	2°/2°/2°	0°		0/0	(1) 6x12 HCS FIBER (SHARED)	DC/FIBER	235'-0"
300° - GAMMA	G2	RFS APX16DWV-16DWV-S-E-A20	U2100	B2 B4	2°	0°	185'-0"	1/0	(2) 1 5/8" COAX	DC/FIBER & 1/2" COAX	235'-0"
	G3	RFS APXVAARR24_43-U-NA20	L700/L600	B71 B12	2°/2°	0°		0/1	(1) 6x12 HCS FIBER	DC/FIBER	235'-0"
	G4	ERICSSON AIR32 KRD901146-1_B66A_B2A	L2100/L1900/G1900	B66 B2	4°/2°/2°	0°		0/0	(1) 6x12 HCS FIBER (SHARED)	DC/FIBER	235'-0"

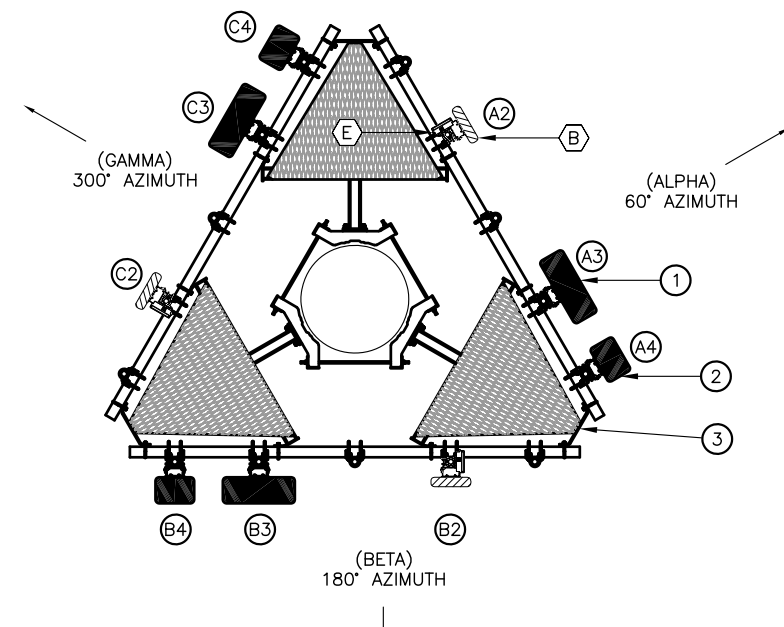
LEGEND	
EXISTING/DEMOLITION NOTES	INSTALLATION NOTES
(A) EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	(1) INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(B) EXISTING RFS APX16DWV-16DWV-S-E-A20 ANTENNA TO REMAIN (TOTAL OF 3)	(2) INSTALL ERICSSON AIR32 KRD901146-1_B66A_B2A (4 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(C) EXISTING EMS RR90-17-XXDP ANTENNA TO BE REMOVED (TOTAL OF 3)	(3) REPLACE EXISTING MOUNT PER MOUNT ANALYSIS REPORT BY P-SEC DATED 5/28/19
(D) EXISTING RRUS11 B12 RRU TO BE REMOVED (TOTAL OF 3)	(4) INTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(E) EXISTING TMA TO REMAIN (TOTAL OF 3)	(5) INSTALL (3) 6x12 HCS. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
(F) EXISTING TMA TO BE REMOVED (TOTAL OF 3)	(6) INSTALL (2) NEW BB6630
(G) EXISTING COAX LINES TO BE REMOVED (TOTAL OF 6)	
(H) EXISTING DUS41 TO BE REMOVED (TOTAL OF 1)	
(I) EXISTING XMU TO BE REMOVED (TOTAL OF 1)	
(J) EXISTING RUS01 B2 RRUS TO BE REMOVED (TOTAL OF 6)	
(K) EXISTING RUS01 B4 RRUS TO BE REMOVED (TOTAL OF 3)	



1 ENLARGED AREA PLAN
 SCALE: 0' 1' 2' 4' 10'



2 EXISTING ANTENNA ORIENTATION
 SCALE: 0' 1' 4' 8' 16'



3 PROPOSED ANTENNA ORIENTATION
 SCALE: 0' 1' 4' 8' 16'

136918_825983_Middletown_1.dwg - Sheet-A-2 - User: fperkins - Sep 25, 2019 - 8:33am


136918_825983_Middletown_1.dwg - Sheet:A-3 - User: fperkins - Sep 25, 2019 - 8:33am


LEGEND	
EXISTING/DEMOLITION NOTES	INSTALLATION NOTES
(A) EXISTING ANDREW LNX-6515DS-A1M ANTENNA TO BE REMOVED (TOTAL OF 3)	(1) INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(B) EXISTING RFS APX16DW-16DW-S-E-A20 ANTENNA TO REMAIN (TOTAL OF 3)	(2) INSTALL ERICSSON AIR32 KRD901146-1_B66A_B2A (4 FT) ANTENNAS ON EXISTING MOUNT. (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(C) EXISTING EMS RR90-17-XXDP ANTENNA TO BE REMOVED (TOTAL OF 3)	(3) INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
(D) EXISTING TMA TO REMAIN (TOTAL OF 3)	(4) REPLACE EXISTING MOUNT PER MOUNT ANALYSIS REPORT BY P-SEC DATED 5/28/19
(E) EXISTING TMA TO BE REMOVED (TOTAL OF 3)	
(F) EXISTING COAX LINES TO BE REMOVED (TOTAL OF 6)	


EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY PAUL J FORD DATED 6/6/19.

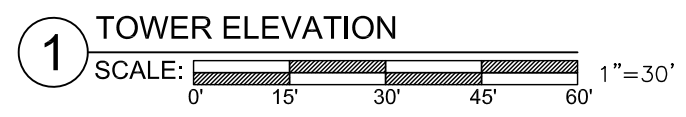
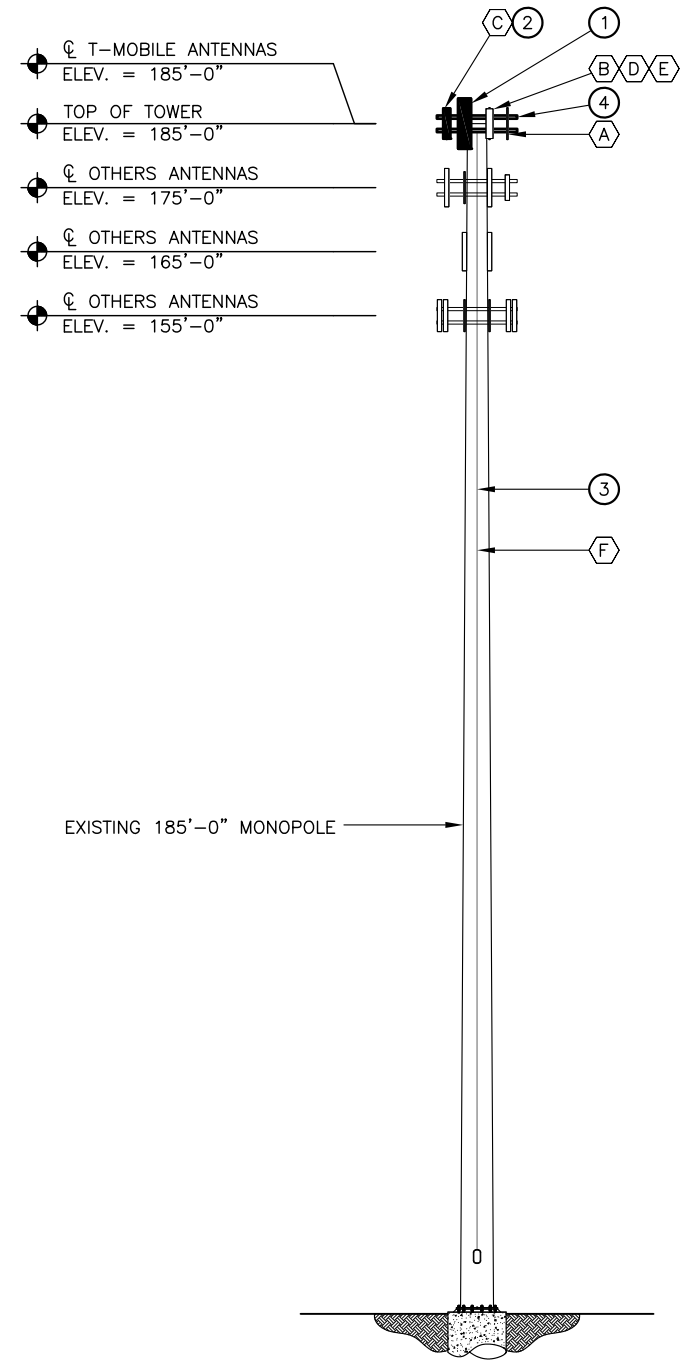
EXISTING MOUNT IS SUFFICIENT PER MOUNT ANALYSIS BY P-SEC AND COMPANY DATED 5/28/19.

LEGEND:

 NEW

 EXISTING

 FUTURE



CT11057C
 BU #: 825983
 MIDDLETOWN_1
 90 INDUSTRIAL PARK ROAD
 MIDDLETOWN, CT 06457
 EXISTING 185'-0" MONOPOLE

PROJECT NO: 136918.001.01
 CHECKED BY: FWP

ISSUED FOR:

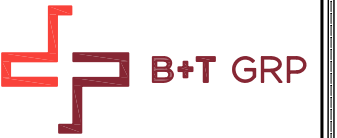
REV	DATE	DRWN	DESCRIPTION
0	07/22/19	JDP	CONSTRUCTION
1	9/24/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/20



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SHEET NUMBER: **A-3** REVISION: **1**



CT11057C
 BU #: 825983
 MIDDLETOWN_1
 90 INDUSTRIAL PARK ROAD
 MIDDLETOWN, CT 06457
 EXISTING 185'-0" MONOPOLE

PROJECT NO: 136918.001.01

CHECKED BY: FWP

ISSUED FOR:

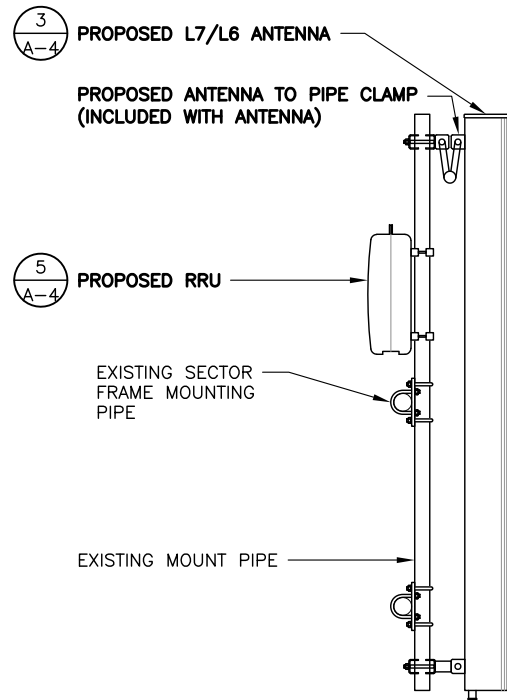
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0	07/22/19	JDP	CONSTRUCTION
1	9/24/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
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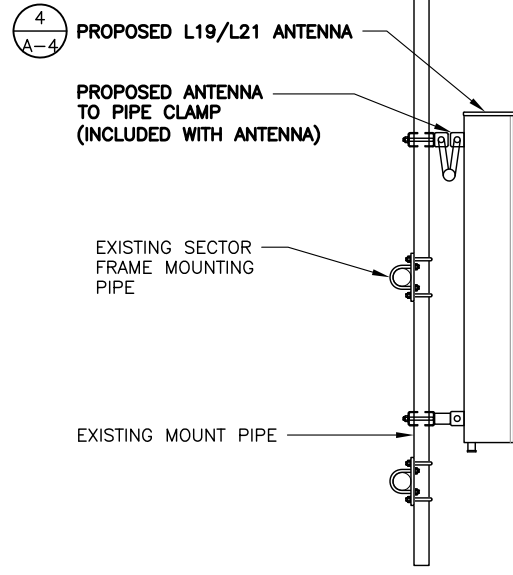


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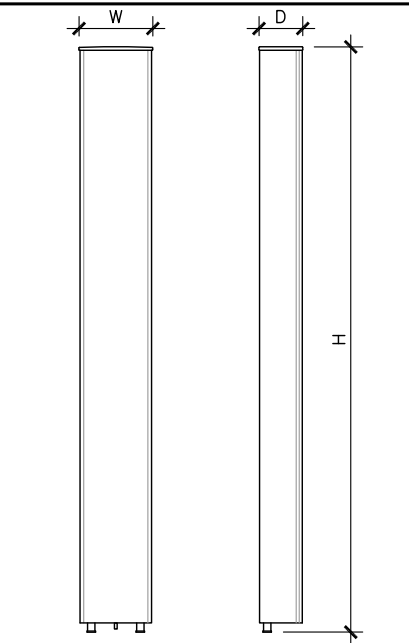
SHEET NUMBER: A-4 REVISION: 1



1 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL
 SCALE: 3/8" = 1'-0"

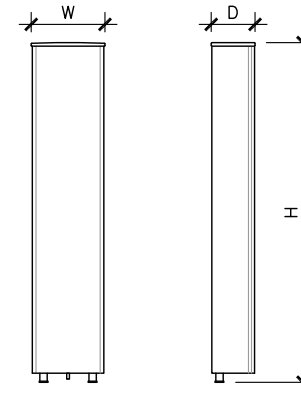


2 PROPOSED L19/L21 ANTENNA & RRU MOUNTING DETAIL
 SCALE: 3/8" = 1'-0"



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.0"
DEPTH	8.7"
HEIGHT	95.9"
WEIGHT	128.0 LBS

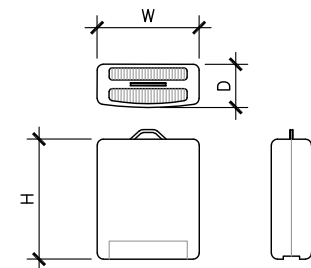
3 L7/L6 ANTENNA DETAIL
 SCALE: 3/8" = 1'-0"



ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR32 B66A_B2A
WIDTH	12.9"
DEPTH	8.7"
HEIGHT	56.6"
WEIGHT	132.0 LBS

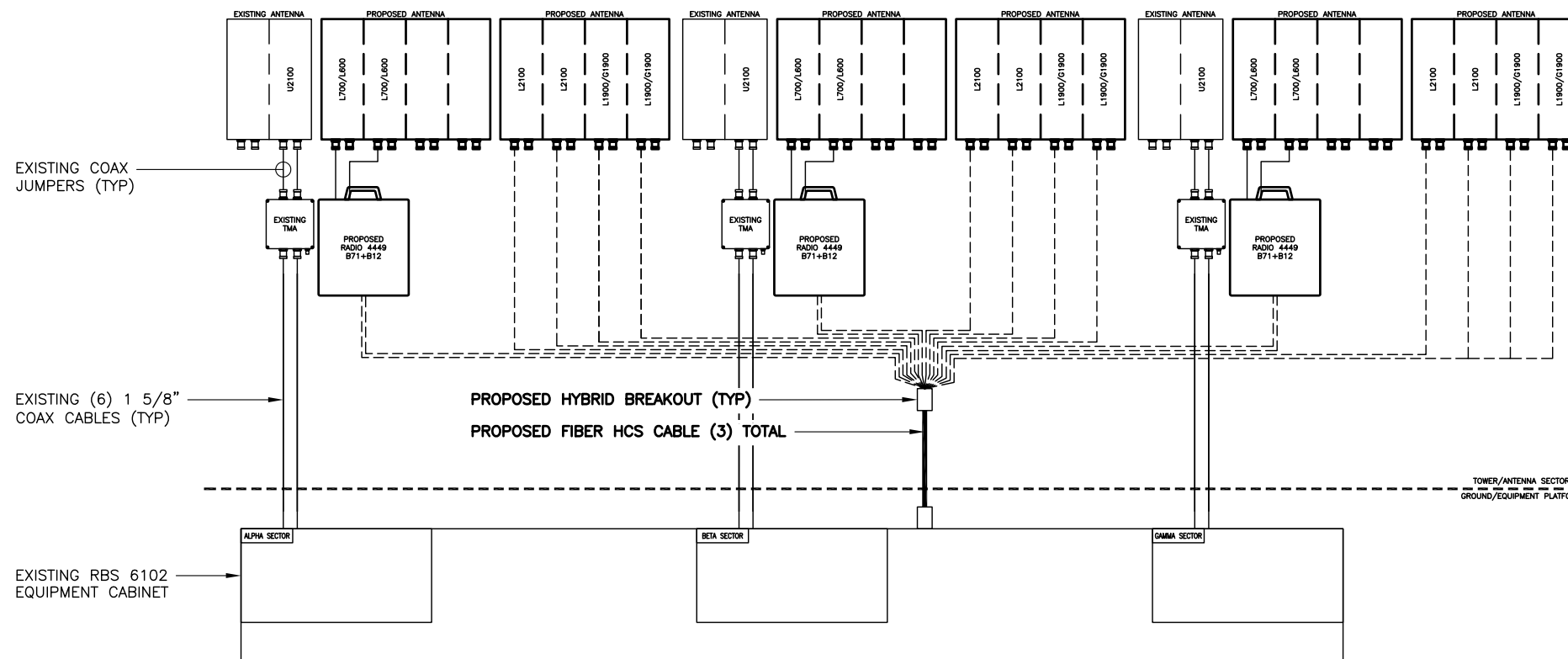
4 L19/L21 ANTENNA DETAIL
 SCALE: 3/8" = 1'-0"

- NOTES:
- TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS.
 - SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
 - REFER TO ANTENNA ORIENTATION ON SHEET A-2 FOR EXACT ANTENNA POSITIONING.

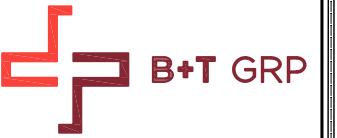


RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4449
WIDTH	13.2"
DEPTH	10.4"
HEIGHT	14.9"
WEIGHT	74 LBS

5 REMOTE RADIO UNIT (RRU)
 SCALE: 3/8" = 1'-0"



6 ANTENNA & CABLING SCHEMATIC
 SCALE: N.T.S.



CT11057C
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 MIDDLETOWN_1
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 EXISTING 185'-0" MONOPOLE

PROJECT NO: 136918.001.01

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REV	DATE	DRWN	DESCRIPTION
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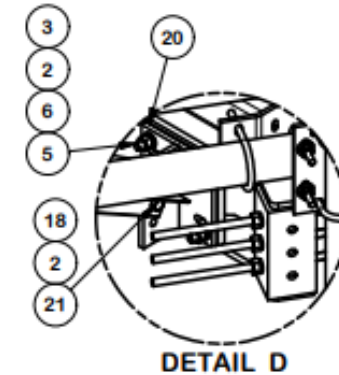
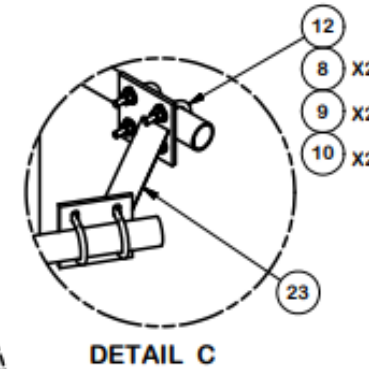
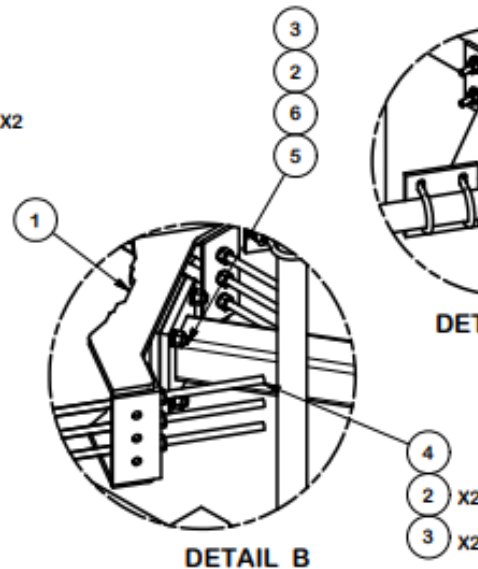
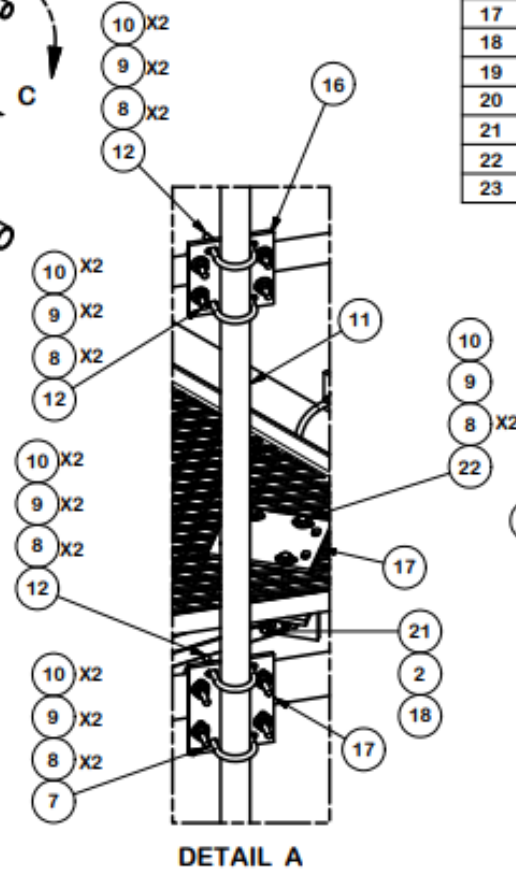
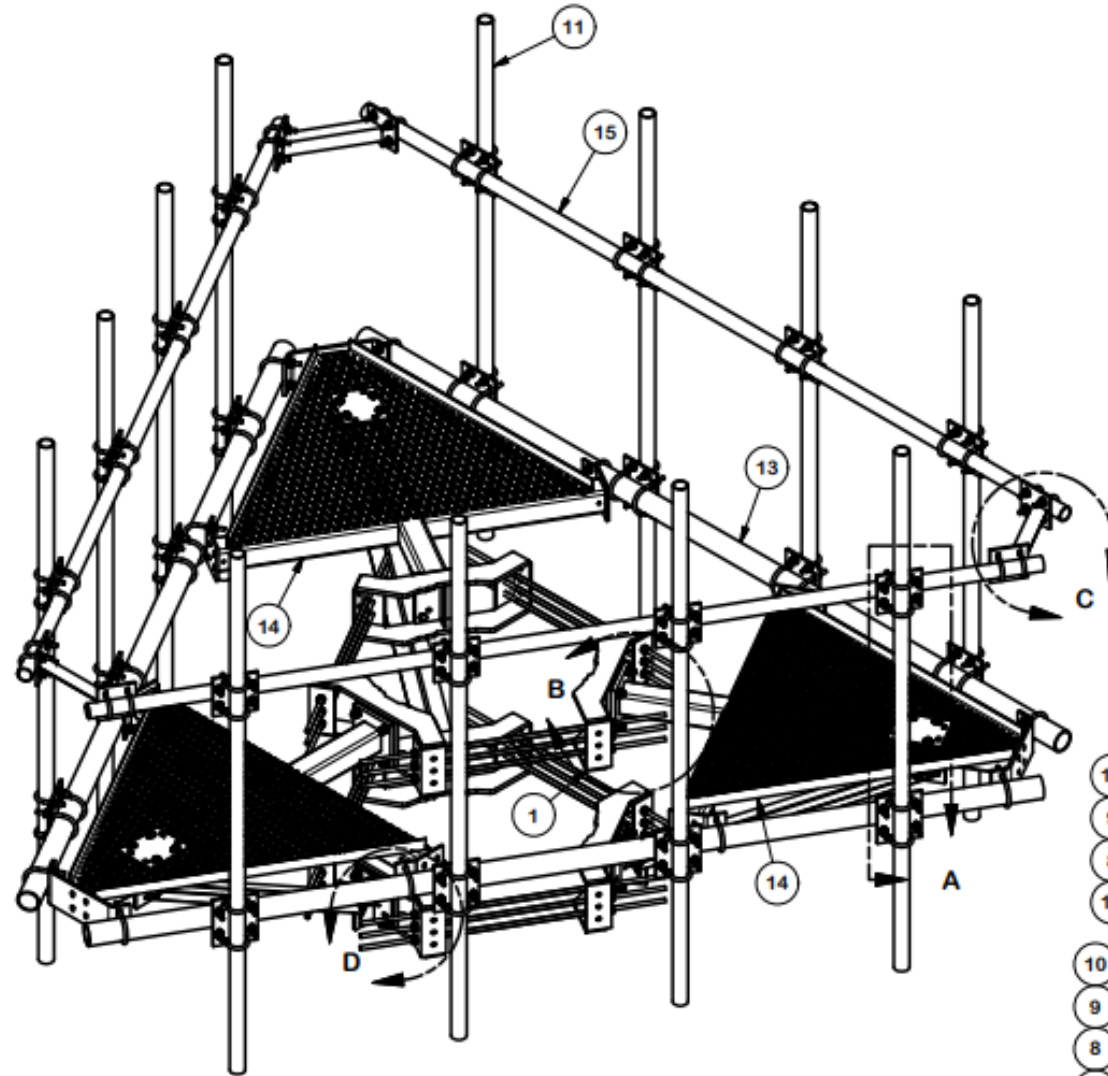


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SHEET NUMBER: A-4.1
 REVISION: 1

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.16	408.95
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.78
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	9.88
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	9.88
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.53
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	26.34
8	264	G12FW	1/2" HDG USS FLATWASHER		0.03	8.99
9	252	G12LW	1/2" HDG LOCKWASHER		0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.03
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	61.46
13	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
TOTAL WT. #						2448.72



TOLERANCE NOTES

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

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 12' 6" LOW PROFILE PLATFORM
 WITH TWELVE 2-3/8" ANTENNA MOUNTING
 PIPES, AND HANDRAIL



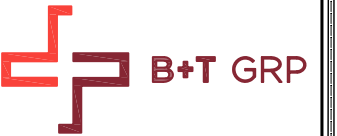
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX
 Engineering Support Team:
 1-888-753-7446

CPD NO. 4488	DRAWN BY CEK 7/14/2014	ENG. APPROVAL
CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
CHECKED BY BMC 7/14/2014		

PART NO. RMQP-496-HK	1 OF 3 PAGE
DWG. NO. RMQP-496-HK	

6 SITEPRO1 RMQP-496-HK - 12.5' LOW PROFILE PLATFORM MOUNT
 SCALE: N.T.S.

136918_825983_Middletown_1.dwg - Sheet-A-4.1 - User: fperkins - Sep 25, 2019 - 8:33am



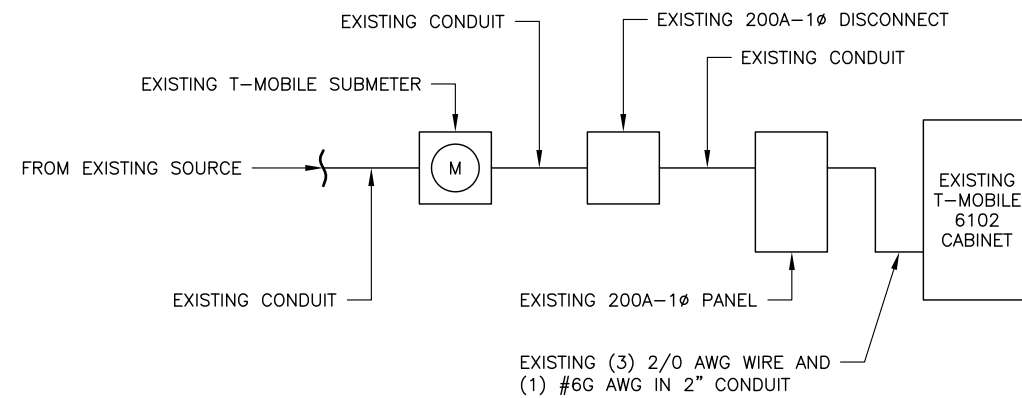
CT11057C
 BU #: 825983
 MIDDLETOWN_1
 90 INDUSTRIAL PARK ROAD
 MIDDLETOWN, CT 06457
 EXISTING 185'-0" MONOPOLE

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
EQUIPMENT	2	50A	1	2	125A	2	RBS 6102
			3	4			
RBS 3106	2	50A	5	6			
			7	8			

RATED VOLTAGE: 120/240 _____ 1 PHASE, 3 WIRE
 BRANCH POLES: 12 24 30 42 APPROVED MF'RS
 RATED AMPS: 100 200 400 _____
 CABINET: SURFACE FLUSH NEMA 1 3R 4X
 MAIN LUGS ONLY MAIN 200 AMPS BREAKER FUSED SWITCH HINGED DOOR KEYPED DOOR LATCH
 FUSED CIRCUIT BREAKER BRANCH DEVICES _____ TO BE GFCI BREAKERS FULL NEUTRAL BUS GROUND BAR
 ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

REPLACE EXISTING BREAKER IN POSITION 2 AND 4 WITH A NEW 2P 125A BREAKER
 REPLACE EXISTING WIRES FOR EXISTING 6102 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
 IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (OR APPROVED EQUAL).
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL
 SCALE: N.T.S.



2 ONE-LINE DIAGRAM
 SCALE: N.T.S.

PROJECT NO: 136918.001.01
 CHECKED BY: FWP

ISSUED FOR:			
REV	DATE	DRWN	DESCRIPTION
0	07/22/19	JDP	CONSTRUCTION
1	9/24/19	JCO	CONSTRUCTION

B&T ENGINEERING, INC.
 PEC.0001564
 Expires 2/10/20



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

SHEET NUMBER: **E-1** REVISION: **1**

Exhibit D

Structural Analysis Report

Date: **June 06, 2019**

Heather Simeone
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J Ford and Company
250 East Broad St., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject: Structural Analysis Report

Carrier Designation: T-Mobile Co-Locate
Carrier Site Number: CT11057C
Carrier Site Name: MIDDLETOWN_1

Crown Castle Designation: Crown Castle BU Number: 825983
Crown Castle Site Name: MIDDLETOWN_1
Crown Castle JDE Job Number: 559242
Crown Castle Work Order Number: 1729927
Crown Castle Order Number: 479802 Rev. 1

Engineering Firm Designation: Paul J Ford and Company Project Number: 37519-2499.001.7805

Site Data: 90 Industrial Park Road, Middletown, Middlesex County, CT
Latitude 41° 35' 8.3", Longitude -72° 42' 50.49"
185 Foot - Monopole Tower

Dear Heather Simeone,

Paul J Ford and Company is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower.

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

LC7: Proposed Equipment Configuration

Sufficient Capacity (95.3%)

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:



Jared Forbes, E.I.
Structural Designer
jforbes@pauljford.com

C.J.P.



06/10/2019

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2) ANALYSIS CRITERIA

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- Table 2 - Other Considered Equipment

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1) INTRODUCTION

This tower is a 185 ft Monopole tower designed by FRED A. NUDD CORPORATION in May of 1998.

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

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
 Risk Category: II
 Wind Speed: 130 mph
 Exposure Category: C
 Topographic Factor: 1
 Ice Thickness: 1.5 in
 Wind Speed with Ice: 50 mph
 Service Wind Speed: 60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
185.0	185.0	3	ericsson	AIR 32 B2A B66AA	9	1-5/8
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APX16DWV-16DWVS-E-A20		
		3	rfs celwave	APXVAARR24_43-U-NA20		
		1	SitePro1	RMQP-496-HK		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
175.0	175.0	3	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	12 4 2	1-1/4 3/4 3/8
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS-11		
		6	kaelus	DBC0061F1V51-2		
		3	kathrein	782 10254		
		6	powerwave technologies	7020.00		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		3	quintel technology	QS66512-2 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Sector Mount [SM 802-3]		
		165.0	165.0	3		
1	tower mounts			Pipe Mount [PM 601-3]		
155.0	155.0	3	alcatel lucent	AWS4 (B66) 4x45 RRH	2	1-5/8
		3	alcatel lucent	RRH2X60-PCS		
		3	alcatel lucent	RRH2x60-700		
		12	andrew	SBNHH-1D65B w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		1	tower mounts	Platform Mount [LP 403-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti, 3/27/1998	3473514	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Nudd, 98-5980, 5/1/1998	3880469	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Nudd, 98-5980, 5/1/1998	3473517	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	All-Points Tech, CT107572, 4/26/2005	3879955	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37513-1570, 08/14/2013	3954032	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 13068, 1/13/2015	5650784	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37513-1570A, 09/17/2013	3990532	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 146075, 12/30/2014	5512978	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) The Nudd manufacturer's drawings specify an anchor rod that does not exist. From experience with Nudd monopoles, the anchors are likely A36 standard anchors and have been assumed as such.
- 5) Monopole was reinforced in conformance with the referenced modification drawings.
- 6) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10012, Base Plate Grout Repair.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
185 - 180	Pole	TP18x18x0.1875	Pole	21.4%	Pass
180 - 175	Pole	TP19.631x18x0.25	Pole	27.4%	Pass
175 - 170	Pole	TP21.263x19.631x0.25	Pole	44.9%	Pass
170 - 165	Pole	TP22.894x21.263x0.25	Pole	57.6%	Pass
165 - 160	Pole	TP24.525x22.894x0.25	Pole	67.8%	Pass
160 - 155	Pole	TP26.156x24.525x0.25	Pole	76.2%	Pass
155 - 154	Pole	TP26.483x26.156x0.25	Pole	79.0%	Pass
154 - 153.75	Pole + Reinf.	TP26.564x26.483x0.3688	Reinf. 8 Tension Rupture	62.1%	Pass
153.75 - 152	Pole + Reinf.	TP27.135x26.564x0.3625	Reinf. 8 Tension Rupture	65.3%	Pass
152 - 151.75	Pole + Reinf.	TP27.217x27.135x0.55	Reinf. 8 Tension Rupture	44.8%	Pass
151.75 - 151.5	Pole + Reinf.	TP27.298x27.217x0.55	Reinf. 8 Tension Rupture	45.1%	Pass
151.5 - 151.25	Pole + Reinf.	TP27.38x27.298x0.425	Reinf. 3 Tension Rupture	55.1%	Pass
151.25 - 146.25	Pole + Reinf.	TP29.011x27.38x0.4125	Reinf. 3 Tension Rupture	62.2%	Pass
146.25 - 141.25	Pole + Reinf.	TP30.642x29.011x0.4	Reinf. 3 Tension Rupture	68.2%	Pass
141.25 - 136.25	Pole + Reinf.	TP32.273x30.642x0.3938	Reinf. 3 Tension Rupture	73.5%	Pass
136.25 - 135	Pole + Reinf.	TP34.313x32.273x0.3938	Reinf. 3 Tension Rupture	74.7%	Pass
135 - 129	Pole + Reinf.	TP34.133x32.181x0.475	Reinf. 7 Tension Rupture	69.8%	Pass
129 - 124	Pole + Reinf.	TP35.76x34.133x0.4625	Reinf. 7 Tension Rupture	73.6%	Pass
124 - 121.42	Pole + Reinf.	TP36.599x35.76x0.4625	Pole	75.9%	Pass
121.42 - 121.17	Pole + Reinf.	TP36.68x36.599x0.6375	Pole	56.0%	Pass
121.17 - 121	Pole + Reinf.	TP36.736x36.68x0.625	Pole	56.1%	Pass
121 - 120.75	Pole + Reinf.	TP36.817x36.736x0.5	Pole	70.1%	Pass
120.75 - 115.75	Pole + Reinf.	TP38.444x36.817x0.4875	Pole	75.0%	Pass
115.75 - 115	Pole + Reinf.	TP38.688x38.444x0.4875	Pole	75.7%	Pass
115 - 114	Pole + Reinf.	TP39.013x38.688x0.55	Reinf. 7 Tension Rupture	65.3%	Pass
114 - 113.75	Pole + Reinf.	TP39.094x39.013x0.4688	Pole	71.6%	Pass
113.75 - 108.75	Pole + Reinf.	TP40.719x39.094x0.4625	Pole	75.1%	Pass
108.75 - 103.75	Pole + Reinf.	TP42.344x40.719x0.4563	Pole	78.4%	Pass
103.75 - 101	Pole + Reinf.	TP45.188x42.344x0.45	Pole	80.3%	Pass
101 - 94	Pole + Reinf.	TP44.853x42.613x0.5875	Pole	66.8%	Pass
94 - 91.4	Pole + Reinf.	TP45.685x44.853x0.575	Pole	68.4%	Pass
91.4 - 91.15	Pole + Reinf.	TP45.765x45.685x0.4438	Pole	88.5%	Pass
91.15 - 91	Pole + Reinf.	TP45.813x45.765x0.4438	Pole	88.6%	Pass
91 - 86	Pole + Reinf.	TP47.445x45.813x0.5	Pole	74.3%	Pass
86 - 81	Pole + Reinf.	TP49.078x47.445x0.5	Pole	76.5%	Pass
81 - 76	Pole + Reinf.	TP50.711x49.078x0.4938	Pole	78.7%	Pass
76 - 71	Pole + Reinf.	TP52.344x50.711x0.4875	Pole	80.8%	Pass
71 - 66	Pole + Reinf.	TP53.977x52.344x0.4875	Pole	82.9%	Pass
66 - 63.75	Pole + Reinf.	TP54.711x53.977x0.4875	Pole	83.8%	Pass
63.75 - 63.5	Pole + Reinf.	TP54.793x54.711x0.4875	Pole	83.9%	Pass
63.5 - 58.5	Pole + Reinf.	TP56.426x54.793x0.4813	Pole	86.0%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
58.5 - 58	Pole + Reinf.	TP58.875x56.426x0.4813	Pole	86.2%	Pass
58 - 50	Pole + Reinf.	TP58.438x55.839x0.55	Pole	78.7%	Pass
50 - 45	Pole + Reinf.	TP60.063x58.438x0.55	Pole	80.8%	Pass
45 - 40.42	Pole + Reinf.	TP61.551x60.063x0.5438	Pole	82.7%	Pass
40.42 - 40.17	Pole + Reinf.	TP61.632x61.551x0.475	Pole	95.2%	Pass
40.17 - 40	Pole + Reinf.	TP61.688x61.632x0.475	Pole	95.3%	Pass
40 - 35	Pole + Reinf.	TP63.31x61.688x0.5313	Pole	79.3%	Pass
35 - 33	Pole + Reinf.	TP63.958x63.31x0.525	Pole	79.9%	Pass
33 - 32.75	Pole + Reinf.	TP64.039x63.958x0.6	Pole	72.2%	Pass
32.75 - 28	Pole + Reinf.	TP68.5x64.039x0.6	Pole	73.6%	Pass
28 - 18	Pole + Reinf.	TP67.958x64.705x0.6	Pole	77.9%	Pass
18 - 13	Pole + Reinf.	TP69.584x67.958x0.5875	Pole	79.4%	Pass
13 - 8	Pole + Reinf.	TP71.21x69.584x0.5875	Pole	81.0%	Pass
8 - 3	Pole + Reinf.	TP72.837x71.21x0.5875	Pole	82.5%	Pass
3 - 0	Pole + Reinf.	TP73.813x72.837x0.575	Pole	83.5%	Pass
				Summary	
			Pole	95.3%	Pass
			Reinforcement	77.3%	Pass
			Overall	95.3%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	73.7	Pass
1	Base Plate	0	40.9	Pass
1	Base Foundation Structural Steel	0	79.4	Pass
1	Base Foundation Soil Interaction	0	39.6	Pass

Structure Rating (max from all components) =	95.3%
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Notes:

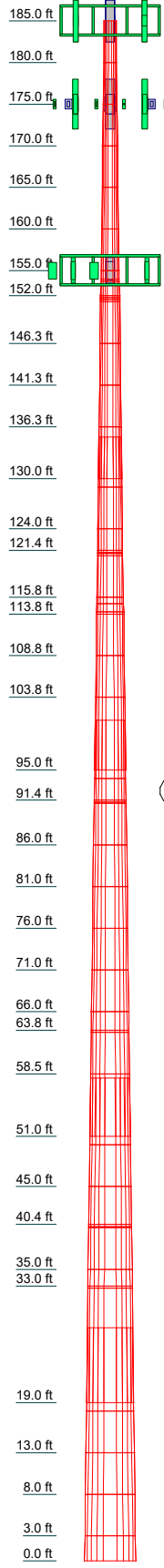
- All structural ratings are per TIA-222-H Section 15.5
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1								
2								
3								
4								
5								
6								
13								
14								
15								
16								
17								
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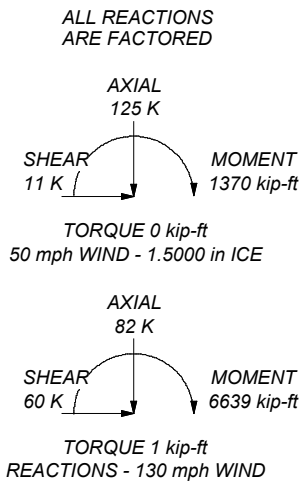


MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S



<p>Paul J Ford and Company 250 East Broad st., Suite 600 Columbus, OH 43215 Phone: (614) 221-6679 FAX:</p>	<p>Job: 185' Monopole / Middletown, CT</p>		
	<p>Project: 37519-2499 / BU 825983</p>		
<p>Client: CCI</p>	<p>Drawn by: jforbes</p>	<p>App'd:</p>	
<p>Code: TIA-222-H</p>	<p>Date: 06/10/19</p>	<p>Scale: NTS</p>	
<p>Path:</p>	<p>Dwg No. E-1</p>		

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Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- 1) Tower is located in Middlesex County, Connecticut.
- 2) Tower base elevation above sea level: 89.450 ft.
- 3) Basic wind speed of 130 mph.
- 4) Risk Category II.
- 5) Exposure Category C.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.000 ft.
- 9) Nominal ice thickness of 1.5000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56.000 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50.000 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) TIA-222-H Annex S.
- 16) A non-linear (P-delta) analysis was used.
- 17) Pressures are calculated at each section.
- 18) Stress ratio used in pole design is 1.05.
- 19) Tower analysis based on target reliabilities in accordance with Annex S.
- 20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 21) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	185.000- 180.000	5.000	0.000	12	18.0000	18.0000	0.1875	0.7500	A36M-42 (42 ksi)
L2	180.000- 175.000	5.000	0.000	12	18.0000	19.6313	0.2500	1.0000	A36M-42 (42 ksi)
L3	175.000- 170.000	5.000	0.000	12	19.6313	21.2625	0.2500	1.0000	A36M-42 (42 ksi)
L4	170.000- 165.000	5.000	0.000	12	21.2625	22.8938	0.2500	1.0000	A36M-42 (42 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L5	165.000-160.000	5.000	0.000	12	22.8938	24.5250	0.2500	1.0000	A36M-42 (42 ksi)
L6	160.000-155.000	5.000	0.000	12	24.5250	26.1563	0.2500	1.0000	A36M-42 (42 ksi)
L7	155.000-154.000	1.000	0.000	12	26.1563	26.4825	0.2500	1.0000	A36M-42 (42 ksi)
L8	154.000-153.750	0.250	0.000	12	26.4825	26.5641	0.3688	1.4750	A36M-42 (42 ksi)
L9	153.750-152.000	1.750	0.000	12	26.5641	27.1350	0.3625	1.4500	A36M-42 (42 ksi)
L10	152.000-151.750	0.250	0.000	12	27.1350	27.2166	0.5500	2.2000	A36M-42 (42 ksi)
L11	151.750-151.500	0.250	0.000	12	27.2166	27.2981	0.5500	2.2000	A36M-42 (42 ksi)
L12	151.500-151.250	0.250	0.000	12	27.2981	27.3797	0.4250	1.7000	A36M-42 (42 ksi)
L13	151.250-146.250	5.000	0.000	12	27.3797	29.0109	0.4125	1.6500	A36M-42 (42 ksi)
L14	146.250-141.250	5.000	0.000	12	29.0109	30.6422	0.4000	1.6000	A36M-42 (42 ksi)
L15	141.250-136.250	5.000	0.000	12	30.6422	32.2734	0.3937	1.5750	A36M-42 (42 ksi)
L16	136.250-130.000	6.250	5.000	12	32.2734	34.3125	0.3937	1.5750	A36M-42 (42 ksi)
L17	130.000-129.000	6.000	0.000	12	32.1812	34.1331	0.4750	1.9000	A36M-42 (42 ksi)
L18	129.000-124.000	5.000	0.000	12	34.1331	35.7597	0.4625	1.8500	A36M-42 (42 ksi)
L19	124.000-121.420	2.580	0.000	12	35.7597	36.5990	0.4625	1.8500	A36M-42 (42 ksi)
L20	121.420-121.170	0.250	0.000	12	36.5990	36.6803	0.6375	2.5500	A36M-42 (42 ksi)
L21	121.170-121.000	0.170	0.000	12	36.6803	36.7356	0.6250	2.5000	A36M-42 (42 ksi)
L22	121.000-120.750	0.250	0.000	12	36.7356	36.8170	0.5000	2.0000	A36M-42 (42 ksi)
L23	120.750-115.750	5.000	0.000	12	36.8170	38.4435	0.4875	1.9500	A36M-42 (42 ksi)
L24	115.750-115.000	0.750	0.000	12	38.4435	38.6875	0.4875	1.9500	A36M-42 (42 ksi)
L25	115.000-114.000	1.000	0.000	12	38.6875	39.0125	0.5500	2.2000	A36M-42 (42 ksi)
L26	114.000-113.750	0.250	0.000	12	39.0125	39.0938	0.4688	1.8750	A36M-42 (42 ksi)
L27	113.750-108.750	5.000	0.000	12	39.0938	40.7188	0.4625	1.8500	A36M-42 (42 ksi)
L28	108.750-103.750	5.000	0.000	12	40.7188	42.3438	0.4562	1.8250	A36M-42 (42 ksi)
L29	103.750-95.000	8.750	6.000	12	42.3438	45.1875	0.4500	1.8000	A36M-42 (42 ksi)
L30	95.000-94.000	7.000	0.000	12	42.6125	44.8525	0.5875	2.3500	A36M-42 (42 ksi)
L31	94.000-91.400	2.600	0.000	12	44.8525	45.6845	0.5750	2.3000	A36M-42 (42 ksi)
L32	91.400-91.150	0.250	0.000	12	45.6845	45.7645	0.4437	1.7750	A36M-42 (42 ksi)
L33	91.150-91.000	0.150	0.000	12	45.7645	45.8125	0.4437	1.7750	A36M-42 (42 ksi)
L34	91.000-86.000	5.000	0.000	12	45.8125	47.4453	0.5000	2.0000	A36M-42 (42 ksi)
L35	86.000-81.000	5.000	0.000	12	47.4453	49.0781	0.5000	2.0000	A36M-42 (42 ksi)
L36	81.000-76.000	5.000	0.000	12	49.0781	50.7109	0.4938	1.9750	A36M-42 (42 ksi)
L37	76.000-71.000	5.000	0.000	12	50.7109	52.3438	0.4875	1.9500	A36M-42 (42 ksi)
L38	71.000-66.000	5.000	0.000	12	52.3438	53.9766	0.4875	1.9500	A36M-42 (42 ksi)
L39	66.000-63.750	2.250	0.000	12	53.9766	54.7113	0.4875	1.9500	A36M-42

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L40	63.750-63.500	0.250	0.000	12	54.7113	54.7930	0.4875	1.9500	(42 ksi) A36M-42
L41	63.500-58.500	5.000	0.000	12	54.7930	56.4258	0.4813	1.9250	(42 ksi) A36M-42
L42	58.500-51.000	7.500	7.000	12	56.4258	58.8750	0.4813	1.9250	(42 ksi) A36M-42
L43	51.000-50.000	8.000	0.000	12	55.8391	58.4384	0.5500	2.2000	(42 ksi) A36M-42
L44	50.000-45.000	5.000	0.000	12	58.4384	60.0629	0.5500	2.2000	(42 ksi) A36M-42
L45	45.000-40.420	4.580	0.000	12	60.0629	61.5510	0.5437	2.1750	(42 ksi) A36M-42
L46	40.420-40.170	0.250	0.000	12	61.5510	61.6323	0.4750	1.9000	(42 ksi) A36M-42
L47	40.170-40.000	0.170	0.000	12	61.6323	61.6875	0.4750	1.9000	(42 ksi) A36M-42
L48	40.000-35.000	5.000	0.000	12	61.6875	63.3095	0.5313	2.1250	(42 ksi) A36M-42
L49	35.000-33.000	2.000	0.000	12	63.3095	63.9583	0.5250	2.1000	(42 ksi) A36M-42
L50	33.000-32.750	0.250	0.000	12	63.9583	64.0394	0.6000	2.4000	(42 ksi) A36M-42
L51	32.750-19.000	13.750	9.000	12	64.0394	68.5000	0.6000	2.4000	(42 ksi) A36M-42
L52	19.000-18.000	10.000	0.000	12	64.7054	67.9579	0.6000	2.4000	(42 ksi) A36M-42
L53	18.000-13.000	5.000	0.000	12	67.9579	69.5842	0.5875	2.3500	(42 ksi) A36M-42
L54	13.000-8.000	5.000	0.000	12	69.5842	71.2105	0.5875	2.3500	(42 ksi) A36M-42
L55	8.000-3.000	5.000	0.000	12	71.2105	72.8367	0.5875	2.3500	(42 ksi) A36M-42
L56	3.000-0.000	3.000		12	72.8367	73.8125	0.5750	2.3000	(42 ksi) A36M-42

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	18.5688	10.7543	435.5296	6.3769	9.3240	46.7106	882.5011	5.2929	4.3215	23.048
L2	18.5688	10.7543	435.5296	6.3769	9.3240	46.7106	882.5011	5.2929	4.3215	23.048
L2	18.5468	14.2888	574.6149	6.3545	9.3240	61.6275	1164.3256	7.0325	4.1540	16.616
L2	20.2356	15.6019	748.0441	6.9385	10.1690	73.5613	1515.7401	7.6788	4.5912	18.365
L3	20.2356	15.6019	748.0441	6.9385	10.1690	73.5613	1515.7401	7.6788	4.5912	18.365
L3	21.9244	16.9151	953.2680	7.5225	11.0140	86.5508	1931.5794	8.3251	5.0283	20.113
L4	21.9244	16.9151	953.2680	7.5225	11.0140	86.5508	1931.5794	8.3251	5.0283	20.113
L4	23.6132	18.2282	1192.9628	8.1065	11.8590	100.5959	2417.2660	8.9714	5.4655	21.862
L5	23.6132	18.2282	1192.9628	8.1065	11.8590	100.5959	2417.2660	8.9714	5.4655	21.862
L5	25.3020	19.5414	1469.8044	8.6905	12.7039	115.6966	2978.2222	9.6177	5.9027	23.611
L6	25.3020	19.5414	1469.8044	8.6905	12.7039	115.6966	2978.2222	9.6177	5.9027	23.611
L6	26.9908	20.8545	1786.4690	9.2744	13.5489	131.8531	3619.8706	10.2640	6.3399	25.36
L7	26.9908	20.8545	1786.4690	9.2744	13.5489	131.8531	3619.8706	10.2640	6.3399	25.36
L7	27.3285	21.1172	1854.8162	9.3912	13.7179	135.2110	3758.3604	10.3932	6.4273	25.709
L8	27.2866	31.0068	2698.8676	9.3487	13.7179	196.7401	5468.6374	15.2606	6.1091	16.567
L8	27.3711	31.1037	2724.2352	9.3779	13.7602	197.9796	5520.0391	15.3083	6.1309	16.626
L9	27.3733	30.5838	2679.9791	9.3802	13.7602	194.7633	5430.3642	15.0524	6.1477	16.959
L9	27.9643	31.2502	2859.0162	9.5846	14.0559	203.4028	5793.1419	15.3804	6.3007	17.381
L10	27.8982	47.0820	4247.3153	9.5174	14.0559	302.1725	8606.2124	23.1723	5.7982	10.542
L10	27.9826	47.2265	4286.5275	9.5466	14.0982	304.0483	8685.6669	23.2434	5.8200	10.582
L11	27.9826	47.2265	4286.5275	9.5466	14.0982	304.0483	8685.6669	23.2434	5.8200	10.582
L11	28.0671	47.3709	4325.9804	9.5758	14.1404	305.9299	8765.6090	23.3145	5.8419	10.622
L12	28.1112	36.7759	3389.8874	9.6206	14.1404	239.7302	6868.8309	18.1000	6.1769	14.534
L12	28.1956	36.8875	3420.8470	9.6498	14.1827	241.1989	6931.5635	18.1549	6.1988	14.585
L13	28.2000	35.8192	3324.8552	9.6543	14.1827	234.4307	6737.0581	17.6291	6.2323	15.109
L13	29.8888	37.9859	3965.4520	10.2382	15.0277	263.8768	8035.0807	18.6955	6.6694	16.168
L14	29.8932	36.8509	3850.3311	10.2427	15.0277	256.2162	7801.8147	18.1369	6.7029	16.757

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L15	31.5820	38.9519	4547.1724	10.8267	15.8727	286.4784	9213.8040	19.1710	7.1401	17.85
	31.5842	38.3512	4478.8986	10.8289	15.8727	282.1771	9075.4628	18.8753	7.1569	18.176
	33.2730	40.4195	5243.2982	11.4129	16.7176	313.6386	10624.343	19.8932	7.5940	19.286
L16	33.2730	40.4195	5243.2982	11.4129	16.7176	313.6386	10624.343	19.8932	7.5940	19.286
	35.3840	43.0047	6315.1243	12.1429	17.7739	355.3037	12796.154	21.1656	8.1405	20.674
L17	34.8329	48.4947	6222.5740	11.3508	16.6699	373.2823	12608.622	23.8676	7.3516	15.477
	35.1696	51.4801	7443.9798	12.0496	17.6810	421.0168	15083.521	25.3369	7.8747	16.578
L18	35.1741	50.1440	7256.1640	12.0541	17.6810	410.3943	14702.955	24.6793	7.9082	17.099
	36.8580	52.5663	8359.3761	12.6364	18.5235	451.2845	16938.362	25.8716	8.3441	18.041
L19	36.8580	52.5663	8359.3761	12.6364	18.5235	451.2845	16938.362	25.8716	8.3441	18.041
	37.7269	53.8163	8969.9825	12.9369	18.9583	473.1433	18175.616	26.4867	8.5690	18.528
L20	37.6652	73.8200	12185.270	12.8742	18.9583	642.7414	24690.661	36.3319	8.1000	12.706
	37.7494	73.9869	12268.130	12.9033	19.0004	645.6772	24858.557	36.4141	8.1218	12.74
L21	37.7538	72.5613	12040.096	12.9078	19.0004	633.6757	24396.499	35.7125	8.1553	13.049
	37.8110	72.6726	12095.584	12.9276	19.0291	635.6377	24508.933	35.7673	8.1701	13.072
L22	37.8551	58.3394	9777.3035	12.9724	19.0291	513.8092	19811.467	28.7129	8.5051	17.01
	37.9393	58.4703	9843.2846	13.0015	19.0712	516.1340	19945.163	28.7773	8.5269	17.054
L23	37.9437	57.0282	9607.1157	13.0059	19.0712	503.7504	19466.621	28.0675	8.5604	17.56
	39.6277	59.5815	10956.158	13.5883	19.9137	550.1808	22200.146	29.3242	8.9964	18.454
L24	39.6277	59.5815	10956.158	13.5883	19.9137	550.1808	22200.146	29.3242	8.9964	18.454
	39.8803	59.9644	11168.800	13.6756	20.0401	557.3219	22631.017	29.5127	9.0618	18.588
L25	39.8582	67.5415	12538.950	13.6532	20.0401	625.6922	25407.312	33.2419	8.8942	16.171
	40.1947	68.1171	12862.252	13.7696	20.2085	636.4781	26062.411	33.5252	8.9814	16.33
L26	40.2234	58.1770	11031.765	13.7987	20.2085	545.8979	22353.346	28.6329	9.1991	19.625
	40.3075	58.2996	11101.676	13.8278	20.2506	548.2157	22495.007	28.6933	9.2209	19.671
L27	40.3097	57.5316	10958.972	13.8300	20.2506	541.1688	22205.849	28.3153	9.2376	19.973
	41.9920	59.9516	12400.908	14.4117	21.0923	587.9350	25127.603	29.5064	9.6731	20.915
L28	41.9942	59.1506	12239.027	14.4140	21.0923	580.2601	24799.588	29.1121	9.6899	21.238
	43.6765	61.5380	13781.548	14.9957	21.9341	628.3172	27925.153	30.2871	10.1254	22.193
L29	43.6787	60.7040	13598.845	14.9980	21.9341	619.9876	27554.948	29.8767	10.1421	22.538
	46.6228	64.8246	16560.348	16.0160	23.4071	707.4918	33555.755	31.9047	10.9042	24.232
L30	45.8962	79.5008	17921.438	15.0450	22.0733	811.9066	36313.692	39.1279	9.8456	16.759
	46.2275	83.7383	20942.624	15.8469	23.2336	901.3940	42435.434	41.2135	10.4460	17.78
L31	46.2319	81.9798	20514.405	15.8513	23.2336	882.9630	41567.747	40.3480	10.4795	18.225
	47.0932	83.5202	21692.704	16.1492	23.6646	916.6743	43955.301	41.1061	10.7024	18.613
L32	47.1395	64.6434	16887.663	16.1962	23.6646	713.6265	34218.985	31.8155	11.0542	24.911

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
	47.2224	64.7577	16977.4106	16.2248	23.7060	716.1648	34400.8367	31.8718	11.0756	24.959
L33	47.2224	64.7577	16977.4106	16.2248	23.7060	716.1648	34400.8367	31.8718	11.0756	24.959
	47.2721	64.8263	17031.4110	16.2420	23.7309	717.6900	34510.2561	31.9055	11.0885	24.988
L34	47.2522	72.9531	19119.0319	16.2219	23.7309	805.6606	38740.3421	35.9053	10.9377	21.876
	48.9426	75.5820	21261.2370	16.8064	24.5767	865.0983	43081.0304	37.1991	11.3753	22.751
L35	48.9426	75.5820	21261.2370	16.8064	24.5767	865.0983	43081.0304	37.1991	11.3753	22.751
	50.6330	78.2108	23557.7642	17.3910	25.4225	926.6513	47734.4171	38.4930	11.8129	23.626
L36	50.6352	77.2431	23272.2724	17.3932	25.4225	915.4214	47155.9333	38.0167	11.8297	23.959
	52.3256	79.8391	25698.4002	17.9778	26.2683	978.3059	52071.9259	39.2944	12.2673	24.845
L37	52.3279	78.8382	25382.5789	17.9800	26.2683	966.2830	51431.9864	38.8018	12.2840	25.198
	54.0183	81.4013	27939.5730	18.5645	27.1141	1030.4458	56613.1497	40.0633	12.7216	26.096
L38	54.0183	81.4013	27939.5730	18.5645	27.1141	1030.4458	56613.1497	40.0633	12.7216	26.096
	55.7087	83.9645	30662.7710	19.1491	27.9599	1096.6711	62131.0872	41.3248	13.1592	26.993
L39	55.7087	83.9645	30662.7710	19.1491	27.9599	1096.6711	62131.0872	41.3248	13.1592	26.993
	56.4694	85.1179	31943.8286	19.4121	28.3405	1127.1454	64726.8571	41.8924	13.3561	27.397
L40	56.4694	85.1179	31943.8286	19.4121	28.3405	1127.1454	64726.8571	41.8924	13.3561	27.397
	56.5539	85.2460	32088.3320	19.4414	28.3828	1130.5572	65019.6602	41.9555	13.3780	27.442
L41	56.5561	84.1628	31687.8814	19.4436	28.3828	1116.4483	64208.2388	41.4224	13.3948	27.833
	58.2465	86.6930	34632.6307	20.0281	29.2286	1184.8903	70175.0992	42.6677	13.8324	28.743
L42	58.2465	86.6930	34632.6307	20.0281	29.2286	1184.8903	70175.0992	42.6677	13.8324	28.743
	60.7821	90.4884	39383.2600	20.9050	30.4973	1291.3709	79801.1622	44.5356	14.4888	30.106
L43	59.9695	97.9169	38205.1746	19.7935	28.9246	1320.8525	77414.0418	48.1917	13.4909	24.529
	60.3058	102.5203	43850.8919	20.7240	30.2711	1448.6070	88853.7955	50.4574	14.1875	25.795
L44	60.3058	102.5203	43850.8919	20.7240	30.2711	1448.6070	88853.7955	50.4574	14.1875	25.795
	61.9877	105.3974	47647.3330	21.3056	31.1126	1531.4481	96546.4145	51.8734	14.6229	26.587
L45	61.9899	104.2107	47120.7287	21.3079	31.1126	1514.5224	95479.3714	51.2893	14.6396	26.923
	63.5305	106.8161	50744.1775	21.8406	31.8834	1591.5529	102821.4610	52.5717	15.0384	27.657
L46	63.5548	93.4158	44478.2784	21.8652	31.8834	1395.0277	90125.0506	45.9764	15.2227	32.048
	63.6389	93.5400	44655.9766	21.8943	31.9255	1398.7552	90485.1155	46.0376	15.2444	32.094
L47	63.6389	93.5400	44655.9766	21.8943	31.9255	1398.7552	90485.1155	46.0376	15.2444	32.094
	63.6960	93.6245	44777.0814	21.9141	31.9541	1401.2927	90730.5066	46.0791	15.2593	32.125
L48	63.6762	104.6154	49941.6983	21.8939	31.9541	1562.9187	101195.4207	51.4885	15.1085	28.44
	65.3554	107.3901	54021.7781	22.4746	32.7943	1647.2900	109462.7685	52.8541	15.5432	29.258
L49	65.3576	106.1372	53402.1742	22.4769	32.7943	1628.3964	108207.2830	52.2375	15.5600	29.638
	66.0293	107.2341	55074.9011	22.7091	33.1304	1662.3667	111596.6812	52.7773	15.7338	29.969

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L50	66.0029	122.4083	62719.748	22.6823	33.1304	1893.1168	127087.21	60.2456	15.5328	25.888
	66.0868	122.5650	62960.907	22.7113	33.1724	1897.9892	127575.86	60.3228	15.5546	25.924
L51	66.0868	122.5650	62960.907	22.7113	33.1724	1897.9892	127575.86	60.3228	15.5546	25.924
	70.7048	131.1828	77197.350	24.3082	35.4830	2175.6151	156422.76	64.5642	16.7500	27.917
L52	69.8068	123.8516	64964.491	22.9497	33.5174	1938.2333	131635.67	60.9560	15.7330	26.222
	70.1435	130.1355	75363.116	24.1141	35.2022	2140.8640	152706.10	64.0487	16.6047	27.675
L53	70.1480	127.4480	73834.141	24.1186	35.2022	2097.4300	149607.98	62.7260	16.6382	28.32
	71.8316	130.5245	79311.167	24.7008	36.0446	2200.3615	160705.92	64.2402	17.0741	29.062
L54	71.8316	130.5245	79311.167	24.7008	36.0446	2200.3615	160705.92	64.2402	17.0741	29.062
	73.5152	133.6010	85052.567	25.2830	36.8870	2305.7588	172339.55	65.7543	17.5099	29.804
L55	73.5152	133.6010	85052.567	25.2830	36.8870	2305.7588	172339.55	65.7543	17.5099	29.804
	75.1989	136.6775	91064.571	25.8652	37.7294	2413.6218	184521.50	67.2685	17.9457	30.546
L56	75.2033	133.7926	89173.295	25.8697	37.7294	2363.4945	180689.27	65.8486	17.9792	31.268
	76.2135	135.5992	92834.670	26.2190	38.2349	2428.0103	188108.21	66.7378	18.2407	31.723

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 185.000- 180.000				1	1	1			
L2 180.000- 175.000				1	1	1			
L3 175.000- 170.000				1	1	1			
L4 170.000- 165.000				1	1	1			
L5 165.000- 160.000				1	1	1			
L6 160.000- 155.000				1	1	1			
L7 155.000- 154.000				1	1	1			
L8 154.000- 153.750				1	1	0.970809			
L9 153.750- 152.000				1	1	0.980964			
L10 152.000- 151.750				1	1	0.93677			
L11 151.750- 151.500				1	1	0.935299			
L12 151.500- 151.250				1	1	0.958557			
L13 151.250- 146.250				1	1	0.965409			
L14 146.250- 141.250				1	1	0.975178			
L15 141.250- 136.250				1	1	0.97226			
L16 136.250- 130.000				1	1	0.967999			
L17 130.000- 129.000				1	1	0.967523			

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L18 129.000-124.000				1	1	0.972439			
L19 124.000-121.420				1	1	0.962408			
L20 121.420-121.170				1	1	0.944552			
L21 121.170-121.000				1	1	0.962247			
L22 121.000-120.750				1	1	0.965877			
L23 120.750-115.750				1	1	0.96984			
L24 115.750-115.000				1	1	0.966921			
L25 115.000-114.000				1	1	0.968635			
L26 114.000-113.750				1	1	0.978556			
L27 113.750-108.750				1	1	0.978866			
L28 108.750-103.750				1	1	0.980204			
L29 103.750-95.000				1	1	0.987419			
L30 95.000-94.000				1	1	0.965747			
L31 94.000-91.400				1	1	0.978292			
L32 91.400-91.150				1	1	0.984623			
L33 91.150-91.000				1	1	0.984326			
L34 91.000-86.000				1	1	0.990491			
L35 86.000-81.000				1	1	0.982407			
L36 81.000-76.000				1	1	0.987066			
L37 76.000-71.000				1	1	0.992343			
L38 71.000-66.000				1	1	0.985532			
L39 66.000-63.750				1	1	0.982601			
L40 63.750-63.500				1	1	0.982281			
L41 63.500-58.500				1	1	0.988627			
L42 58.500-51.000				1	1	0.988018			
L43 51.000-50.000				1	1	0.991576			
L44 50.000-45.000				1	1	0.98312			
L45 45.000-40.420				1	1	0.986885			
L46 40.420-40.170				1	1	0.983471			
L47 40.170-40.000				1	1	0.983296			
L48 40.000-35.000				1	1	0.992613			
L49 35.000-33.000				1	1	1.00258			
L50 33.000-32.750				1	1	1.07829			

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L51 32.750-19.000				1	1	1.07001			
L52 19.000-18.000				1	1	1.05798			
L53 18.000-13.000				1	1	1.07238			
L54 13.000-8.000				1	1	1.06483			
L55 8.000-3.000				1	1	1.05762			
L56 3.000-0.000				1	1	1.07617			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
LDF7-50A(1-5/8")	B	No	Surface Ar (CaAa)	185.000 - 0.000	7	7	0.328 0.480	1.9800		0.001

CCI-045100 (L)	C	No	Surface Af (CaAa)	53.500 - 38.500	1	1	-0.318 -0.318	4.5000	11.0000	0.000
CCI-045100 (L)	B	No	Surface Af (CaAa)	53.500 - 38.500	1	1	-0.318 -0.318	4.5000	11.0000	0.000
CCI-045100 (L)	A	No	Surface Af (CaAa)	53.500 - 38.500	1	1	-0.318 -0.318	4.5000	11.0000	0.000
CCI-060100 (L)	C	No	Surface Af (CaAa)	123.500 - 88.500	1	1	-0.318 -0.318	6.0000	14.0000	0.000
CCI-060100 (L)	B	No	Surface Af (CaAa)	123.500 - 88.500	1	1	-0.318 -0.318	6.0000	14.0000	0.000
CCI-060100 (L)	A	No	Surface Af (CaAa)	123.500 - 88.500	1	1	-0.318 -0.318	6.0000	14.0000	0.000
CCI-045100 (L)	B	No	Surface Af (CaAa)	154.000 - 119.000	1	1	0.432 0.432	4.5000	11.0000	0.000
CCI-045100 (L)	A	No	Surface Af (CaAa)	154.000 - 119.000	1	1	0.432 0.432	4.5000	11.0000	0.000
CCI-045100 (L)	C	No	Surface Af (CaAa)	154.000 - 119.000	1	1	0.432 0.432	4.5000	11.0000	0.000

CCI-085125 (L)	B	No	Surface Af (CaAa)	37.000 - 2.000	1	1	0.182 0.182	8.5000	19.5000	0.000
CCI-085125 (L)	A	No	Surface Af (CaAa)	37.000 - 2.000	1	1	0.432 0.432	8.5000	19.5000	0.000
CCI-085125 (L)	A	No	Surface Af (CaAa)	37.000 - 2.000	1	1	-0.318 -0.318	8.5000	19.5000	0.000
CCI-085125 (L)	C	No	Surface Af (CaAa)	37.000 - 2.000	1	1	0.182 0.182	8.5000	19.5000	0.000
CCI-060100 (L)	B	No	Surface Af (CaAa)	65.750 - 30.750	1	1	-0.068 -0.068	6.0000	14.0000	0.000
CCI-060100 (L)	A	No	Surface Af (CaAa)	65.750 - 30.750	1	1	-0.068 -0.068	6.0000	14.0000	0.000
CCI-060100 (L)	C	No	Surface Af (CaAa)	65.750 - 30.750	1	1	-0.068 -0.068	6.0000	14.0000	0.000
CCI-060100 (L)	B	No	Surface Af (CaAa)	101.250 - 61.250	1	1	0.182 0.182	6.0000	14.0000	0.000
CCI-060100 (L)	A	No	Surface Af (CaAa)	101.250 - 61.250	1	1	0.182 0.182	6.0000	14.0000	0.000
CCI-060100 (L)	C	No	Surface Af (CaAa)	101.250 - 61.250	1	1	0.182 0.182	6.0000	14.0000	0.000
CCI-040075 (W)	B	No	Surface Af (CaAa)	132.750 - 112.750	1	1	0.182 0.182	4.0000	9.5000	0.000
CCI-040075 (W)	A	No	Surface Af (CaAa)	132.750 - 112.750	1	1	0.182 0.182	4.0000	9.5000	0.000

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
CCI-040075 (W)	C	No	Surface Af (CaAa)	132.750 - 112.750	1	1	0.182	4.0000	9.5000	0.000
CCI-040075 (W)	B	No	Surface Af (CaAa)	154.750 - 149.750	1	1	0.182	4.0000	9.5000	0.000
CCI-040075 (W)	A	No	Surface Af (CaAa)	154.750 - 149.750	1	1	0.182	4.0000	9.5000	0.000
CCI-040075 (W)	C	No	Surface Af (CaAa)	154.750 - 149.750	1	1	0.182	4.0000	9.5000	0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight klf
LDF7-50A(1-5/8")	C	No	No	Inside Pole	185.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.001 0.001 0.001 0.001

LDF6-50A(1-1/4")	C	No	No	Inside Pole	175.000 - 0.000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.001 0.001 0.001 0.001
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	175.000 - 0.000	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.001 0.001 0.001 0.001
FB-L98B-034-XXXXXX(3/8)	C	No	No	Inside Pole	175.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000

LDF7-50A(1-5/8")	C	No	No	Inside Pole	165.000 - 0.000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.001 0.001 0.001 0.001

HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	155.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.001 0.001 0.001 0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	185.000-180.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.930	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.008
L2	180.000-175.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.930	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.008
L3	175.000-170.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.930	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.060
L4	170.000-165.000	A	0.000	0.000	0.000	0.000	0.000

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
		B	0.000	0.000	6.930	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.060
L5	165.000-160.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.930	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.085
L6	160.000-155.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	6.930	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.085
L7	155.000-154.000	A	0.000	0.000	0.415	0.000	0.000
		B	0.000	0.000	1.801	0.000	0.006
		C	0.000	0.000	0.415	0.000	0.020
L8	154.000-153.750	A	0.000	0.000	0.326	0.000	0.000
		B	0.000	0.000	0.672	0.000	0.001
		C	0.000	0.000	0.326	0.000	0.005
L9	153.750-152.000	A	0.000	0.000	2.280	0.000	0.000
		B	0.000	0.000	4.705	0.000	0.010
		C	0.000	0.000	2.280	0.000	0.034
L10	152.000-151.750	A	0.000	0.000	0.326	0.000	0.000
		B	0.000	0.000	0.672	0.000	0.001
		C	0.000	0.000	0.326	0.000	0.005
L11	151.750-151.500	A	0.000	0.000	0.326	0.000	0.000
		B	0.000	0.000	0.672	0.000	0.001
		C	0.000	0.000	0.326	0.000	0.005
L12	151.500-151.250	A	0.000	0.000	0.326	0.000	0.000
		B	0.000	0.000	0.672	0.000	0.001
		C	0.000	0.000	0.326	0.000	0.005
L13	151.250-146.250	A	0.000	0.000	4.579	0.000	0.000
		B	0.000	0.000	11.509	0.000	0.029
		C	0.000	0.000	4.579	0.000	0.098
L14	146.250-141.250	A	0.000	0.000	3.750	0.000	0.000
		B	0.000	0.000	10.680	0.000	0.029
		C	0.000	0.000	3.750	0.000	0.098
L15	141.250-136.250	A	0.000	0.000	3.750	0.000	0.000
		B	0.000	0.000	10.680	0.000	0.029
		C	0.000	0.000	3.750	0.000	0.098
L16	136.250-130.000	A	0.000	0.000	6.521	0.000	0.000
		B	0.000	0.000	15.183	0.000	0.036
		C	0.000	0.000	6.521	0.000	0.122
L17	130.000-129.000	A	0.000	0.000	1.417	0.000	0.000
		B	0.000	0.000	2.803	0.000	0.006
		C	0.000	0.000	1.417	0.000	0.020
L18	129.000-124.000	A	0.000	0.000	7.083	0.000	0.000
		B	0.000	0.000	14.013	0.000	0.029
		C	0.000	0.000	7.083	0.000	0.098
L19	124.000-121.420	A	0.000	0.000	5.735	0.000	0.000
		B	0.000	0.000	9.311	0.000	0.015
		C	0.000	0.000	5.735	0.000	0.050
L20	121.420-121.170	A	0.000	0.000	0.604	0.000	0.000
		B	0.000	0.000	0.951	0.000	0.001
		C	0.000	0.000	0.604	0.000	0.005
L21	121.170-121.000	A	0.000	0.000	0.411	0.000	0.000
		B	0.000	0.000	0.646	0.000	0.001
		C	0.000	0.000	0.411	0.000	0.003
L22	121.000-120.750	A	0.000	0.000	0.604	0.000	0.000
		B	0.000	0.000	0.951	0.000	0.001
		C	0.000	0.000	0.604	0.000	0.005
L23	120.750-115.750	A	0.000	0.000	9.646	0.000	0.000
		B	0.000	0.000	16.576	0.000	0.029
		C	0.000	0.000	9.646	0.000	0.098
L24	115.750-115.000	A	0.000	0.000	1.250	0.000	0.000
		B	0.000	0.000	2.289	0.000	0.004
		C	0.000	0.000	1.250	0.000	0.015
L25	115.000-114.000	A	0.000	0.000	1.667	0.000	0.000
		B	0.000	0.000	3.053	0.000	0.006
		C	0.000	0.000	1.667	0.000	0.020
L26	114.000-113.750	A	0.000	0.000	0.417	0.000	0.000
		B	0.000	0.000	0.763	0.000	0.001
		C	0.000	0.000	0.417	0.000	0.005
L27	113.750-108.750	A	0.000	0.000	5.667	0.000	0.000

Tower Section <i>n</i>	Tower Elevation <i>ft</i>	Face	A_R <i>ft</i> ²	A_F <i>ft</i> ²	C_{AA} <i>In Face</i> <i>ft</i> ²	C_{AA} <i>Out Face</i> <i>ft</i> ²	Weight <i>K</i>
		B	0.000	0.000	12.597	0.000	0.029
		C	0.000	0.000	5.667	0.000	0.098
L28	108.750-103.750	A	0.000	0.000	5.000	0.000	0.000
		B	0.000	0.000	11.930	0.000	0.029
		C	0.000	0.000	5.000	0.000	0.098
L29	103.750-95.000	A	0.000	0.000	15.000	0.000	0.000
		B	0.000	0.000	27.127	0.000	0.050
		C	0.000	0.000	15.000	0.000	0.171
L30	95.000-94.000	A	0.000	0.000	2.000	0.000	0.000
		B	0.000	0.000	3.386	0.000	0.006
		C	0.000	0.000	2.000	0.000	0.020
L31	94.000-91.400	A	0.000	0.000	5.200	0.000	0.000
		B	0.000	0.000	8.804	0.000	0.015
		C	0.000	0.000	5.200	0.000	0.051
L32	91.400-91.150	A	0.000	0.000	0.500	0.000	0.000
		B	0.000	0.000	0.846	0.000	0.001
		C	0.000	0.000	0.500	0.000	0.005
L33	91.150-91.000	A	0.000	0.000	0.300	0.000	0.000
		B	0.000	0.000	0.508	0.000	0.001
		C	0.000	0.000	0.300	0.000	0.003
L34	91.000-86.000	A	0.000	0.000	7.500	0.000	0.000
		B	0.000	0.000	14.430	0.000	0.029
		C	0.000	0.000	7.500	0.000	0.098
L35	86.000-81.000	A	0.000	0.000	5.000	0.000	0.000
		B	0.000	0.000	11.930	0.000	0.029
		C	0.000	0.000	5.000	0.000	0.098
L36	81.000-76.000	A	0.000	0.000	5.000	0.000	0.000
		B	0.000	0.000	11.930	0.000	0.029
		C	0.000	0.000	5.000	0.000	0.098
L37	76.000-71.000	A	0.000	0.000	5.000	0.000	0.000
		B	0.000	0.000	11.930	0.000	0.029
		C	0.000	0.000	5.000	0.000	0.098
L38	71.000-66.000	A	0.000	0.000	5.000	0.000	0.000
		B	0.000	0.000	11.930	0.000	0.029
		C	0.000	0.000	5.000	0.000	0.098
L39	66.000-63.750	A	0.000	0.000	4.250	0.000	0.000
		B	0.000	0.000	7.369	0.000	0.013
		C	0.000	0.000	4.250	0.000	0.044
L40	63.750-63.500	A	0.000	0.000	0.500	0.000	0.000
		B	0.000	0.000	0.846	0.000	0.001
		C	0.000	0.000	0.500	0.000	0.005
L41	63.500-58.500	A	0.000	0.000	7.250	0.000	0.000
		B	0.000	0.000	14.180	0.000	0.029
		C	0.000	0.000	7.250	0.000	0.098
L42	58.500-51.000	A	0.000	0.000	9.375	0.000	0.000
		B	0.000	0.000	19.770	0.000	0.043
		C	0.000	0.000	9.375	0.000	0.146
L43	51.000-50.000	A	0.000	0.000	1.750	0.000	0.000
		B	0.000	0.000	3.136	0.000	0.006
		C	0.000	0.000	1.750	0.000	0.020
L44	50.000-45.000	A	0.000	0.000	8.750	0.000	0.000
		B	0.000	0.000	15.680	0.000	0.029
		C	0.000	0.000	8.750	0.000	0.098
L45	45.000-40.420	A	0.000	0.000	8.015	0.000	0.000
		B	0.000	0.000	14.363	0.000	0.026
		C	0.000	0.000	8.015	0.000	0.089
L46	40.420-40.170	A	0.000	0.000	0.438	0.000	0.000
		B	0.000	0.000	0.784	0.000	0.001
		C	0.000	0.000	0.438	0.000	0.005
L47	40.170-40.000	A	0.000	0.000	0.297	0.000	0.000
		B	0.000	0.000	0.533	0.000	0.001
		C	0.000	0.000	0.297	0.000	0.003
L48	40.000-35.000	A	0.000	0.000	11.792	0.000	0.000
		B	0.000	0.000	15.888	0.000	0.029
		C	0.000	0.000	8.958	0.000	0.098
L49	35.000-33.000	A	0.000	0.000	7.667	0.000	0.000
		B	0.000	0.000	7.605	0.000	0.011
		C	0.000	0.000	4.833	0.000	0.039
L50	33.000-32.750	A	0.000	0.000	0.958	0.000	0.000

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L51	32.750-19.000	B	0.000	0.000	0.951	0.000	0.001
		C	0.000	0.000	0.604	0.000	0.005
		A	0.000	0.000	40.958	0.000	0.000
L52	19.000-18.000	B	0.000	0.000	40.537	0.000	0.079
		C	0.000	0.000	21.479	0.000	0.268
		A	0.000	0.000	2.833	0.000	0.000
L53	18.000-13.000	B	0.000	0.000	2.803	0.000	0.006
		C	0.000	0.000	1.417	0.000	0.020
		A	0.000	0.000	14.167	0.000	0.000
L54	13.000-8.000	B	0.000	0.000	14.013	0.000	0.029
		C	0.000	0.000	7.083	0.000	0.098
		A	0.000	0.000	14.167	0.000	0.000
L55	8.000-3.000	B	0.000	0.000	14.013	0.000	0.029
		C	0.000	0.000	7.083	0.000	0.098
		A	0.000	0.000	14.167	0.000	0.000
L56	3.000-0.000	B	0.000	0.000	14.013	0.000	0.029
		C	0.000	0.000	7.083	0.000	0.098
		A	0.000	0.000	2.833	0.000	0.000
		B	0.000	0.000	5.575	0.000	0.017
		C	0.000	0.000	1.417	0.000	0.059
		A	0.000	0.000			

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	185.000-180.000	A	1.513	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.554	0.000	0.141
		C		0.000	0.000	0.000	0.000	0.008
L2	180.000-175.000	A	1.509	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.548	0.000	0.140
		C		0.000	0.000	0.000	0.000	0.008
L3	175.000-170.000	A	1.504	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.543	0.000	0.140
		C		0.000	0.000	0.000	0.000	0.060
L4	170.000-165.000	A	1.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.537	0.000	0.140
		C		0.000	0.000	0.000	0.000	0.060
L5	165.000-160.000	A	1.495	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.532	0.000	0.139
		C		0.000	0.000	0.000	0.000	0.085
L6	160.000-155.000	A	1.491	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	10.526	0.000	0.139
		C		0.000	0.000	0.000	0.000	0.085
L7	155.000-154.000	A	1.488	0.000	0.000	0.534	0.000	0.007
		B		0.000	0.000	2.638	0.000	0.034
		C		0.000	0.000	0.534	0.000	0.026
L8	154.000-153.750	A	1.487	0.000	0.000	0.440	0.000	0.005
		B		0.000	0.000	0.966	0.000	0.012
		C		0.000	0.000	0.440	0.000	0.009
L9	153.750-152.000	A	1.486	0.000	0.000	3.078	0.000	0.032
		B		0.000	0.000	6.760	0.000	0.081
		C		0.000	0.000	3.078	0.000	0.066
L10	152.000-151.750	A	1.485	0.000	0.000	0.440	0.000	0.005
		B		0.000	0.000	0.966	0.000	0.012
		C		0.000	0.000	0.440	0.000	0.009
L11	151.750-151.500	A	1.485	0.000	0.000	0.440	0.000	0.005
		B		0.000	0.000	0.966	0.000	0.012
		C		0.000	0.000	0.440	0.000	0.009
L12	151.500-151.250	A	1.485	0.000	0.000	0.440	0.000	0.005
		B		0.000	0.000	0.966	0.000	0.012
		C		0.000	0.000	0.440	0.000	0.009
L13	151.250-146.250	A	1.482	0.000	0.000	6.299	0.000	0.061
		B		0.000	0.000	16.814	0.000	0.199
		C		0.000	0.000	6.299	0.000	0.159
L14	146.250-141.250	A	1.477	0.000	0.000	5.227	0.000	0.048
		B		0.000	0.000	15.736	0.000	0.186
		C		0.000	0.000	5.227	0.000	0.145

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L15	141.250-136.250	A	1.472	0.000	0.000	5.222	0.000	0.047
		B		0.000	0.000	15.724	0.000	0.185
		C		0.000	0.000	5.222	0.000	0.145
L16	136.250-130.000	A	1.466	0.000	0.000	9.159	0.000	0.083
		B		0.000	0.000	22.278	0.000	0.254
		C		0.000	0.000	9.159	0.000	0.205
L17	130.000-129.000	A	1.462	0.000	0.000	2.003	0.000	0.018
		B		0.000	0.000	4.102	0.000	0.045
		C		0.000	0.000	2.003	0.000	0.038
L18	129.000-124.000	A	1.458	0.000	0.000	10.000	0.000	0.089
		B		0.000	0.000	20.485	0.000	0.226
		C		0.000	0.000	10.000	0.000	0.187
L19	124.000-121.420	A	1.454	0.000	0.000	7.840	0.000	0.069
		B		0.000	0.000	13.248	0.000	0.139
		C		0.000	0.000	7.840	0.000	0.119
L20	121.420-121.170	A	1.452	0.000	0.000	0.822	0.000	0.007
		B		0.000	0.000	1.346	0.000	0.014
		C		0.000	0.000	0.822	0.000	0.012
L21	121.170-121.000	A	1.452	0.000	0.000	0.559	0.000	0.005
		B		0.000	0.000	0.915	0.000	0.010
		C		0.000	0.000	0.559	0.000	0.008
L22	121.000-120.750	A	1.452	0.000	0.000	0.822	0.000	0.007
		B		0.000	0.000	1.346	0.000	0.014
		C		0.000	0.000	0.822	0.000	0.012
L23	120.750-115.750	A	1.449	0.000	0.000	13.050	0.000	0.113
		B		0.000	0.000	23.523	0.000	0.249
		C		0.000	0.000	13.050	0.000	0.211
L24	115.750-115.000	A	1.445	0.000	0.000	1.684	0.000	0.015
		B		0.000	0.000	3.254	0.000	0.035
		C		0.000	0.000	1.684	0.000	0.029
L25	115.000-114.000	A	1.444	0.000	0.000	2.244	0.000	0.019
		B		0.000	0.000	4.338	0.000	0.046
		C		0.000	0.000	2.244	0.000	0.039
L26	114.000-113.750	A	1.443	0.000	0.000	0.561	0.000	0.005
		B		0.000	0.000	1.084	0.000	0.012
		C		0.000	0.000	0.561	0.000	0.010
L27	113.750-108.750	A	1.440	0.000	0.000	7.394	0.000	0.063
		B		0.000	0.000	17.857	0.000	0.198
		C		0.000	0.000	7.394	0.000	0.160
L28	108.750-103.750	A	1.433	0.000	0.000	6.433	0.000	0.054
		B		0.000	0.000	16.887	0.000	0.189
		C		0.000	0.000	6.433	0.000	0.152
L29	103.750-95.000	A	1.424	0.000	0.000	19.271	0.000	0.161
		B		0.000	0.000	37.544	0.000	0.395
		C		0.000	0.000	19.271	0.000	0.332
L30	95.000-94.000	A	1.416	0.000	0.000	2.569	0.000	0.021
		B		0.000	0.000	4.658	0.000	0.048
		C		0.000	0.000	2.569	0.000	0.041
L31	94.000-91.400	A	1.414	0.000	0.000	6.670	0.000	0.055
		B		0.000	0.000	12.094	0.000	0.125
		C		0.000	0.000	6.670	0.000	0.106
L32	91.400-91.150	A	1.412	0.000	0.000	0.641	0.000	0.005
		B		0.000	0.000	1.163	0.000	0.012
		C		0.000	0.000	0.641	0.000	0.010
L33	91.150-91.000	A	1.411	0.000	0.000	0.385	0.000	0.003
		B		0.000	0.000	0.697	0.000	0.007
		C		0.000	0.000	0.385	0.000	0.006
L34	91.000-86.000	A	1.407	0.000	0.000	9.611	0.000	0.079
		B		0.000	0.000	20.032	0.000	0.212
		C		0.000	0.000	9.611	0.000	0.177
L35	86.000-81.000	A	1.399	0.000	0.000	6.399	0.000	0.052
		B		0.000	0.000	16.810	0.000	0.185
		C		0.000	0.000	6.399	0.000	0.150
L36	81.000-76.000	A	1.390	0.000	0.000	6.390	0.000	0.052
		B		0.000	0.000	16.791	0.000	0.183
		C		0.000	0.000	6.390	0.000	0.150
L37	76.000-71.000	A	1.381	0.000	0.000	6.381	0.000	0.052
		B		0.000	0.000	16.770	0.000	0.182
		C		0.000	0.000	6.381	0.000	0.149

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L38	71.000-66.000	A	1.372	0.000	0.000	6.372	0.000	0.051
		B		0.000	0.000	16.749	0.000	0.181
		C		0.000	0.000	6.372	0.000	0.149
L39	66.000-63.750	A	1.364	0.000	0.000	5.410	0.000	0.043
		B		0.000	0.000	10.075	0.000	0.101
		C		0.000	0.000	5.410	0.000	0.087
L40	63.750-63.500	A	1.362	0.000	0.000	0.636	0.000	0.005
		B		0.000	0.000	1.154	0.000	0.012
		C		0.000	0.000	0.636	0.000	0.010
L41	63.500-58.500	A	1.356	0.000	0.000	9.216	0.000	0.073
		B		0.000	0.000	19.573	0.000	0.202
		C		0.000	0.000	9.216	0.000	0.171
L42	58.500-51.000	A	1.341	0.000	0.000	12.057	0.000	0.096
		B		0.000	0.000	27.566	0.000	0.287
		C		0.000	0.000	12.057	0.000	0.242
L43	51.000-50.000	A	1.330	0.000	0.000	2.286	0.000	0.018
		B		0.000	0.000	4.354	0.000	0.044
		C		0.000	0.000	2.286	0.000	0.038
L44	50.000-45.000	A	1.322	0.000	0.000	11.395	0.000	0.090
		B		0.000	0.000	21.710	0.000	0.216
		C		0.000	0.000	11.395	0.000	0.188
L45	45.000-40.420	A	1.308	0.000	0.000	10.412	0.000	0.081
		B		0.000	0.000	19.845	0.000	0.196
		C		0.000	0.000	10.412	0.000	0.171
L46	40.420-40.170	A	1.301	0.000	0.000	0.568	0.000	0.004
		B		0.000	0.000	1.082	0.000	0.011
		C		0.000	0.000	0.568	0.000	0.009
L47	40.170-40.000	A	1.300	0.000	0.000	0.386	0.000	0.003
		B		0.000	0.000	0.736	0.000	0.007
		C		0.000	0.000	0.386	0.000	0.006
L48	40.000-35.000	A	1.291	0.000	0.000	14.504	0.000	0.108
		B		0.000	0.000	21.430	0.000	0.208
		C		0.000	0.000	11.154	0.000	0.181
L49	35.000-33.000	A	1.279	0.000	0.000	9.201	0.000	0.067
		B		0.000	0.000	9.961	0.000	0.092
		C		0.000	0.000	5.856	0.000	0.082
L50	33.000-32.750	A	1.275	0.000	0.000	1.150	0.000	0.008
		B		0.000	0.000	1.244	0.000	0.011
		C		0.000	0.000	0.732	0.000	0.010
L51	32.750-19.000	A	1.244	0.000	0.000	48.298	0.000	0.340
		B		0.000	0.000	53.496	0.000	0.510
		C		0.000	0.000	25.398	0.000	0.447
L52	19.000-18.000	A	1.203	0.000	0.000	3.331	0.000	0.023
		B		0.000	0.000	3.709	0.000	0.036
		C		0.000	0.000	1.665	0.000	0.031
L53	18.000-13.000	A	1.182	0.000	0.000	16.531	0.000	0.110
		B		0.000	0.000	18.406	0.000	0.171
		C		0.000	0.000	8.265	0.000	0.153
L54	13.000-8.000	A	1.137	0.000	0.000	16.441	0.000	0.105
		B		0.000	0.000	18.304	0.000	0.165
		C		0.000	0.000	8.220	0.000	0.150
L55	8.000-3.000	A	1.066	0.000	0.000	16.298	0.000	0.098
		B		0.000	0.000	18.144	0.000	0.156
		C		0.000	0.000	8.149	0.000	0.146
L56	3.000-0.000	A	0.936	0.000	0.000	3.208	0.000	0.017
		B		0.000	0.000	7.503	0.000	0.067
		C		0.000	0.000	1.604	0.000	0.067

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	185.000-180.000	4.5985	1.5353	4.0852	1.3639
L2	180.000-175.000	4.6796	1.5623	4.1822	1.3962
L3	175.000-170.000	4.8258	1.6111	4.3625	1.4564
L4	170.000-165.000	4.9597	1.6558	4.5312	1.5128
L5	165.000-160.000	5.0829	1.6970	4.6894	1.5656

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L6	160.000-155.000	5.1965	1.7349	4.8380	1.6152
L7	155.000-154.000	3.8919	1.2993	3.8487	1.2849
L8	154.000-153.750	2.2676	0.7571	2.5191	0.8410
L9	153.750-152.000	2.2848	0.7628	2.5409	0.8483
L10	152.000-151.750	2.3036	0.7691	2.5641	0.8560
L11	151.750-151.500	2.3078	0.7705	2.5695	0.8579
L12	151.500-151.250	2.3109	0.7715	2.5740	0.8594
L13	151.250-146.250	2.7645	0.9229	3.0548	1.0199
L14	146.250-141.250	3.0751	1.0267	3.4012	1.1355
L15	141.250-136.250	3.1592	1.0547	3.5167	1.1741
L16	136.250-130.000	2.8729	0.9592	3.2016	1.0689
L17	130.000-129.000	2.5346	0.8462	2.8138	0.9394
L18	129.000-124.000	2.5771	0.8604	2.8696	0.9580
L19	124.000-121.420	2.0461	0.6831	2.3192	0.7743
L20	121.420-121.170	1.9600	0.6543	2.2291	0.7442
L21	121.170-121.000	1.9624	0.6551	2.2321	0.7452
L22	121.000-120.750	1.9642	0.6558	2.2347	0.7461
L23	120.750-115.750	2.2823	0.7620	2.6085	0.8709
L24	115.750-115.000	2.5113	0.8384	2.8819	0.9621
L25	115.000-114.000	2.5228	0.8423	2.8969	0.9671
L26	114.000-113.750	2.5300	0.8447	2.9067	0.9704
L27	113.750-108.750	3.0444	1.0164	3.5551	1.1869
L28	108.750-103.750	3.2587	1.0880	3.8382	1.2814
L29	103.750-95.000	2.6680	0.8907	3.1597	1.0549
L30	95.000-94.000	2.5010	0.8350	2.9666	0.9904
L31	94.000-91.400	2.5203	0.8414	2.9925	0.9991
L32	91.400-91.150	2.5346	0.8462	3.0121	1.0056
L33	91.150-91.000	2.5368	0.8469	3.0150	1.0066
L34	91.000-86.000	2.9667	0.9905	3.5279	1.1778
L35	86.000-81.000	3.9658	1.3240	4.2128	1.4065
L36	81.000-76.000	4.0299	1.3454	4.2876	1.4315
L37	76.000-71.000	4.0919	1.3661	4.3602	1.4557
L38	71.000-66.000	4.1521	1.3862	4.4307	1.4792
L39	66.000-63.750	2.9233	0.9760	3.5145	1.1733
L40	63.750-63.500	2.8557	0.9534	3.4341	1.1465
L41	63.500-58.500	3.6823	1.2294	3.9846	1.3303
L42	58.500-51.000	3.9804	1.3289	4.2706	1.4258
L43	51.000-50.000	3.1083	1.0377	3.7191	1.2416
L44	50.000-45.000	3.1353	1.0468	3.7568	1.2542
L45	45.000-40.420	3.1776	1.0609	3.8161	1.2740
L46	40.420-40.170	3.1980	1.0677	3.8449	1.2837
L47	40.170-40.000	3.1998	1.0683	3.8475	1.2845
L48	40.000-35.000	3.2323	1.8824	3.9155	2.0916
L49	35.000-33.000	2.9083	2.6319	3.5147	2.8151
L50	33.000-32.750	2.9191	2.6418	3.5285	2.8263
L51	32.750-19.000	3.5439	3.2082	4.3237	3.4645
L52	19.000-18.000	3.7050	3.3546	4.5347	3.6343
L53	18.000-13.000	3.7323	3.3798	4.5635	3.6581
L54	13.000-8.000	3.7773	3.4212	4.6186	3.7032
L55	8.000-3.000	3.8213	3.4616	4.6677	3.7436
L56	3.000-0.000	5.5951	3.0276	5.9056	2.9574

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	2	LDF7-50A(1-5/8")	180.00 - 185.00	1.0000	1.0000
L2	2	LDF7-50A(1-5/8")	175.00 - 180.00	1.0000	1.0000
L3	2	LDF7-50A(1-5/8")	170.00 - 175.00	1.0000	1.0000
L4	2	LDF7-50A(1-5/8")	165.00 - 170.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L5	2	LDF7-50A(1-5/8")	160.00 - 165.00	1.0000	1.0000
L6	2	LDF7-50A(1-5/8")	155.00 - 160.00	1.0000	1.0000
L7	2	LDF7-50A(1-5/8")	154.00 - 155.00	1.0000	1.0000
L7	51	CCI-040075 (W)	154.00 - 154.75	1.0000	1.0000
L7	52	CCI-040075 (W)	154.00 - 154.75	1.0000	1.0000
L7	53	CCI-040075 (W)	154.00 - 154.75	1.0000	1.0000
L8	2	LDF7-50A(1-5/8")	153.75 - 154.00	1.0000	1.0000
L8	34	CCI-045100 (L)	153.75 - 154.00	1.0000	1.0000
L8	35	CCI-045100 (L)	153.75 - 154.00	1.0000	1.0000
L8	36	CCI-045100 (L)	153.75 - 154.00	1.0000	1.0000
L8	51	CCI-040075 (W)	153.75 - 154.00	1.0000	1.0000
L8	52	CCI-040075 (W)	153.75 - 154.00	1.0000	1.0000
L8	53	CCI-040075 (W)	153.75 - 154.00	1.0000	1.0000
L9	2	LDF7-50A(1-5/8")	152.00 - 153.75	1.0000	1.0000
L9	34	CCI-045100 (L)	152.00 - 153.75	1.0000	1.0000
L9	35	CCI-045100 (L)	152.00 - 153.75	1.0000	1.0000
L9	36	CCI-045100 (L)	152.00 - 153.75	1.0000	1.0000
L9	51	CCI-040075 (W)	152.00 - 153.75	1.0000	1.0000
L9	52	CCI-040075 (W)	152.00 - 153.75	1.0000	1.0000
L9	53	CCI-040075 (W)	152.00 - 153.75	1.0000	1.0000
L10	2	LDF7-50A(1-5/8")	151.75 - 152.00	1.0000	1.0000
L10	34	CCI-045100 (L)	151.75 - 152.00	1.0000	1.0000
L10	35	CCI-045100 (L)	151.75 - 152.00	1.0000	1.0000
L10	36	CCI-045100 (L)	151.75 - 152.00	1.0000	1.0000
L10	51	CCI-040075 (W)	151.75 - 152.00	1.0000	1.0000
L10	52	CCI-040075 (W)	151.75 - 152.00	1.0000	1.0000
L10	53	CCI-040075 (W)	151.75 - 152.00	1.0000	1.0000
L11	2	LDF7-50A(1-5/8")	151.50 - 151.75	1.0000	1.0000
L11	34	CCI-045100 (L)	151.50 - 151.75	1.0000	1.0000
L11	35	CCI-045100 (L)	151.50 - 151.75	1.0000	1.0000
L11	36	CCI-045100 (L)	151.50 - 151.75	1.0000	1.0000
L11	51	CCI-040075 (W)	151.50 - 151.75	1.0000	1.0000
L11	52	CCI-040075 (W)	151.50 - 151.75	1.0000	1.0000
L11	53	CCI-040075 (W)	151.50 - 151.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L12	2	LDF7-50A(1-5/8")	151.25 - 151.50	1.0000	1.0000
L12	34	CCI-045100 (L)	151.25 - 151.50	1.0000	1.0000
L12	35	CCI-045100 (L)	151.25 - 151.50	1.0000	1.0000
L12	36	CCI-045100 (L)	151.25 - 151.50	1.0000	1.0000
L12	51	CCI-040075 (W)	151.25 - 151.50	1.0000	1.0000
L12	52	CCI-040075 (W)	151.25 - 151.50	1.0000	1.0000
L12	53	CCI-040075 (W)	151.25 - 151.50	1.0000	1.0000
L13	2	LDF7-50A(1-5/8")	146.25 - 151.25	1.0000	1.0000
L13	34	CCI-045100 (L)	146.25 - 151.25	1.0000	1.0000
L13	35	CCI-045100 (L)	146.25 - 151.25	1.0000	1.0000
L13	36	CCI-045100 (L)	146.25 - 151.25	1.0000	1.0000
L13	51	CCI-040075 (W)	149.75 - 151.25	1.0000	1.0000
L13	52	CCI-040075 (W)	149.75 - 151.25	1.0000	1.0000
L13	53	CCI-040075 (W)	149.75 - 151.25	1.0000	1.0000
L14	2	LDF7-50A(1-5/8")	141.25 - 146.25	1.0000	1.0000
L14	34	CCI-045100 (L)	141.25 - 146.25	1.0000	1.0000
L14	35	CCI-045100 (L)	141.25 - 146.25	1.0000	1.0000
L14	36	CCI-045100 (L)	141.25 - 146.25	1.0000	1.0000
L15	2	LDF7-50A(1-5/8")	136.25 - 141.25	1.0000	1.0000
L15	34	CCI-045100 (L)	136.25 - 141.25	1.0000	1.0000
L15	35	CCI-045100 (L)	136.25 - 141.25	1.0000	1.0000
L15	36	CCI-045100 (L)	136.25 - 141.25	1.0000	1.0000
L16	2	LDF7-50A(1-5/8")	130.00 - 136.25	1.0000	1.0000
L16	34	CCI-045100 (L)	130.00 - 136.25	1.0000	1.0000
L16	35	CCI-045100 (L)	130.00 - 136.25	1.0000	1.0000
L16	36	CCI-045100 (L)	130.00 - 136.25	1.0000	1.0000
L16	48	CCI-040075 (W)	130.00 - 132.75	1.0000	1.0000
L16	49	CCI-040075 (W)	130.00 - 132.75	1.0000	1.0000
L16	50	CCI-040075 (W)	130.00 - 132.75	1.0000	1.0000
L18	2	LDF7-50A(1-5/8")	124.00 - 129.00	1.0000	1.0000
L18	34	CCI-045100 (L)	124.00 - 129.00	1.0000	1.0000
L18	35	CCI-045100 (L)	124.00 - 129.00	1.0000	1.0000
L18	36	CCI-045100 (L)	124.00 - 129.00	1.0000	1.0000
L18	48	CCI-040075 (W)	124.00 - 129.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L18	49	CCI-040075 (W)	124.00 - 129.00	1.0000	1.0000
L18	50	CCI-040075 (W)	124.00 - 129.00	1.0000	1.0000
L19	2	LDF7-50A(1-5/8")	121.42 - 124.00	1.0000	1.0000
L19	31	CCI-060100 (L)	121.42 - 123.50	1.0000	1.0000
L19	32	CCI-060100 (L)	121.42 - 123.50	1.0000	1.0000
L19	33	CCI-060100 (L)	121.42 - 123.50	1.0000	1.0000
L19	34	CCI-045100 (L)	121.42 - 124.00	1.0000	1.0000
L19	35	CCI-045100 (L)	121.42 - 124.00	1.0000	1.0000
L19	36	CCI-045100 (L)	121.42 - 124.00	1.0000	1.0000
L19	48	CCI-040075 (W)	121.42 - 124.00	1.0000	1.0000
L19	49	CCI-040075 (W)	121.42 - 124.00	1.0000	1.0000
L19	50	CCI-040075 (W)	121.42 - 124.00	1.0000	1.0000
L20	2	LDF7-50A(1-5/8")	121.17 - 121.42	1.0000	1.0000
L20	31	CCI-060100 (L)	121.17 - 121.42	1.0000	1.0000
L20	32	CCI-060100 (L)	121.17 - 121.42	1.0000	1.0000
L20	33	CCI-060100 (L)	121.17 - 121.42	1.0000	1.0000
L20	34	CCI-045100 (L)	121.17 - 121.42	1.0000	1.0000
L20	35	CCI-045100 (L)	121.17 - 121.42	1.0000	1.0000
L20	36	CCI-045100 (L)	121.17 - 121.42	1.0000	1.0000
L20	48	CCI-040075 (W)	121.17 - 121.42	1.0000	1.0000
L20	49	CCI-040075 (W)	121.17 - 121.42	1.0000	1.0000
L20	50	CCI-040075 (W)	121.17 - 121.42	1.0000	1.0000
L21	2	LDF7-50A(1-5/8")	121.00 - 121.17	1.0000	1.0000
L21	31	CCI-060100 (L)	121.00 - 121.17	1.0000	1.0000
L21	32	CCI-060100 (L)	121.00 - 121.17	1.0000	1.0000
L21	33	CCI-060100 (L)	121.00 - 121.17	1.0000	1.0000
L21	34	CCI-045100 (L)	121.00 - 121.17	1.0000	1.0000
L21	35	CCI-045100 (L)	121.00 - 121.17	1.0000	1.0000
L21	36	CCI-045100 (L)	121.00 - 121.17	1.0000	1.0000
L21	48	CCI-040075 (W)	121.00 - 121.17	1.0000	1.0000
L21	49	CCI-040075 (W)	121.00 - 121.17	1.0000	1.0000
L21	50	CCI-040075 (W)	121.00 - 121.17	1.0000	1.0000
L22	2	LDF7-50A(1-5/8")	120.75 - 121.00	1.0000	1.0000
L22	31	CCI-060100 (L)	120.75 - 121.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L22	32	CCI-060100 (L)	120.75 - 121.00	1.0000	1.0000
L22	33	CCI-060100 (L)	120.75 - 121.00	1.0000	1.0000
L22	34	CCI-045100 (L)	120.75 - 121.00	1.0000	1.0000
L22	35	CCI-045100 (L)	120.75 - 121.00	1.0000	1.0000
L22	36	CCI-045100 (L)	120.75 - 121.00	1.0000	1.0000
L22	48	CCI-040075 (W)	120.75 - 121.00	1.0000	1.0000
L22	49	CCI-040075 (W)	120.75 - 121.00	1.0000	1.0000
L22	50	CCI-040075 (W)	120.75 - 121.00	1.0000	1.0000
L23	2	LDF7-50A(1-5/8")	115.75 - 120.75	1.0000	1.0000
L23	31	CCI-060100 (L)	115.75 - 120.75	1.0000	1.0000
L23	32	CCI-060100 (L)	115.75 - 120.75	1.0000	1.0000
L23	33	CCI-060100 (L)	115.75 - 120.75	1.0000	1.0000
L23	34	CCI-045100 (L)	119.00 - 120.75	1.0000	1.0000
L23	35	CCI-045100 (L)	119.00 - 120.75	1.0000	1.0000
L23	36	CCI-045100 (L)	119.00 - 120.75	1.0000	1.0000
L23	48	CCI-040075 (W)	115.75 - 120.75	1.0000	1.0000
L23	49	CCI-040075 (W)	115.75 - 120.75	1.0000	1.0000
L23	50	CCI-040075 (W)	115.75 - 120.75	1.0000	1.0000
L24	2	LDF7-50A(1-5/8")	115.00 - 115.75	1.0000	1.0000
L24	31	CCI-060100 (L)	115.00 - 115.75	1.0000	1.0000
L24	32	CCI-060100 (L)	115.00 - 115.75	1.0000	1.0000
L24	33	CCI-060100 (L)	115.00 - 115.75	1.0000	1.0000
L24	48	CCI-040075 (W)	115.00 - 115.75	1.0000	1.0000
L24	49	CCI-040075 (W)	115.00 - 115.75	1.0000	1.0000
L24	50	CCI-040075 (W)	115.00 - 115.75	1.0000	1.0000
L25	2	LDF7-50A(1-5/8")	114.00 - 115.00	1.0000	1.0000
L25	31	CCI-060100 (L)	114.00 - 115.00	1.0000	1.0000
L25	32	CCI-060100 (L)	114.00 - 115.00	1.0000	1.0000
L25	33	CCI-060100 (L)	114.00 - 115.00	1.0000	1.0000
L25	48	CCI-040075 (W)	114.00 - 115.00	1.0000	1.0000
L25	49	CCI-040075 (W)	114.00 - 115.00	1.0000	1.0000
L25	50	CCI-040075 (W)	114.00 - 115.00	1.0000	1.0000
L26	2	LDF7-50A(1-5/8")	113.75 - 114.00	1.0000	1.0000
L26	31	CCI-060100 (L)	113.75 - 114.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L26	32	CCI-060100 (L)	113.75 - 114.00	1.0000	1.0000
L26	33	CCI-060100 (L)	113.75 - 114.00	1.0000	1.0000
L26	48	CCI-040075 (W)	113.75 - 114.00	1.0000	1.0000
L26	49	CCI-040075 (W)	113.75 - 114.00	1.0000	1.0000
L26	50	CCI-040075 (W)	113.75 - 114.00	1.0000	1.0000
L27	2	LDF7-50A(1-5/8")	108.75 - 113.75	1.0000	1.0000
L27	31	CCI-060100 (L)	108.75 - 113.75	1.0000	1.0000
L27	32	CCI-060100 (L)	108.75 - 113.75	1.0000	1.0000
L27	33	CCI-060100 (L)	108.75 - 113.75	1.0000	1.0000
L27	48	CCI-040075 (W)	112.75 - 113.75	1.0000	1.0000
L27	49	CCI-040075 (W)	112.75 - 113.75	1.0000	1.0000
L27	50	CCI-040075 (W)	112.75 - 113.75	1.0000	1.0000
L28	2	LDF7-50A(1-5/8")	103.75 - 108.75	1.0000	1.0000
L28	31	CCI-060100 (L)	103.75 - 108.75	1.0000	1.0000
L28	32	CCI-060100 (L)	103.75 - 108.75	1.0000	1.0000
L28	33	CCI-060100 (L)	103.75 - 108.75	1.0000	1.0000
L29	2	LDF7-50A(1-5/8")	95.00 - 103.75	1.0000	1.0000
L29	31	CCI-060100 (L)	95.00 - 103.75	1.0000	1.0000
L29	32	CCI-060100 (L)	95.00 - 103.75	1.0000	1.0000
L29	33	CCI-060100 (L)	95.00 - 103.75	1.0000	1.0000
L29	45	CCI-060100 (L)	95.00 - 101.25	1.0000	1.0000
L29	46	CCI-060100 (L)	95.00 - 101.25	1.0000	1.0000
L29	47	CCI-060100 (L)	95.00 - 101.25	1.0000	1.0000
L31	2	LDF7-50A(1-5/8")	91.40 - 94.00	1.0000	1.0000
L31	31	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L31	32	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L31	33	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L31	45	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L31	46	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L31	47	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L32	2	LDF7-50A(1-5/8")	91.15 - 91.40	1.0000	1.0000
L32	31	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L32	32	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L32	33	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L32	45	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L32	46	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L32	47	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L33	2	LDF7-50A(1-5/8")	91.00 - 91.15	1.0000	1.0000
L33	31	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L33	32	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L33	33	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L33	45	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L33	46	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L33	47	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L34	2	LDF7-50A(1-5/8")	86.00 - 91.00	1.0000	1.0000
L34	31	CCI-060100 (L)	88.50 - 91.00	1.0000	1.0000
L34	32	CCI-060100 (L)	88.50 - 91.00	1.0000	1.0000
L34	33	CCI-060100 (L)	88.50 - 91.00	1.0000	1.0000
L34	45	CCI-060100 (L)	86.00 - 91.00	1.0000	1.0000
L34	46	CCI-060100 (L)	86.00 - 91.00	1.0000	1.0000
L34	47	CCI-060100 (L)	86.00 - 91.00	1.0000	1.0000
L35	2	LDF7-50A(1-5/8")	81.00 - 86.00	1.0000	1.0000
L35	45	CCI-060100 (L)	81.00 - 86.00	1.0000	1.0000
L35	46	CCI-060100 (L)	81.00 - 86.00	1.0000	1.0000
L35	47	CCI-060100 (L)	81.00 - 86.00	1.0000	1.0000
L36	2	LDF7-50A(1-5/8")	76.00 - 81.00	1.0000	1.0000
L36	45	CCI-060100 (L)	76.00 - 81.00	1.0000	1.0000
L36	46	CCI-060100 (L)	76.00 - 81.00	1.0000	1.0000
L36	47	CCI-060100 (L)	76.00 - 81.00	1.0000	1.0000
L37	2	LDF7-50A(1-5/8")	71.00 - 76.00	1.0000	1.0000
L37	45	CCI-060100 (L)	71.00 - 76.00	1.0000	1.0000
L37	46	CCI-060100 (L)	71.00 - 76.00	1.0000	1.0000
L37	47	CCI-060100 (L)	71.00 - 76.00	1.0000	1.0000
L38	2	LDF7-50A(1-5/8")	66.00 - 71.00	1.0000	1.0000
L38	45	CCI-060100 (L)	66.00 - 71.00	1.0000	1.0000
L38	46	CCI-060100 (L)	66.00 - 71.00	1.0000	1.0000
L38	47	CCI-060100 (L)	66.00 - 71.00	1.0000	1.0000
L39	2	LDF7-50A(1-5/8")	63.75 - 66.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L39	42	CCI-060100 (L)	63.75 - 65.75	1.0000	1.0000
L39	43	CCI-060100 (L)	63.75 - 65.75	1.0000	1.0000
L39	44	CCI-060100 (L)	63.75 - 65.75	1.0000	1.0000
L39	45	CCI-060100 (L)	63.75 - 66.00	1.0000	1.0000
L39	46	CCI-060100 (L)	63.75 - 66.00	1.0000	1.0000
L39	47	CCI-060100 (L)	63.75 - 66.00	1.0000	1.0000
L40	2	LDF7-50A(1-5/8")	63.50 - 63.75	1.0000	1.0000
L40	42	CCI-060100 (L)	63.50 - 63.75	1.0000	1.0000
L40	43	CCI-060100 (L)	63.50 - 63.75	1.0000	1.0000
L40	44	CCI-060100 (L)	63.50 - 63.75	1.0000	1.0000
L40	45	CCI-060100 (L)	63.50 - 63.75	1.0000	1.0000
L40	46	CCI-060100 (L)	63.50 - 63.75	1.0000	1.0000
L40	47	CCI-060100 (L)	63.50 - 63.75	1.0000	1.0000
L41	2	LDF7-50A(1-5/8")	58.50 - 63.50	1.0000	1.0000
L41	42	CCI-060100 (L)	58.50 - 63.50	1.0000	1.0000
L41	43	CCI-060100 (L)	58.50 - 63.50	1.0000	1.0000
L41	44	CCI-060100 (L)	58.50 - 63.50	1.0000	1.0000
L41	45	CCI-060100 (L)	61.25 - 63.50	1.0000	1.0000
L41	46	CCI-060100 (L)	61.25 - 63.50	1.0000	1.0000
L41	47	CCI-060100 (L)	61.25 - 63.50	1.0000	1.0000
L42	2	LDF7-50A(1-5/8")	51.00 - 58.50	1.0000	1.0000
L42	28	CCI-045100 (L)	51.00 - 53.50	1.0000	1.0000
L42	29	CCI-045100 (L)	51.00 - 53.50	1.0000	1.0000
L42	30	CCI-045100 (L)	51.00 - 53.50	1.0000	1.0000
L42	42	CCI-060100 (L)	51.00 - 58.50	1.0000	1.0000
L42	43	CCI-060100 (L)	51.00 - 58.50	1.0000	1.0000
L42	44	CCI-060100 (L)	51.00 - 58.50	1.0000	1.0000
L44	2	LDF7-50A(1-5/8")	45.00 - 50.00	1.0000	1.0000
L44	28	CCI-045100 (L)	45.00 - 50.00	1.0000	1.0000
L44	29	CCI-045100 (L)	45.00 - 50.00	1.0000	1.0000
L44	30	CCI-045100 (L)	45.00 - 50.00	1.0000	1.0000
L44	42	CCI-060100 (L)	45.00 - 50.00	1.0000	1.0000
L44	43	CCI-060100 (L)	45.00 - 50.00	1.0000	1.0000
L44	44	CCI-060100 (L)	45.00 - 50.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L45	2	LDF7-50A(1-5/8")	40.42 - 45.00	1.0000	1.0000
L45	28	CCI-045100 (L)	40.42 - 45.00	1.0000	1.0000
L45	29	CCI-045100 (L)	40.42 - 45.00	1.0000	1.0000
L45	30	CCI-045100 (L)	40.42 - 45.00	1.0000	1.0000
L45	42	CCI-060100 (L)	40.42 - 45.00	1.0000	1.0000
L45	43	CCI-060100 (L)	40.42 - 45.00	1.0000	1.0000
L45	44	CCI-060100 (L)	40.42 - 45.00	1.0000	1.0000
L46	2	LDF7-50A(1-5/8")	40.17 - 40.42	1.0000	1.0000
L46	28	CCI-045100 (L)	40.17 - 40.42	1.0000	1.0000
L46	29	CCI-045100 (L)	40.17 - 40.42	1.0000	1.0000
L46	30	CCI-045100 (L)	40.17 - 40.42	1.0000	1.0000
L46	42	CCI-060100 (L)	40.17 - 40.42	1.0000	1.0000
L46	43	CCI-060100 (L)	40.17 - 40.42	1.0000	1.0000
L46	44	CCI-060100 (L)	40.17 - 40.42	1.0000	1.0000
L47	2	LDF7-50A(1-5/8")	40.00 - 40.17	1.0000	1.0000
L47	28	CCI-045100 (L)	40.00 - 40.17	1.0000	1.0000
L47	29	CCI-045100 (L)	40.00 - 40.17	1.0000	1.0000
L47	30	CCI-045100 (L)	40.00 - 40.17	1.0000	1.0000
L47	42	CCI-060100 (L)	40.00 - 40.17	1.0000	1.0000
L47	43	CCI-060100 (L)	40.00 - 40.17	1.0000	1.0000
L47	44	CCI-060100 (L)	40.00 - 40.17	1.0000	1.0000
L48	2	LDF7-50A(1-5/8")	35.00 - 40.00	1.0000	1.0000
L48	28	CCI-045100 (L)	38.50 - 40.00	1.0000	1.0000
L48	29	CCI-045100 (L)	38.50 - 40.00	1.0000	1.0000
L48	30	CCI-045100 (L)	38.50 - 40.00	1.0000	1.0000
L48	38	CCI-085125 (L)	35.00 - 37.00	1.0000	1.0000
L48	39	CCI-085125 (L)	35.00 - 37.00	1.0000	1.0000
L48	40	CCI-085125 (L)	35.00 - 37.00	1.0000	1.0000
L48	41	CCI-085125 (L)	35.00 - 37.00	1.0000	1.0000
L48	42	CCI-060100 (L)	35.00 - 40.00	1.0000	1.0000
L48	43	CCI-060100 (L)	35.00 - 40.00	1.0000	1.0000
L48	44	CCI-060100 (L)	35.00 - 40.00	1.0000	1.0000
L49	2	LDF7-50A(1-5/8")	33.00 - 35.00	1.0000	1.0000
L49	38	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L49	39	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L49	40	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L49	41	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L49	42	CCI-060100 (L)	33.00 - 35.00	1.0000	1.0000
L49	43	CCI-060100 (L)	33.00 - 35.00	1.0000	1.0000
L49	44	CCI-060100 (L)	33.00 - 35.00	1.0000	1.0000
L50	2	LDF7-50A(1-5/8")	32.75 - 33.00	1.0000	1.0000
L50	38	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L50	39	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L50	40	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L50	41	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L50	42	CCI-060100 (L)	32.75 - 33.00	1.0000	1.0000
L50	43	CCI-060100 (L)	32.75 - 33.00	1.0000	1.0000
L50	44	CCI-060100 (L)	32.75 - 33.00	1.0000	1.0000
L51	2	LDF7-50A(1-5/8")	19.00 - 32.75	1.0000	1.0000
L51	38	CCI-085125 (L)	19.00 - 32.75	1.0000	1.0000
L51	39	CCI-085125 (L)	19.00 - 32.75	1.0000	1.0000
L51	40	CCI-085125 (L)	19.00 - 32.75	1.0000	1.0000
L51	41	CCI-085125 (L)	19.00 - 32.75	1.0000	1.0000
L51	42	CCI-060100 (L)	30.75 - 32.75	1.0000	1.0000
L51	43	CCI-060100 (L)	30.75 - 32.75	1.0000	1.0000
L51	44	CCI-060100 (L)	30.75 - 32.75	1.0000	1.0000
L53	2	LDF7-50A(1-5/8")	13.00 - 18.00	1.0000	1.0000
L53	38	CCI-085125 (L)	13.00 - 18.00	1.0000	1.0000
L53	39	CCI-085125 (L)	13.00 - 18.00	1.0000	1.0000
L53	40	CCI-085125 (L)	13.00 - 18.00	1.0000	1.0000
L53	41	CCI-085125 (L)	13.00 - 18.00	1.0000	1.0000
L54	2	LDF7-50A(1-5/8")	8.00 - 13.00	1.0000	1.0000
L54	38	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L54	39	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L54	40	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L54	41	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L55	2	LDF7-50A(1-5/8")	3.00 - 8.00	1.0000	1.0000
L55	38	CCI-085125 (L)	3.00 - 8.00	1.0000	1.0000
L55	39	CCI-085125 (L)	3.00 - 8.00	1.0000	1.0000
L55	40	CCI-085125 (L)	3.00 - 8.00	1.0000	1.0000
L55	41	CCI-085125 (L)	3.00 - 8.00	1.0000	1.0000
L56	2	LDF7-50A(1-5/8")	0.00 - 3.00	1.0000	1.0000
L56	38	CCI-085125 (L)	2.00 - 3.00	1.0000	1.0000
L56	39	CCI-085125 (L)	2.00 - 3.00	1.0000	1.0000
L56	40	CCI-085125 (L)	2.00 - 3.00	1.0000	1.0000
L56	41	CCI-085125 (L)	2.00 - 3.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
185									
APX16DWV-16DWVS-E-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	7.290	3.703	0.062
						1/2"	7.738	4.495	0.113
						Ice	8.183	5.215	0.171
						1" Ice	9.098	6.704	0.309
APX16DWV-16DWVS-E-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	7.290	3.703	0.062
						1/2"	7.738	4.495	0.113
						Ice	8.183	5.215	0.171
						1" Ice	9.098	6.704	0.309
APX16DWV-16DWVS-E-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	7.290	3.703	0.062
						1/2"	7.738	4.495	0.113
						Ice	8.183	5.215	0.171
						1" Ice	9.098	6.704	0.309
AIR 32 B2A B66AA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	7.087	6.374	0.165
						1/2"	7.561	7.231	0.228
						Ice	8.021	7.973	0.298
						1" Ice	8.966	9.507	0.464
AIR 32 B2A B66AA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	7.087	6.374	0.165
						1/2"	7.561	7.231	0.228
						Ice	8.021	7.973	0.298
						1" Ice	8.966	9.507	0.464
AIR 32 B2A B66AA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	7.087	6.374	0.165
						1/2"	7.561	7.231	0.228
						Ice	8.021	7.973	0.298
						1" Ice	8.966	9.507	0.464
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	14.690	6.870	0.186
						1/2"	15.460	7.550	0.315
						Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	14.690	6.870	0.186
						1/2"	15.460	7.550	0.315
						Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	14.690	6.870	0.186
						1/2"	15.460	7.550	0.315
						Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
RADIO 4449 B12/B71	A	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	1.650	1.163	0.074
						1/2"	1.810	1.301	0.090
						Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
RADIO 4449 B12/B71	B	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	1.650	1.163	0.074
						1/2"	1.810	1.301	0.090
						Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
RADIO 4449 B12/B71	C	From Leg	4.000 0.000 0.000	0.000	185.000	No Ice	1.650	1.163	0.074
						1/2"	1.810	1.301	0.090
						Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	185.000	2" Ice			
						No Ice	0.350	0.175	0.011
						1/2"	0.426	0.234	0.014
						Ice	0.509	0.301	0.019
						1" Ice	0.698	0.456	0.032
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	185.000	2" Ice			
						No Ice	0.350	0.175	0.011
						1/2"	0.426	0.234	0.014
						Ice	0.509	0.301	0.019
						1" Ice	0.698	0.456	0.032
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	185.000	2" Ice			
						No Ice	0.350	0.175	0.011
						1/2"	0.426	0.234	0.014
						Ice	0.509	0.301	0.019
						1" Ice	0.698	0.456	0.032
Platform Mount [LP 1301-1]	C	None		0.000	185.000	2" Ice			
						No Ice	51.700	51.700	2.262
						1/2"	62.700	62.700	2.935
						Ice	73.700	73.700	3.608
						1" Ice	95.700	95.700	4.954
175 7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	5.746	4.254	0.055
						1/2"	6.179	5.014	0.103
						Ice	6.607	5.711	0.157
						1" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	5.746	4.254	0.055
						1/2"	6.179	5.014	0.103
						Ice	6.607	5.711	0.157
						1" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	5.746	4.254	0.055
						1/2"	6.179	5.014	0.103
						Ice	6.607	5.711	0.157
						1" Ice	7.488	7.155	0.287
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	9.895	7.179	0.099
						1/2"	10.470	8.362	0.175
						Ice	11.010	9.259	0.261
						1" Ice	12.112	11.086	0.459
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	9.895	7.179	0.099
						1/2"	10.470	8.362	0.175
						Ice	11.010	9.259	0.261
						1" Ice	12.112	11.086	0.459
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	9.895	7.179	0.099
						1/2"	10.470	8.362	0.175
						Ice	11.010	9.259	0.261
						1" Ice	12.112	11.086	0.459
QS66512-2 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	2.600	5.000	0.140
						1/2"	9.290	9.657	0.211
						Ice	9.910	10.620	0.295
						1" Ice	11.176	12.610	0.491
QS66512-2 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	2.600	5.000	0.140
						1/2"	9.290	9.657	0.211
						Ice	9.910	10.620	0.295
						1" Ice	11.176	12.610	0.491
QS66512-2 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice			
						No Ice	2.600	5.000	0.140
						1/2"	9.290	9.657	0.211
						Ice	9.910	10.620	0.295

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						1" Ice	11.176	12.610	0.491
(2) LGP21401	A	From Leg	4.000 0.000 0.000	0.000	175.000	2" Ice No Ice	1.104	0.347	0.014
						1/2" Ice	1.239	0.442	0.021
						1" Ice	1.381	0.544	0.030
						2" Ice	1.688	0.770	0.055
(2) LGP21401	B	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	1.104	0.347	0.014
						1/2" Ice	1.239	0.442	0.021
						1" Ice	1.381	0.544	0.030
						2" Ice	1.688	0.770	0.055
(2) LGP21401	C	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	1.104	0.347	0.014
						1/2" Ice	1.239	0.442	0.021
						1" Ice	1.381	0.544	0.030
						2" Ice	1.688	0.770	0.055
(2) 7020.00	A	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	0.102	0.175	0.002
						1/2" Ice	0.147	0.239	0.005
						1" Ice	0.199	0.311	0.009
						2" Ice	0.326	0.476	0.022
(2) 7020.00	B	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	0.102	0.175	0.002
						1/2" Ice	0.147	0.239	0.005
						1" Ice	0.199	0.311	0.009
						2" Ice	0.326	0.476	0.022
(2) 7020.00	C	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	0.102	0.175	0.002
						1/2" Ice	0.147	0.239	0.005
						1" Ice	0.199	0.311	0.009
						2" Ice	0.326	0.476	0.022
(2) DC6-48-60-18-8F	A	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	1.212	1.212	0.033
						1/2" Ice	1.892	1.892	0.055
						1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
RRUS-11	A	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	2.791	1.192	0.050
						1/2" Ice	2.998	1.340	0.071
						1" Ice	3.213	1.496	0.095
						2" Ice	3.666	1.839	0.153
RRUS-11	B	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	2.791	1.192	0.050
						1/2" Ice	2.998	1.340	0.071
						1" Ice	3.213	1.496	0.095
						2" Ice	3.666	1.839	0.153
RRUS-11	C	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	2.791	1.192	0.050
						1/2" Ice	2.998	1.340	0.071
						1" Ice	3.213	1.496	0.095
						2" Ice	3.666	1.839	0.153
782 10254	A	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	0.044	0.078	0.003
						1/2" Ice	0.074	0.122	0.004
						1" Ice	0.112	0.173	0.007
						2" Ice	0.210	0.297	0.014
782 10254	B	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	0.044	0.078	0.003
						1/2" Ice	0.074	0.122	0.004
						1" Ice	0.112	0.173	0.007
						2" Ice	0.210	0.297	0.014
782 10254	C	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	0.044	0.078	0.003
						1/2" Ice	0.074	0.122	0.004
						1" Ice	0.112	0.173	0.007

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
RRUS 32 B66	A	From Leg	4.000 0.000 0.000	0.000	175.000	1" Ice	0.210	0.297	0.014
						2" Ice			
						No Ice	2.743	1.668	0.053
						1/2" Ice	2.965	1.855	0.074
RRUS 32 B66	B	From Leg	4.000 0.000 0.000	0.000	175.000	1" Ice	3.194	2.049	0.098
						2" Ice	3.675	2.458	0.157
						No Ice	2.743	1.668	0.053
						1/2" Ice	2.965	1.855	0.074
RRUS 32 B66	C	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						No Ice	2.743	1.668	0.053
						1/2" Ice	2.965	1.855	0.074
RRUS 32	A	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						No Ice	2.857	1.777	0.055
						1/2" Ice	3.083	1.968	0.077
RRUS 32	B	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	3.316	2.166	0.103
						1" Ice	3.805	2.583	0.165
						No Ice	2.857	1.777	0.055
						1/2" Ice	3.083	1.968	0.077
RRUS 32	C	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	3.316	2.166	0.103
						1" Ice	3.805	2.583	0.165
						No Ice	2.857	1.777	0.055
						1/2" Ice	3.083	1.968	0.077
(2) DBC0061F1V51-2	A	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	0.353	0.586	0.021
						1" Ice	0.521	0.788	0.036
						No Ice	0.213	0.413	0.013
						1/2" Ice	0.279	0.496	0.016
(2) DBC0061F1V51-2	B	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	0.353	0.586	0.021
						1" Ice	0.521	0.788	0.036
						No Ice	0.213	0.413	0.013
						1/2" Ice	0.279	0.496	0.016
(2) DBC0061F1V51-2	C	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	0.353	0.586	0.021
						1" Ice	0.521	0.788	0.036
						No Ice	0.213	0.413	0.013
						1/2" Ice	0.279	0.496	0.016
RRUS 32 B2	A	From Leg	4.000 0.000 0.000	0.000	175.000	1" Ice	3.675	2.458	0.157
						2" Ice			
						No Ice	2.743	1.668	0.053
						1/2" Ice	2.965	1.855	0.074
RRUS 32 B2	B	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						No Ice	2.743	1.668	0.053
						1/2" Ice	2.965	1.855	0.074
RRUS 32 B2	C	From Leg	4.000 0.000 0.000	0.000	175.000	Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						No Ice	2.743	1.668	0.053
						1/2" Ice	2.965	1.855	0.074
6' x 2.375" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	175.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						Ice	2.294	2.294	0.048

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						1" Ice	3.060	3.060	0.090
						2" Ice			
6' x 2.375" Pipe Mount	B	From Leg	4.000	0.000	175.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
6' x 2.375" Pipe Mount	C	From Leg	4.000	0.000	175.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
Sector Mount [SM 802-3]	C	None		0.000	175.000	No Ice	24.410	24.410	0.930
						1/2"	31.390	31.390	1.362
						Ice	38.370	38.370	1.794
						1" Ice	52.330	52.330	2.658
						2" Ice			
165									
APXV18-206517S-C	A	From Leg	1.000	0.000	165.000	No Ice	3.830	1.810	0.026
			0.000			1/2"	4.460	2.410	0.054
			0.000			Ice	5.110	3.030	0.087
						1" Ice	6.440	4.310	0.172
						2" Ice			
APXV18-206517S-C	B	From Leg	1.000	0.000	165.000	No Ice	3.830	1.810	0.026
			0.000			1/2"	4.460	2.410	0.054
			0.000			Ice	5.110	3.030	0.087
						1" Ice	6.440	4.310	0.172
						2" Ice			
APXV18-206517S-C	C	From Leg	1.000	0.000	165.000	No Ice	3.830	1.810	0.026
			0.000			1/2"	4.460	2.410	0.054
			0.000			Ice	5.110	3.030	0.087
						1" Ice	6.440	4.310	0.172
						2" Ice			
Pipe Mount [PM 601-3]	C	None		0.000	165.000	No Ice	4.390	4.390	0.195
						1/2"	5.480	5.480	0.237
						Ice	6.570	6.570	0.280
						1" Ice	8.750	8.750	0.365
						2" Ice			
155									
(4) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000	0.000	155.000	No Ice	4.090	3.300	0.066
			0.000			1/2"	4.490	3.680	0.130
			0.000			Ice	4.890	4.070	0.204
						1" Ice	5.720	4.870	0.386
						2" Ice			
(4) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	155.000	No Ice	4.090	3.300	0.066
			0.000			1/2"	4.490	3.680	0.130
			0.000			Ice	4.890	4.070	0.204
						1" Ice	5.720	4.870	0.386
						2" Ice			
(4) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000	0.000	155.000	No Ice	4.090	3.300	0.066
			0.000			1/2"	4.490	3.680	0.130
			0.000			Ice	4.890	4.070	0.204
						1" Ice	5.720	4.870	0.386
						2" Ice			
RRH2x60-700	A	From Leg	4.000	0.000	155.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice	4.585	2.785	0.173
						2" Ice			
RRH2x60-700	B	From Leg	4.000	0.000	155.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice	4.585	2.785	0.173
						2" Ice			
RRH2x60-700	C	From Leg	4.000	0.000	155.000	No Ice	3.500	1.816	0.060

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice	4.585	2.785	0.173
						2" Ice			
RRH2X60-PCS	A	From Leg	4.000	0.000	155.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			0.000			Ice	2.593	2.087	0.099
						1" Ice	3.015	2.480	0.155
						2" Ice			
RRH2X60-PCS	B	From Leg	4.000	0.000	155.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			0.000			Ice	2.593	2.087	0.099
						1" Ice	3.015	2.480	0.155
						2" Ice			
RRH2X60-PCS	C	From Leg	4.000	0.000	155.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			0.000			Ice	2.593	2.087	0.099
						1" Ice	3.015	2.480	0.155
						2" Ice			
AWS4 (B66) 4x45 RRH	C	From Leg	4.000	0.000	155.000	No Ice	2.660	1.586	0.064
			0.000			1/2"	2.878	1.769	0.084
			0.000			Ice	3.104	1.959	0.108
						1" Ice	3.577	2.359	0.165
						2" Ice			
AWS4 (B66) 4x45 RRH	A	From Leg	4.000	0.000	155.000	No Ice	2.660	1.586	0.064
			0.000			1/2"	2.878	1.769	0.084
			0.000			Ice	3.104	1.959	0.108
						1" Ice	3.577	2.359	0.165
						2" Ice			
AWS4 (B66) 4x45 RRH	B	From Leg	4.000	0.000	155.000	No Ice	2.660	1.586	0.064
			0.000			1/2"	2.878	1.769	0.084
			0.000			Ice	3.104	1.959	0.108
						1" Ice	3.577	2.359	0.165
						2" Ice			
(2) DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	155.000	No Ice	4.800	2.000	0.044
			0.000			1/2"	5.070	2.193	0.080
			0.000			Ice	5.348	2.393	0.120
						1" Ice	5.926	2.815	0.213
						2" Ice			
Platform Mount [LP 403-1]	C	None		0.000	155.000	No Ice	18.850	18.850	1.500
						1/2"	24.300	24.300	1.797
						Ice	29.750	29.750	2.093
						1" Ice	40.650	40.650	2.686
						2" Ice			

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 185.000-180.000	182.500	1.436	0.056	7.737	A	0.000	7.737	7.737	100.00	0.000	0.000
					B	0.000	7.737	7.737	100.00	6.930	0.000
					C	0.000	7.737	7.737	100.00	0.000	0.000
L2 180.000-175.000	177.464	1.428	0.056	8.080	A	0.000	8.080	8.080	100.00	0.000	0.000
					B	0.000	8.080	8.080	100.00	6.930	0.000
					C	0.000	8.080	8.080	100.00	0.000	0.000
L3 175.000-170.000	172.467	1.42	0.055	8.783	A	0.000	8.783	8.783	100.00	0.000	0.000
					B	0.000	8.783	8.783	100.00	6.930	0.000
					C	0.000	8.783	8.783	100.00	0.000	0.000

Section Elevation ft	z ft	K_z	q_z ksf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L4 170.000- 165.000	167.469	1.411	0.055	9.487	A	0.000	9.487	9.487	100.00	0.000	0.000
					B	0.000	9.487	100.00	6.930	0.000	
					C	0.000	9.487	100.00	0.000	0.000	
L5 165.000- 160.000	162.471	1.402	0.055	10.191	A	0.000	10.191	10.191	100.00	0.000	0.000
					B	0.000	10.191	100.00	6.930	0.000	
					C	0.000	10.191	100.00	0.000	0.000	
L6 160.000- 155.000	157.473	1.393	0.054	10.894	A	0.000	10.894	10.894	100.00	0.000	0.000
					B	0.000	10.894	100.00	6.930	0.000	
					C	0.000	10.894	100.00	0.000	0.000	
L7 155.000- 154.000	154.499	1.387	0.054	2.263	A	0.000	2.263	2.263	100.00	0.415	0.000
					B	0.000	2.263	100.00	1.801	0.000	
					C	0.000	2.263	100.00	0.415	0.000	
L8 154.000- 153.750	153.875	1.386	0.054	0.569	A	0.000	0.569	0.569	100.00	0.326	0.000
					B	0.000	0.569	100.00	0.672	0.000	
					C	0.000	0.569	100.00	0.326	0.000	
L9 153.750- 152.000	152.872	1.384	0.054	4.035	A	0.000	4.035	4.035	100.00	2.280	0.000
					B	0.000	4.035	100.00	4.705	0.000	
					C	0.000	4.035	100.00	2.280	0.000	
L10 152.000- 151.750	151.875	1.382	0.054	0.582	A	0.000	0.582	0.582	100.00	0.326	0.000
					B	0.000	0.582	100.00	0.672	0.000	
					C	0.000	0.582	100.00	0.326	0.000	
L11 151.750- 151.500	151.625	1.382	0.054	0.584	A	0.000	0.584	0.584	100.00	0.326	0.000
					B	0.000	0.584	100.00	0.672	0.000	
					C	0.000	0.584	100.00	0.326	0.000	
L12 151.500- 151.250	151.375	1.381	0.054	0.587	A	0.000	0.587	0.587	100.00	0.326	0.000
					B	0.000	0.587	100.00	0.672	0.000	
					C	0.000	0.587	100.00	0.326	0.000	
L13 151.250- 146.250	148.726	1.376	0.054	12.102	A	0.000	12.102	12.102	100.00	4.579	0.000
					B	0.000	12.102	100.00	11.509	0.000	
					C	0.000	12.102	100.00	4.579	0.000	
L14 146.250- 141.250	143.727	1.366	0.053	12.807	A	0.000	12.807	12.807	100.00	3.750	0.000
					B	0.000	12.807	100.00	10.680	0.000	
					C	0.000	12.807	100.00	3.750	0.000	
L15 141.250- 136.250	138.728	1.356	0.053	13.512	A	0.000	13.512	13.512	100.00	3.750	0.000
					B	0.000	13.512	100.00	10.680	0.000	
					C	0.000	13.512	100.00	3.750	0.000	
L16 136.250- 130.000	133.093	1.344	0.052	17.879	A	0.000	17.879	17.879	100.00	6.521	0.000
					B	0.000	17.879	100.00	15.183	0.000	
					C	0.000	17.879	100.00	6.521	0.000	
L17 130.000- 129.000	129.499	1.336	0.052	2.917	A	0.000	2.917	2.917	100.00	1.417	0.000
					B	0.000	2.917	100.00	2.803	0.000	
					C	0.000	2.917	100.00	1.417	0.000	
L18 129.000- 124.000	126.481	1.33	0.052	15.007	A	0.000	15.007	15.007	100.00	7.083	0.000
					B	0.000	15.007	100.00	14.013	0.000	
					C	0.000	15.007	100.00	7.083	0.000	
L19 124.000- 121.420	122.705	1.321	0.051	8.018	A	0.000	8.018	8.018	100.00	5.735	0.000
					B	0.000	8.018	100.00	9.311	0.000	
					C	0.000	8.018	100.00	5.735	0.000	
L20 121.420- 121.170	121.295	1.318	0.051	0.786	A	0.000	0.786	0.786	100.00	0.604	0.000
					B	0.000	0.786	100.00	0.951	0.000	
					C	0.000	0.786	100.00	0.604	0.000	
L21 121.170- 121.000	121.085	1.318	0.051	0.535	A	0.000	0.535	0.535	100.00	0.411	0.000
					B	0.000	0.535	100.00	0.646	0.000	
					C	0.000	0.535	100.00	0.411	0.000	
L22 121.000- 120.750	120.875	1.317	0.051	0.790	A	0.000	0.790	0.790	100.00	0.604	0.000
					B	0.000	0.790	100.00	0.951	0.000	
					C	0.000	0.790	100.00	0.604	0.000	
L23 120.750- 115.750	118.232	1.311	0.051	16.161	A	0.000	16.161	16.161	100.00	9.646	0.000
					B	0.000	16.161	100.00	16.576	0.000	
					C	0.000	16.161	100.00	9.646	0.000	
L24 115.750- 115.000	115.375	1.304	0.051	2.485	A	0.000	2.485	2.485	100.00	1.250	0.000
					B	0.000	2.485	100.00	2.289	0.000	
					C	0.000	2.485	100.00	1.250	0.000	
L25 115.000- 114.000	114.499	1.302	0.051	3.336	A	0.000	3.336	3.336	100.00	1.667	0.000
					B	0.000	3.336	100.00	3.053	0.000	
					C	0.000	3.336	100.00	1.667	0.000	
L26 114.000- 113.750	113.875	1.301	0.051	0.839	A	0.000	0.839	0.839	100.00	0.417	0.000
					B	0.000	0.839	100.00	0.763	0.000	
					C	0.000	0.839	100.00	0.763	0.000	

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L27 113.750- 108.750	111.233	1.294	0.050	17.146	C	0.000	0.839	17.146	100.00	0.417	0.000
					A	0.000	17.146		100.00	5.667	0.000
					B	0.000	17.146		100.00	12.597	0.000
L28 108.750- 103.750	106.234	1.282	0.050	17.848	C	0.000	17.146	17.848	100.00	5.667	0.000
					A	0.000	17.848		100.00	5.000	0.000
					B	0.000	17.848		100.00	11.930	0.000
L29 103.750- 95.000	99.328	1.264	0.049	32.922	C	0.000	17.848	32.922	100.00	5.000	0.000
					A	0.000	32.922		100.00	15.000	0.000
					B	0.000	32.922		100.00	27.127	0.000
L30 95.000- 94.000	94.499	1.251	0.049	3.838	C	0.000	32.922	3.838	100.00	15.000	0.000
					A	0.000	3.838		100.00	2.000	0.000
					B	0.000	3.838		100.00	3.386	0.000
L31 94.000- 91.400	92.696	1.246	0.048	10.110	C	0.000	3.838	10.110	100.00	2.000	0.000
					A	0.000	10.110		100.00	5.200	0.000
					B	0.000	10.110		100.00	8.804	0.000
L32 91.400- 91.150	91.275	1.242	0.048	0.983	C	0.000	10.110	0.983	100.00	5.200	0.000
					A	0.000	0.983		100.00	0.500	0.000
					B	0.000	0.983		100.00	0.846	0.000
L33 91.150- 91.000	91.075	1.241	0.048	0.591	C	0.000	0.983	0.591	100.00	0.500	0.000
					A	0.000	0.591		100.00	0.300	0.000
					B	0.000	0.591		100.00	0.508	0.000
L34 91.000- 86.000	88.485	1.233	0.048	20.041	C	0.000	0.591	20.041	100.00	0.300	0.000
					A	0.000	20.041		100.00	7.500	0.000
					B	0.000	20.041		100.00	14.430	0.000
L35 86.000- 81.000	83.486	1.218	0.047	20.745	C	0.000	20.041	20.745	100.00	7.500	0.000
					A	0.000	20.745		100.00	5.000	0.000
					B	0.000	20.745		100.00	11.930	0.000
L36 81.000- 76.000	78.486	1.203	0.047	21.450	C	0.000	20.745	21.450	100.00	5.000	0.000
					A	0.000	21.450		100.00	5.000	0.000
					B	0.000	21.450		100.00	11.930	0.000
L37 76.000- 71.000	73.487	1.186	0.046	22.155	C	0.000	21.450	22.155	100.00	5.000	0.000
					A	0.000	22.155		100.00	5.000	0.000
					B	0.000	22.155		100.00	11.930	0.000
L38 71.000- 66.000	68.487	1.169	0.045	22.860	C	0.000	22.155	22.860	100.00	5.000	0.000
					A	0.000	22.860		100.00	5.000	0.000
					B	0.000	22.860		100.00	11.930	0.000
L39 66.000- 63.750	64.872	1.155	0.045	10.517	C	0.000	22.860	10.517	100.00	5.000	0.000
					A	0.000	10.517		100.00	4.250	0.000
					B	0.000	10.517		100.00	7.369	0.000
L40 63.750- 63.500	63.625	1.151	0.045	1.177	C	0.000	10.517	1.177	100.00	4.250	0.000
					A	0.000	1.177		100.00	0.500	0.000
					B	0.000	1.177		100.00	0.846	0.000
L41 63.500- 58.500	60.988	1.14	0.044	23.917	C	0.000	1.177	23.917	100.00	0.500	0.000
					A	0.000	23.917		100.00	7.250	0.000
					B	0.000	23.917		100.00	14.180	0.000
L42 58.500- 51.000	54.723	1.115	0.043	37.196	C	0.000	23.917	37.196	100.00	7.250	0.000
					A	0.000	37.196		100.00	9.375	0.000
					B	0.000	37.196		100.00	19.770	0.000
L43 51.000- 50.000	50.500	1.096	0.043	5.011	C	0.000	37.196	5.011	100.00	9.375	0.000
					A	0.000	5.011		100.00	1.750	0.000
					B	0.000	5.011		100.00	3.136	0.000
L44 50.000- 45.000	47.489	1.082	0.042	25.478	C	0.000	5.011	25.478	100.00	1.750	0.000
					A	0.000	25.478		100.00	8.750	0.000
					B	0.000	25.478		100.00	15.680	0.000
L45 45.000- 40.420	42.701	1.058	0.041	23.953	C	0.000	25.478	23.953	100.00	8.750	0.000
					A	0.000	23.953		100.00	8.015	0.000
					B	0.000	23.953		100.00	14.363	0.000
L46 40.420- 40.170	40.295	1.045	0.041	1.325	C	0.000	23.953	1.325	100.00	8.015	0.000
					A	0.000	1.325		100.00	0.438	0.000
					B	0.000	1.325		100.00	0.784	0.000
L47 40.170- 40.000	40.085	1.044	0.041	0.902	C	0.000	1.325	0.902	100.00	0.438	0.000
					A	0.000	0.902		100.00	0.297	0.000
					B	0.000	0.902		100.00	0.533	0.000
L48 40.000- 35.000	37.489	1.029	0.040	26.882	C	0.000	0.902	26.882	100.00	0.297	0.000
					A	0.000	26.882		100.00	11.792	0.000
					B	0.000	26.882		100.00	15.888	0.000
					C	0.000	26.882		100.00	8.958	0.000

Section Elevation ft	z ft	K_z	q_z ksf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L49 35.000-33.000	33.998	1.008	0.039	10.949	A	0.000	10.949	10.949	100.00	7.667	0.000
					B	0.000	10.949	100.00	7.605	0.000	
					C	0.000	10.949	100.00	4.833	0.000	
L50 33.000-32.750	32.875	1.001	0.039	1.376	A	0.000	1.376	1.376	100.00	0.958	0.000
					B	0.000	1.376	100.00	0.951	0.000	
					C	0.000	1.376	100.00	0.604	0.000	
L51 32.750-19.000	25.798	0.952	0.037	78.370	A	0.000	78.370	78.370	100.00	40.958	0.000
					B	0.000	78.370	100.00	40.537	0.000	
					C	0.000	78.370	100.00	21.479	0.000	
L52 19.000-18.000	18.500	0.887	0.035	5.831	A	0.000	5.831	5.831	100.00	2.833	0.000
					B	0.000	5.831	100.00	2.803	0.000	
					C	0.000	5.831	100.00	1.417	0.000	
L53 18.000-13.000	15.490	0.855	0.033	29.579	A	0.000	29.579	29.579	100.00	14.167	0.000
					B	0.000	29.579	100.00	14.013	0.000	
					C	0.000	29.579	100.00	7.083	0.000	
L54 13.000-8.000	10.490	0.85	0.033	30.281	A	0.000	30.281	30.281	100.00	14.167	0.000
					B	0.000	30.281	100.00	14.013	0.000	
					C	0.000	30.281	100.00	7.083	0.000	
L55 8.000-3.000	5.491	0.85	0.033	30.982	A	0.000	30.982	30.982	100.00	14.167	0.000
					B	0.000	30.982	100.00	14.013	0.000	
					C	0.000	30.982	100.00	7.083	0.000	
L56 3.000-0.000	1.497	0.85	0.033	18.927	A	0.000	18.927	18.927	100.00	2.833	0.000
					B	0.000	18.927	100.00	5.575	0.000	
					C	0.000	18.927	100.00	1.417	0.000	

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z ksf	t_z in	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L1 185.000-180.000	182.500	1.436	0.008	1.5128	8.998	A	0.000	8.998	8.998	100.00	0.000	0.000
						B	0.000	8.998	100.00	10.554	0.000	
						C	0.000	8.998	100.00	0.000	0.000	
L2 180.000-175.000	177.464	1.428	0.008	1.5086	9.337	A	0.000	9.337	9.337	100.00	0.000	0.000
						B	0.000	9.337	100.00	10.548	0.000	
						C	0.000	9.337	100.00	0.000	0.000	
L3 175.000-170.000	172.467	1.42	0.008	1.5043	10.037	A	0.000	10.037	10.037	100.00	0.000	0.000
						B	0.000	10.037	100.00	10.543	0.000	
						C	0.000	10.037	100.00	0.000	0.000	
L4 170.000-165.000	167.469	1.411	0.008	1.4999	10.737	A	0.000	10.737	10.737	100.00	0.000	0.000
						B	0.000	10.737	100.00	10.537	0.000	
						C	0.000	10.737	100.00	0.000	0.000	
L5 165.000-160.000	162.471	1.402	0.008	1.4953	11.437	A	0.000	11.437	11.437	100.00	0.000	0.000
						B	0.000	11.437	100.00	10.532	0.000	
						C	0.000	11.437	100.00	0.000	0.000	
L6 160.000-155.000	157.473	1.393	0.008	1.4907	12.137	A	0.000	12.137	12.137	100.00	0.000	0.000
						B	0.000	12.137	100.00	10.526	0.000	
						C	0.000	12.137	100.00	0.000	0.000	
L7 155.000-154.000	154.499	1.387	0.008	1.4878	2.511	A	0.000	2.511	2.511	100.00	0.534	0.000
						B	0.000	2.511	100.00	2.638	0.000	
						C	0.000	2.511	100.00	0.534	0.000	
L8 154.000-153.750	153.875	1.386	0.008	1.4872	0.631	A	0.000	0.631	0.631	100.00	0.440	0.000
						B	0.000	0.631	100.00	0.966	0.000	
						C	0.000	0.631	100.00	0.440	0.000	
L9 153.750-152.000	152.872	1.384	0.008	1.4862	4.469	A	0.000	4.469	4.469	100.00	3.078	0.000
						B	0.000	4.469	100.00	6.760	0.000	
						C	0.000	4.469	100.00	3.078	0.000	
L10 152.000-151.750	151.875	1.382	0.008	1.4853	0.644	A	0.000	0.644	0.644	100.00	0.440	0.000
						B	0.000	0.644	100.00	0.966	0.000	
						C	0.000	0.644	100.00	0.440	0.000	
L11 151.750-151.500	151.625	1.382	0.008	1.4850	0.646	A	0.000	0.646	0.646	100.00	0.440	0.000
						B	0.000	0.646	100.00	0.966	0.000	
						C	0.000	0.646	100.00	0.440	0.000	

Section Elevation ft	z ft	K _Z	q _z ksf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L12 151.500- 151.250	151.375	1.381	0.008	1.4848	0.648	A	0.000	0.648	0.648	100.00	0.440	0.000
						B	0.000	0.648	0.648	100.00	0.966	0.000
						C	0.000	0.648	0.648	100.00	0.440	0.000
L13 151.250- 146.250	148.726	1.376	0.008	1.4822	13.337	A	0.000	13.337	13.337	100.00	6.299	0.000
						B	0.000	13.337	13.337	100.00	16.814	0.000
						C	0.000	13.337	13.337	100.00	6.299	0.000
L14 146.250- 141.250	143.727	1.366	0.008	1.4771	14.038	A	0.000	14.038	14.038	100.00	5.227	0.000
						B	0.000	14.038	14.038	100.00	15.736	0.000
						C	0.000	14.038	14.038	100.00	5.227	0.000
L15 141.250- 136.250	138.728	1.356	0.008	1.4719	14.739	A	0.000	14.739	14.739	100.00	5.222	0.000
						B	0.000	14.739	14.739	100.00	15.724	0.000
						C	0.000	14.739	14.739	100.00	5.222	0.000
L16 136.250- 130.000	133.093	1.344	0.008	1.4658	19.406	A	0.000	19.406	19.406	100.00	9.159	0.000
						B	0.000	19.406	19.406	100.00	22.278	0.000
						C	0.000	19.406	19.406	100.00	9.159	0.000
L17 130.000- 129.000	129.499	1.336	0.008	1.4618	3.161	A	0.000	3.161	3.161	100.00	2.003	0.000
						B	0.000	3.161	3.161	100.00	4.102	0.000
						C	0.000	3.161	3.161	100.00	2.003	0.000
L18 129.000- 124.000	126.481	1.33	0.008	1.4583	16.222	A	0.000	16.222	16.222	100.00	10.000	0.000
						B	0.000	16.222	16.222	100.00	20.485	0.000
						C	0.000	16.222	16.222	100.00	10.000	0.000
L19 124.000- 121.420	122.705	1.321	0.008	1.4539	8.643	A	0.000	8.643	8.643	100.00	7.840	0.000
						B	0.000	8.643	8.643	100.00	13.248	0.000
						C	0.000	8.643	8.643	100.00	7.840	0.000
L20 121.420- 121.170	121.295	1.318	0.008	1.4523	0.846	A	0.000	0.846	0.846	100.00	0.822	0.000
						B	0.000	0.846	0.846	100.00	1.346	0.000
						C	0.000	0.846	0.846	100.00	0.822	0.000
L21 121.170- 121.000	121.085	1.318	0.008	1.4520	0.576	A	0.000	0.576	0.576	100.00	0.559	0.000
						B	0.000	0.576	0.576	100.00	0.915	0.000
						C	0.000	0.576	0.576	100.00	0.559	0.000
L22 121.000- 120.750	120.875	1.317	0.008	1.4518	0.850	A	0.000	0.850	0.850	100.00	0.822	0.000
						B	0.000	0.850	0.850	100.00	1.346	0.000
						C	0.000	0.850	0.850	100.00	0.822	0.000
L23 120.750- 115.750	118.232	1.311	0.008	1.4485	17.368	A	0.000	17.368	17.368	100.00	13.050	0.000
						B	0.000	17.368	17.368	100.00	23.523	0.000
						C	0.000	17.368	17.368	100.00	13.050	0.000
L24 115.750- 115.000	115.375	1.304	0.008	1.4450	2.665	A	0.000	2.665	2.665	100.00	1.684	0.000
						B	0.000	2.665	2.665	100.00	3.254	0.000
						C	0.000	2.665	2.665	100.00	1.684	0.000
L25 115.000- 114.000	114.499	1.302	0.007	1.4439	3.576	A	0.000	3.576	3.576	100.00	2.244	0.000
						B	0.000	3.576	3.576	100.00	4.338	0.000
						C	0.000	3.576	3.576	100.00	2.244	0.000
L26 114.000- 113.750	113.875	1.301	0.007	1.4431	0.899	A	0.000	0.899	0.899	100.00	0.561	0.000
						B	0.000	0.899	0.899	100.00	1.084	0.000
						C	0.000	0.899	0.899	100.00	0.561	0.000
L27 113.750- 108.750	111.233	1.294	0.007	1.4397	18.346	A	0.000	18.346	18.346	100.00	7.394	0.000
						B	0.000	18.346	18.346	100.00	17.857	0.000
						C	0.000	18.346	18.346	100.00	7.394	0.000
L28 108.750- 103.750	106.234	1.282	0.007	1.4331	19.042	A	0.000	19.042	19.042	100.00	6.433	0.000
						B	0.000	19.042	19.042	100.00	16.887	0.000
						C	0.000	19.042	19.042	100.00	6.433	0.000
L29 103.750- 95.000	99.328	1.264	0.007	1.4235	34.998	A	0.000	34.998	34.998	100.00	19.271	0.000
						B	0.000	34.998	34.998	100.00	37.544	0.000
						C	0.000	34.998	34.998	100.00	19.271	0.000
L30 95.000- 94.000	94.499	1.251	0.007	1.4165	4.076	A	0.000	4.076	4.076	100.00	2.569	0.000
						B	0.000	4.076	4.076	100.00	4.658	0.000
						C	0.000	4.076	4.076	100.00	2.569	0.000
L31 94.000- 91.400	92.696	1.246	0.007	1.4137	10.723	A	0.000	10.723	10.723	100.00	6.670	0.000
						B	0.000	10.723	10.723	100.00	12.094	0.000
						C	0.000	10.723	10.723	100.00	6.670	0.000
L32 91.400- 91.150	91.275	1.242	0.007	1.4115	1.042	A	0.000	1.042	1.042	100.00	0.641	0.000
						B	0.000	1.042	1.042	100.00	1.163	0.000
						C	0.000	1.042	1.042	100.00	0.641	0.000
L33 91.150- 91.000	91.075	1.241	0.007	1.4112	0.626	A	0.000	0.626	0.626	100.00	0.385	0.000
						B	0.000	0.626	0.626	100.00	0.697	0.000
						C	0.000	0.626	0.626	100.00	0.385	0.000
L34 91.000- 86.000	88.485	1.233	0.007	1.4072	21.213	A	0.000	21.213	21.213	100.00	9.611	0.000
						B	0.000	21.213	21.213	100.00	20.032	0.000

Section Elevation ft	z ft	K _Z	q _z ksf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L35 86.000- 81.000	83.486	1.218	0.007	1.3990	21.911	C	0.000	21.213	21.911	100.00	9.611	0.000
						A	0.000	21.911		100.00	6.399	0.000
						B	0.000	21.911		100.00	16.810	0.000
L36 81.000- 76.000	78.486	1.203	0.007	1.3904	22.609	C	0.000	21.911	22.609	100.00	6.399	0.000
						A	0.000	22.609		100.00	6.390	0.000
						B	0.000	22.609		100.00	16.791	0.000
L37 76.000- 71.000	73.487	1.186	0.007	1.3813	23.307	C	0.000	22.609	23.307	100.00	6.390	0.000
						A	0.000	23.307		100.00	6.381	0.000
						B	0.000	23.307		100.00	16.770	0.000
L38 71.000- 66.000	68.487	1.169	0.007	1.3716	24.003	C	0.000	23.307	24.003	100.00	6.381	0.000
						A	0.000	24.003		100.00	6.372	0.000
						B	0.000	24.003		100.00	16.749	0.000
L39 66.000- 63.750	64.872	1.155	0.007	1.3642	11.028	C	0.000	24.003	11.028	100.00	6.372	0.000
						A	0.000	11.028		100.00	5.410	0.000
						B	0.000	11.028		100.00	10.075	0.000
L40 63.750- 63.500	63.625	1.151	0.007	1.3615	1.234	C	0.000	11.028	1.234	100.00	5.410	0.000
						A	0.000	1.234		100.00	0.636	0.000
						B	0.000	1.234		100.00	1.154	0.000
L41 63.500- 58.500	60.988	1.14	0.007	1.3558	25.047	C	0.000	1.234	25.047	100.00	0.636	0.000
						A	0.000	25.047		100.00	9.216	0.000
						B	0.000	25.047		100.00	19.573	0.000
L42 58.500- 51.000	54.723	1.115	0.006	1.3411	38.873	C	0.000	25.047	38.873	100.00	9.216	0.000
						A	0.000	38.873		100.00	12.057	0.000
						B	0.000	38.873		100.00	27.566	0.000
L43 51.000- 50.000	50.500	1.096	0.006	1.3304	5.235	C	0.000	38.873	5.235	100.00	12.057	0.000
						A	0.000	5.235		100.00	2.286	0.000
						B	0.000	5.235		100.00	4.354	0.000
L44 50.000- 45.000	47.489	1.082	0.006	1.3223	26.580	C	0.000	5.235	26.580	100.00	2.286	0.000
						A	0.000	26.580		100.00	11.395	0.000
						B	0.000	26.580		100.00	21.710	0.000
L45 45.000- 40.420	42.701	1.058	0.006	1.3083	24.952	C	0.000	26.580	24.952	100.00	11.395	0.000
						A	0.000	24.952		100.00	10.412	0.000
						B	0.000	24.952		100.00	19.845	0.000
L46 40.420- 40.170	40.295	1.045	0.006	1.3007	1.379	C	0.000	24.952	1.379	100.00	10.412	0.000
						A	0.000	1.379		100.00	0.568	0.000
						B	0.000	1.379		100.00	1.082	0.000
L47 40.170- 40.000	40.085	1.044	0.006	1.3000	0.939	C	0.000	1.379	0.939	100.00	0.568	0.000
						A	0.000	0.939		100.00	0.386	0.000
						B	0.000	0.939		100.00	0.736	0.000
L48 40.000- 35.000	37.489	1.029	0.006	1.2914	27.958	C	0.000	0.939	27.958	100.00	0.386	0.000
						A	0.000	27.958		100.00	14.504	0.000
						B	0.000	27.958		100.00	21.430	0.000
L49 35.000- 33.000	33.998	1.008	0.006	1.2788	11.375	C	0.000	27.958	11.375	100.00	11.154	0.000
						A	0.000	11.375		100.00	9.201	0.000
						B	0.000	11.375		100.00	9.961	0.000
L50 33.000- 32.750	32.875	1.001	0.006	1.2745	1.429	C	0.000	11.375	1.429	100.00	5.856	0.000
						A	0.000	1.429		100.00	1.150	0.000
						B	0.000	1.429		100.00	1.244	0.000
L51 32.750- 19.000	25.798	0.952	0.005	1.2440	81.221	C	0.000	1.429	81.221	100.00	0.732	0.000
						A	0.000	81.221		100.00	48.298	0.000
						B	0.000	81.221		100.00	53.496	0.000
L52 19.000- 18.000	18.500	0.887	0.005	1.2033	6.039	C	0.000	81.221	6.039	100.00	25.398	0.000
						A	0.000	6.039		100.00	3.331	0.000
						B	0.000	6.039		100.00	3.709	0.000
L53 18.000- 13.000	15.490	0.855	0.005	1.1821	30.564	C	0.000	6.039	30.564	100.00	1.665	0.000
						A	0.000	30.564		100.00	16.531	0.000
						B	0.000	30.564		100.00	18.406	0.000
L54 13.000- 8.000	10.490	0.85	0.005	1.1369	31.228	C	0.000	30.564	31.228	100.00	8.265	0.000
						A	0.000	31.228		100.00	16.441	0.000
						B	0.000	31.228		100.00	18.304	0.000
L55 8.000- 3.000	5.491	0.85	0.005	1.0657	31.870	C	0.000	31.228	31.870	100.00	8.220	0.000
						A	0.000	31.870		100.00	16.298	0.000
						B	0.000	31.870		100.00	18.144	0.000
L56 3.000- 0.000	1.497	0.85	0.005	0.9358	19.395	C	0.000	31.870	19.395	100.00	8.149	0.000
						A	0.000	19.395		100.00	3.208	0.000
						B	0.000	19.395		100.00	7.503	0.000
						C	0.000	19.395		100.00	1.604	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z ksf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L1 185.000- 180.000	182.500	1.436	0.011	7.737	A	0.000	7.737	7.737	100.00	0.000	0.000
					B	0.000	7.737	100.00	6.930	0.000	
					C	0.000	7.737	100.00	0.000	0.000	
L2 180.000- 175.000	177.464	1.428	0.011	8.080	A	0.000	8.080	8.080	100.00	0.000	0.000
					B	0.000	8.080	100.00	6.930	0.000	
					C	0.000	8.080	100.00	0.000	0.000	
L3 175.000- 170.000	172.467	1.42	0.011	8.783	A	0.000	8.783	8.783	100.00	0.000	0.000
					B	0.000	8.783	100.00	6.930	0.000	
					C	0.000	8.783	100.00	0.000	0.000	
L4 170.000- 165.000	167.469	1.411	0.011	9.487	A	0.000	9.487	9.487	100.00	0.000	0.000
					B	0.000	9.487	100.00	6.930	0.000	
					C	0.000	9.487	100.00	0.000	0.000	
L5 165.000- 160.000	162.471	1.402	0.011	10.191	A	0.000	10.191	10.191	100.00	0.000	0.000
					B	0.000	10.191	100.00	6.930	0.000	
					C	0.000	10.191	100.00	0.000	0.000	
L6 160.000- 155.000	157.473	1.393	0.011	10.894	A	0.000	10.894	10.894	100.00	0.000	0.000
					B	0.000	10.894	100.00	6.930	0.000	
					C	0.000	10.894	100.00	0.000	0.000	
L7 155.000- 154.000	154.499	1.387	0.011	2.263	A	0.000	2.263	2.263	100.00	0.415	0.000
					B	0.000	2.263	100.00	1.801	0.000	
					C	0.000	2.263	100.00	0.415	0.000	
L8 154.000- 153.750	153.875	1.386	0.011	0.569	A	0.000	0.569	0.569	100.00	0.326	0.000
					B	0.000	0.569	100.00	0.672	0.000	
					C	0.000	0.569	100.00	0.326	0.000	
L9 153.750- 152.000	152.872	1.384	0.011	4.035	A	0.000	4.035	4.035	100.00	2.280	0.000
					B	0.000	4.035	100.00	4.705	0.000	
					C	0.000	4.035	100.00	2.280	0.000	
L10 152.000- 151.750	151.875	1.382	0.011	0.582	A	0.000	0.582	0.582	100.00	0.326	0.000
					B	0.000	0.582	100.00	0.672	0.000	
					C	0.000	0.582	100.00	0.326	0.000	
L11 151.750- 151.500	151.625	1.382	0.011	0.584	A	0.000	0.584	0.584	100.00	0.326	0.000
					B	0.000	0.584	100.00	0.672	0.000	
					C	0.000	0.584	100.00	0.326	0.000	
L12 151.500- 151.250	151.375	1.381	0.011	0.587	A	0.000	0.587	0.587	100.00	0.326	0.000
					B	0.000	0.587	100.00	0.672	0.000	
					C	0.000	0.587	100.00	0.326	0.000	
L13 151.250- 146.250	148.726	1.376	0.011	12.102	A	0.000	12.102	12.102	100.00	4.579	0.000
					B	0.000	12.102	100.00	11.509	0.000	
					C	0.000	12.102	100.00	4.579	0.000	
L14 146.250- 141.250	143.727	1.366	0.011	12.807	A	0.000	12.807	12.807	100.00	3.750	0.000
					B	0.000	12.807	100.00	10.680	0.000	
					C	0.000	12.807	100.00	3.750	0.000	
L15 141.250- 136.250	138.728	1.356	0.011	13.512	A	0.000	13.512	13.512	100.00	3.750	0.000
					B	0.000	13.512	100.00	10.680	0.000	
					C	0.000	13.512	100.00	3.750	0.000	
L16 136.250- 130.000	133.093	1.344	0.010	17.879	A	0.000	17.879	17.879	100.00	6.521	0.000
					B	0.000	17.879	100.00	15.183	0.000	
					C	0.000	17.879	100.00	6.521	0.000	
L17 130.000- 129.000	129.499	1.336	0.010	2.917	A	0.000	2.917	2.917	100.00	1.417	0.000
					B	0.000	2.917	100.00	2.803	0.000	
					C	0.000	2.917	100.00	1.417	0.000	
L18 129.000- 124.000	126.481	1.33	0.010	15.007	A	0.000	15.007	15.007	100.00	7.083	0.000
					B	0.000	15.007	100.00	14.013	0.000	
					C	0.000	15.007	100.00	7.083	0.000	
L19 124.000- 121.420	122.705	1.321	0.010	8.018	A	0.000	8.018	8.018	100.00	5.735	0.000
					B	0.000	8.018	100.00	9.311	0.000	
					C	0.000	8.018	100.00	5.735	0.000	
L20 121.420- 121.170	121.295	1.318	0.010	0.786	A	0.000	0.786	0.786	100.00	0.604	0.000
					B	0.000	0.786	100.00	0.951	0.000	
					C	0.000	0.786	100.00	0.604	0.000	
L21 121.170- 121.000	121.085	1.318	0.010	0.535	A	0.000	0.535	0.535	100.00	0.411	0.000
					B	0.000	0.535	100.00	0.646	0.000	
					C	0.000	0.535	100.00	0.411	0.000	

Section Elevation ft	z ft	K_z	q_z ksf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L22 121.000- 120.750	120.875	1.317	0.010	0.790	A	0.000	0.790	0.790	100.00	0.604	0.000
					B	0.000	0.790	100.00	0.951	0.000	
					C	0.000	0.790	100.00	0.604	0.000	
L23 120.750- 115.750	118.232	1.311	0.010	16.161	A	0.000	16.161	16.161	100.00	9.646	0.000
					B	0.000	16.161	100.00	16.576	0.000	
					C	0.000	16.161	100.00	9.646	0.000	
L24 115.750- 115.000	115.375	1.304	0.010	2.485	A	0.000	2.485	2.485	100.00	1.250	0.000
					B	0.000	2.485	100.00	2.289	0.000	
					C	0.000	2.485	100.00	1.250	0.000	
L25 115.000- 114.000	114.499	1.302	0.010	3.336	A	0.000	3.336	3.336	100.00	1.667	0.000
					B	0.000	3.336	100.00	3.053	0.000	
					C	0.000	3.336	100.00	1.667	0.000	
L26 114.000- 113.750	113.875	1.301	0.010	0.839	A	0.000	0.839	0.839	100.00	0.417	0.000
					B	0.000	0.839	100.00	0.763	0.000	
					C	0.000	0.839	100.00	0.417	0.000	
L27 113.750- 108.750	111.233	1.294	0.010	17.146	A	0.000	17.146	17.146	100.00	5.667	0.000
					B	0.000	17.146	100.00	12.597	0.000	
					C	0.000	17.146	100.00	5.667	0.000	
L28 108.750- 103.750	106.234	1.282	0.010	17.848	A	0.000	17.848	17.848	100.00	5.000	0.000
					B	0.000	17.848	100.00	11.930	0.000	
					C	0.000	17.848	100.00	5.000	0.000	
L29 103.750- 95.000	99.328	1.264	0.010	32.922	A	0.000	32.922	32.922	100.00	15.000	0.000
					B	0.000	32.922	100.00	27.127	0.000	
					C	0.000	32.922	100.00	15.000	0.000	
L30 95.000- 94.000	94.499	1.251	0.010	3.838	A	0.000	3.838	3.838	100.00	2.000	0.000
					B	0.000	3.838	100.00	3.386	0.000	
					C	0.000	3.838	100.00	2.000	0.000	
L31 94.000- 91.400	92.696	1.246	0.010	10.110	A	0.000	10.110	10.110	100.00	5.200	0.000
					B	0.000	10.110	100.00	8.804	0.000	
					C	0.000	10.110	100.00	5.200	0.000	
L32 91.400- 91.150	91.275	1.242	0.010	0.983	A	0.000	0.983	0.983	100.00	0.500	0.000
					B	0.000	0.983	100.00	0.846	0.000	
					C	0.000	0.983	100.00	0.500	0.000	
L33 91.150- 91.000	91.075	1.241	0.010	0.591	A	0.000	0.591	0.591	100.00	0.300	0.000
					B	0.000	0.591	100.00	0.508	0.000	
					C	0.000	0.591	100.00	0.300	0.000	
L34 91.000- 86.000	88.485	1.233	0.010	20.041	A	0.000	20.041	20.041	100.00	7.500	0.000
					B	0.000	20.041	100.00	14.430	0.000	
					C	0.000	20.041	100.00	7.500	0.000	
L35 86.000- 81.000	83.486	1.218	0.010	20.745	A	0.000	20.745	20.745	100.00	5.000	0.000
					B	0.000	20.745	100.00	11.930	0.000	
					C	0.000	20.745	100.00	5.000	0.000	
L36 81.000- 76.000	78.486	1.203	0.009	21.450	A	0.000	21.450	21.450	100.00	5.000	0.000
					B	0.000	21.450	100.00	11.930	0.000	
					C	0.000	21.450	100.00	5.000	0.000	
L37 76.000- 71.000	73.487	1.186	0.009	22.155	A	0.000	22.155	22.155	100.00	5.000	0.000
					B	0.000	22.155	100.00	11.930	0.000	
					C	0.000	22.155	100.00	5.000	0.000	
L38 71.000- 66.000	68.487	1.169	0.009	22.860	A	0.000	22.860	22.860	100.00	5.000	0.000
					B	0.000	22.860	100.00	11.930	0.000	
					C	0.000	22.860	100.00	5.000	0.000	
L39 66.000- 63.750	64.872	1.155	0.009	10.517	A	0.000	10.517	10.517	100.00	4.250	0.000
					B	0.000	10.517	100.00	7.369	0.000	
					C	0.000	10.517	100.00	4.250	0.000	
L40 63.750- 63.500	63.625	1.151	0.009	1.177	A	0.000	1.177	1.177	100.00	0.500	0.000
					B	0.000	1.177	100.00	0.846	0.000	
					C	0.000	1.177	100.00	0.500	0.000	
L41 63.500- 58.500	60.988	1.14	0.009	23.917	A	0.000	23.917	23.917	100.00	7.250	0.000
					B	0.000	23.917	100.00	14.180	0.000	
					C	0.000	23.917	100.00	7.250	0.000	
L42 58.500- 51.000	54.723	1.115	0.009	37.196	A	0.000	37.196	37.196	100.00	9.375	0.000
					B	0.000	37.196	100.00	19.770	0.000	
					C	0.000	37.196	100.00	9.375	0.000	
L43 51.000- 50.000	50.500	1.096	0.009	5.011	A	0.000	5.011	5.011	100.00	1.750	0.000
					B	0.000	5.011	100.00	3.136	0.000	
					C	0.000	5.011	100.00	1.750	0.000	
L44 50.000- 45.000	47.489	1.082	0.008	25.478	A	0.000	25.478	25.478	100.00	8.750	0.000
					B	0.000	25.478	100.00	15.680	0.000	
					C	0.000	25.478	100.00	8.750	0.000	

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L45 45.000- 40.420	42.701	1.058	0.008	23.953	C	0.000	25.478	23.953	100.00	8.750	0.000
					A	0.000	23.953		100.00	8.015	0.000
					B	0.000	23.953		100.00	14.363	0.000
L46 40.420- 40.170	40.295	1.045	0.008	1.325	C	0.000	23.953	1.325	100.00	8.015	0.000
					A	0.000	1.325		100.00	0.438	0.000
					B	0.000	1.325		100.00	0.784	0.000
L47 40.170- 40.000	40.085	1.044	0.008	0.902	C	0.000	1.325	0.902	100.00	0.438	0.000
					A	0.000	0.902		100.00	0.297	0.000
					B	0.000	0.902		100.00	0.533	0.000
L48 40.000- 35.000	37.489	1.029	0.008	26.882	C	0.000	0.902	26.882	100.00	0.297	0.000
					A	0.000	26.882		100.00	11.792	0.000
					B	0.000	26.882		100.00	15.888	0.000
L49 35.000- 33.000	33.998	1.008	0.008	10.949	C	0.000	26.882	10.949	100.00	8.958	0.000
					A	0.000	10.949		100.00	7.667	0.000
					B	0.000	10.949		100.00	7.605	0.000
L50 33.000- 32.750	32.875	1.001	0.008	1.376	C	0.000	10.949	1.376	100.00	4.833	0.000
					A	0.000	1.376		100.00	0.958	0.000
					B	0.000	1.376		100.00	0.951	0.000
L51 32.750- 19.000	25.798	0.952	0.007	78.370	C	0.000	1.376	78.370	100.00	0.604	0.000
					A	0.000	78.370		100.00	40.958	0.000
					B	0.000	78.370		100.00	40.537	0.000
L52 19.000- 18.000	18.500	0.887	0.007	5.831	C	0.000	78.370	5.831	100.00	21.479	0.000
					A	0.000	5.831		100.00	2.833	0.000
					B	0.000	5.831		100.00	2.803	0.000
L53 18.000- 13.000	15.490	0.855	0.007	29.579	C	0.000	5.831	29.579	100.00	1.417	0.000
					A	0.000	29.579		100.00	14.167	0.000
					B	0.000	29.579		100.00	14.013	0.000
L54 13.000- 8.000	10.490	0.85	0.007	30.281	C	0.000	29.579	30.281	100.00	7.083	0.000
					A	0.000	30.281		100.00	14.167	0.000
					B	0.000	30.281		100.00	14.013	0.000
L55 8.000- 3.000	5.491	0.85	0.007	30.982	C	0.000	30.281	30.982	100.00	7.083	0.000
					A	0.000	30.982		100.00	14.167	0.000
					B	0.000	30.982		100.00	14.013	0.000
L56 3.000- 0.000	1.497	0.85	0.007	18.927	C	0.000	30.982	18.927	100.00	7.083	0.000
					A	0.000	18.927		100.00	2.833	0.000
					B	0.000	18.927		100.00	5.575	0.000
					C	0.000	18.927		100.00	1.417	0.000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice

Comb. No.	Description
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	185 - 180	Pole	Max Tension	26	0.000	0.000	-0.000
			Max. Compression	26	-9.848	-0.109	0.469
			Max. Mx	8	-3.966	-39.732	0.199
			Max. My	2	-3.963	-0.028	40.053
			Max. Vy	8	8.178	-39.732	0.199
			Max. Vx	2	-8.206	-0.028	40.053
			Max. Torque	8			0.157
L2	180 - 175	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-10.501	-0.223	0.545
			Max. Mx	8	-4.285	-81.857	0.225
			Max. My	2	-4.283	-0.057	82.311
			Max. Vy	8	8.670	-81.857	0.225
			Max. Vx	2	-8.699	-0.057	82.311
			Max. Torque	8			0.157
L3	175 - 170	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-19.501	-0.347	1.753
			Max. Mx	8	-7.427	-157.911	0.583
			Max. My	2	-7.426	-0.091	158.876
			Max. Vy	8	15.472	-157.911	0.583
			Max. Vx	2	-15.500	-0.091	158.876
			Max. Torque	8			0.761
L4	170 - 165	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-20.299	-0.478	1.843
			Max. Mx	8	-7.910	-236.646	0.616
			Max. My	2	-7.910	-0.127	237.738
			Max. Vy	8	16.023	-236.646	0.616
			Max. Vx	2	-16.051	-0.127	237.738
			Max. Torque	8			0.761
L5	165 - 160	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-21.932	-0.617	1.936
			Max. Mx	8	-8.732	-321.704	0.650
			Max. My	2	-8.733	-0.165	322.921
			Max. Vy	8	17.303	-321.704	0.650
			Max. Vx	2	-17.331	-0.165	322.921
			Max. Torque	8			0.760
L6	160 - 155	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-22.841	-0.764	2.029
			Max. Mx	8	-9.325	-409.739	0.684

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L7	155 - 154	Pole	Max. My	2	-9.326	-0.205	411.080
			Max. Vy	8	17.913	-409.739	0.684
			Max. Vx	2	-17.941	-0.205	411.080
			Max. Torque	8			0.760
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.069	0.743	1.162
			Max. Mx	20	-12.616	432.352	0.237
			Max. My	2	-12.596	0.068	433.523
			Max. Vy	8	22.917	-432.112	0.577
			Max. Vx	14	22.802	0.409	-432.563
L8	154 - 153.75	Pole	Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.140	0.734	1.170
			Max. Mx	20	-12.666	438.071	0.209
			Max. My	2	-12.646	0.037	439.222
			Max. Vy	8	22.959	-437.847	0.609
			Max. Vx	14	22.842	0.438	-438.266
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.637	0.681	1.202
L9	153.75 - 152	Pole	Max. Mx	20	-12.931	478.391	0.010
			Max. My	2	-12.909	-0.181	479.425
			Max. Vy	8	23.291	-478.316	0.824
			Max. Vx	14	23.159	0.633	-478.498
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.722	0.671	1.212
			Max. Mx	20	-12.998	484.195	-0.018
			Max. My	2	-12.976	-0.212	485.214
			Max. Vy	8	23.334	-484.145	0.856
L10	152 - 151.75	Pole	Max. Vx	14	23.200	0.663	-484.290
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.807	0.664	1.217
			Max. Mx	20	-13.051	490.009	-0.047
			Max. My	2	-13.029	-0.243	491.014
			Max. Vy	8	23.382	-489.985	0.886
			Max. Vx	14	23.246	0.691	-490.094
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
L11	151.75 - 151.5	Pole	Max. Compression	26	-31.884	0.656	1.221
			Max. Mx	20	-13.056	-495.838	0.917
			Max. My	2	-13.072	-0.274	496.826
			Max. Vy	8	23.431	-495.838	0.917
			Max. Vx	14	23.292	0.719	-495.909
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.330	0.497	1.315
			Max. Mx	8	-13.947	-615.289	1.534
			Max. My	2	-13.965	-0.901	615.428
L12	151.5 - 151.25	Pole	Max. Vy	8	24.352	-615.289	1.534
			Max. Vx	2	-24.179	-0.901	615.428
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.778	0.333	1.407
			Max. Mx	8	-14.884	-739.362	2.153
			Max. My	2	-14.901	-1.530	738.622
			Max. Vy	8	25.281	-739.362	2.153
			Max. Vx	2	-25.109	-1.530	738.622
			Max. Torque	16			-0.883
L13	151.25 - 146.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.266	0.161	1.504
			Max. Mx	8	-15.856	-868.162	2.773
			Max. My	2	-15.872	-2.162	866.543
			Max. Vy	8	25.281	-739.362	2.153
			Max. Vx	2	-25.109	-1.530	738.622
			Max. Torque	16			-0.883
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.266	0.161	1.504
			Max. Mx	8	-15.856	-868.162	2.773
Max. My	2	-15.872	-2.162	866.543			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L16	136.25 - 130	Pole	Max. Vy	8	26.243	-868.162	2.773
			Max. Vx	2	-26.070	-2.162	866.543
			Max. Torque	16			-0.882
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.661	0.116	1.529
			Max. Mx	8	-16.103	-901.126	2.928
			Max. My	2	-16.119	-2.321	899.283
			Max. Vy	8	26.496	-901.126	2.928
			Max. Vx	2	-26.320	-2.321	899.283
L17	130 - 129	Pole	Max. Torque	16			-0.882
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-39.948	-0.102	1.652
			Max. Mx	8	-18.291	-1064.165	3.675
			Max. My	2	-18.308	-3.084	1061.181
			Max. Vy	8	27.847	-1064.165	3.675
			Max. Vx	2	-27.647	-3.084	1061.181
			Max. Torque	16			-0.882
			Max Tension	1	0.000	0.000	0.000
L18	129 - 124	Pole	Max. Compression	26	-41.828	-0.290	1.758
			Max. Mx	8	-19.496	-1206.172	4.300
			Max. My	2	-19.514	-3.723	1202.081
			Max. Vy	8	28.959	-1206.172	4.300
			Max. Vx	2	-28.724	-3.723	1202.081
			Max. Torque	16			-0.882
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-42.884	-0.390	1.814
			Max. Mx	8	-20.128	-1281.674	4.622
L19	124 - 121.42	Pole	Max. My	2	-20.146	-4.054	1276.970
			Max. Vy	8	29.569	-1281.674	4.622
			Max. Vx	2	-29.337	-4.054	1276.970
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.007	-0.403	1.829
			Max. Mx	8	-20.219	-1289.074	4.654
			Max. My	2	-20.237	-4.085	1284.312
			Max. Vy	8	29.627	-1289.074	4.654
L20	121.42 - 121.17	Pole	Max. Vx	2	-29.396	-4.085	1284.312
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.091	-0.411	1.838
			Max. Mx	8	-20.274	-1294.115	4.676
			Max. My	2	-20.291	-4.107	1289.313
			Max. Vy	8	29.674	-1294.115	4.676
			Max. Vx	2	-29.444	-4.107	1289.313
			Max. Torque	16			-0.881
L21	121.17 - 121	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.201	-0.419	1.837
			Max. Mx	8	-20.339	-1301.541	4.706
			Max. My	2	-20.357	-4.139	1296.680
			Max. Vy	8	29.730	-1301.541	4.706
			Max. Vx	2	-29.501	-4.139	1296.680
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.308	-0.618	1.943
L22	121 - 120.75	Pole	Max. Mx	8	-21.674	-1453.111	5.332
			Max. My	2	-21.689	-4.783	1447.126
			Max. Vy	8	30.900	-1453.111	5.332
			Max. Vx	2	-30.688	-4.783	1447.126
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.622	-0.649	1.961
			Max. Mx	8	-21.882	-1476.353	5.426
			Max. My	2	-21.897	-4.879	1470.208
L23	120.75 - 115.75	Pole	Max. Vy	8	31.073	-1476.353	5.426
			Max. Vx	2	-30.863	-4.879	1470.208
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.622	-0.649	1.961
			Max. Mx	8	-21.882	-1476.353	5.426
			Max. My	2	-21.897	-4.879	1470.208
			Max. Vy	8	31.073	-1476.353	5.426
			Max. Vx	2	-30.863	-4.879	1470.208
L24	115.75 - 115	Pole	Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.622	-0.649	1.961
L25	115 - 114	Pole	Max. Mx	8	-21.882	-1476.353	5.426
			Max. My	2	-21.897	-4.879	1470.208
			Max. Vy	8	31.073	-1476.353	5.426

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L26	114 - 113.75	Pole	Max. Compression	26	-46.073	-0.691	1.984
			Max. Mx	8	-22.185	-1507.548	5.551
			Max. My	2	-22.200	-5.008	1501.191
			Max. Vy	8	31.309	-1507.548	5.551
			Max. Vx	2	-31.104	-5.008	1501.191
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.176	-0.703	1.996
			Max. Mx	8	-22.259	-1515.384	5.583
			Max. My	2	-22.274	-5.040	1508.974
L27	113.75 - 108.75	Pole	Max. Vy	8	31.368	-1515.384	5.583
			Max. Vx	2	-31.163	-5.040	1508.974
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.169	-0.913	2.109
			Max. Mx	8	-23.638	-1674.447	6.210
			Max. My	2	-23.639	-5.687	1667.679
			Max. Vy	8	32.258	-1674.447	6.210
			Max. Vx	2	-32.330	-5.687	1667.679
			Max. Torque	16			-0.881
L28	108.75 - 103.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.183	-1.132	2.232
			Max. Mx	8	-25.063	-1838.009	6.837
			Max. My	2	-25.051	-6.335	1832.260
			Max. Vy	8	33.168	-1838.009	6.837
			Max. Vx	2	-33.514	-6.335	1832.260
			Max. Torque	16			-0.881
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.377	-1.258	2.302
			Max. Mx	8	-25.853	-1930.144	7.183
L29	103.75 - 95	Pole	Max. My	2	-25.842	-6.692	1925.345
			Max. Vy	8	33.839	-1930.144	7.183
			Max. Vx	2	-34.193	-6.692	1925.345
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.975	-1.580	2.485
			Max. Mx	8	-29.860	-2173.670	8.065
			Max. My	2	-29.849	-7.604	2171.385
			Max. Vy	8	35.734	-2173.670	8.065
			Max. Vx	2	-36.105	-7.604	2171.385
L30	95 - 94	Pole	Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.349	-1.702	2.553
			Max. Mx	8	-30.817	-2267.468	8.394
			Max. My	2	-30.806	-7.944	2266.136
			Max. Vy	8	36.416	-2267.468	8.394
			Max. Vx	2	-36.787	-7.944	2266.136
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.463	-1.716	2.567
L31	94 - 91.4	Pole	Max. Mx	8	-30.902	-2276.581	8.426
			Max. My	2	-30.892	-7.977	2275.341
			Max. Vy	8	36.479	-2276.581	8.426
			Max. Vx	2	-36.851	-7.977	2275.341
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.532	-1.725	2.578
			Max. Mx	8	-30.949	-2282.057	8.445
			Max. My	2	-30.939	-7.996	2280.871
			Max. Vy	8	36.530	-2282.057	8.445
L32	91.4 - 91.15	Pole	Max. Vx	2	-36.901	-7.996	2280.871
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.951	-1.963	2.700
			Max. Mx	8	-32.652	-2467.839	9.076
			Max. My	2	-32.644	-8.652	2468.423
			Max. Vy	8	37.799	-2467.839	9.076
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.951	-1.963	2.700

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L35	86 - 81	Pole	Max. Vx	2	-38.145	-8.652	2468.423
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.340	-2.211	2.840
			Max. Mx	8	-34.410	-2660.020	9.709
			Max. My	2	-34.412	-9.309	2661.596
			Max. Vy	8	39.076	-2660.020	9.709
L36	81 - 76	Pole	Max. Vx	2	-39.135	-9.309	2661.596
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.780	-2.466	2.984
			Max. Mx	8	-36.213	-2858.630	10.341
			Max. My	2	-36.224	-9.968	2859.754
			Max. Vy	8	40.369	-2858.630	10.341
L37	76 - 71	Pole	Max. Vx	2	-40.139	-9.968	2859.754
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.269	-2.729	3.131
			Max. Mx	8	-38.061	-3063.746	10.974
			Max. My	2	-38.080	-10.627	3062.962
			Max. Vy	8	41.678	-3063.746	10.974
L38	71 - 66	Pole	Max. Vx	2	-41.155	-10.627	3062.962
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.808	-2.997	3.283
			Max. Mx	8	-39.954	-3275.440	11.607
			Max. My	2	-39.978	-11.288	3271.282
			Max. Vy	8	43.000	-3275.440	11.607
L39	66 - 63.75	Pole	Max. Vx	14	42.250	9.960	-3217.633
			Max. Torque	16			-0.880
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.028	-3.120	3.352
			Max. Mx	8	-40.820	-3372.889	11.892
			Max. My	2	-40.844	-11.586	3366.856
			Max. Vy	8	43.619	-3372.889	11.892
L40	63.75 - 63.5	Pole	Max. Vx	14	42.887	10.194	-3313.366
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.165	-3.136	3.368
			Max. Mx	8	-40.927	-3383.804	11.924
			Max. My	2	-40.950	-11.619	3377.560
			Max. Vy	8	43.686	-3383.804	11.924
L41	63.5 - 58.5	Pole	Max. Vx	14	42.957	10.220	-3324.093
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-74.844	-3.412	3.517
			Max. Mx	8	-42.885	-3604.840	12.556
			Max. My	2	-42.906	-12.281	3594.364
			Max. Vy	8	44.727	-3604.840	12.556
L42	58.5 - 51	Pole	Max. Vx	14	44.336	10.738	-3542.214
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.113	-3.441	3.535
			Max. Mx	8	-43.090	-3627.231	12.620
			Max. My	2	-43.112	-12.348	3616.332
			Max. Vy	8	44.826	-3627.231	12.620
L43	51 - 50	Pole	Max. Vx	14	44.466	10.790	-3564.405
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.076	-3.898	3.791
			Max. Mx	8	-49.142	-3993.204	13.634
			Max. My	2	-49.161	-13.411	3975.565
			Max. Vy	8	46.645	-3993.204	13.634
L44	50 - 45	Pole	Max. Vx	14	46.782	11.613	-3929.277
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-86.183	-4.189	3.955
			Max. Mx	8	-51.467	-4229.051	14.268
			Max. My	2	-51.478	-14.077	4208.278

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L45	45 - 40.42	Pole	Max. Vy	8	47.691	-4229.051	14.268
			Max. Vx	14	48.155	12.126	-4166.504
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.068	-4.459	4.107
			Max. Mx	8	-53.633	-4449.674	14.848
			Max. My	2	-53.639	-14.687	4427.411
			Max. Vy	8	48.648	-4449.674	14.848
L46	40.42 - 40.17	Pole	Max. Vx	14	49.411	12.592	-4389.821
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.213	-4.476	4.122
			Max. Mx	8	-53.749	-4461.843	14.880
			Max. My	2	-53.754	-14.720	4439.538
			Max. Vy	8	48.697	-4461.843	14.880
			Max. Vx	14	49.476	12.617	-4402.177
L47	40.17 - 40	Pole	Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.312	-4.487	4.132
			Max. Mx	8	-53.822	-4470.126	14.902
			Max. My	2	-53.828	-14.743	4447.793
			Max. Vy	8	48.740	-4470.126	14.902
			Max. Vx	14	49.530	12.635	-4410.589
			Max. Torque	16			-0.879
L48	40 - 35	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-92.499	-4.723	4.316
			Max. Mx	8	-56.203	-4717.198	15.535
			Max. My	2	-56.208	-15.410	4694.056
			Max. Vy	8	50.094	-4717.198	15.535
			Max. Vx	14	50.903	13.140	-4661.530
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
L49	35 - 33	Pole	Max. Compression	26	-93.832	-4.784	4.410
			Max. Mx	8	-57.175	-4817.971	15.788
			Max. My	2	-57.179	-15.677	4794.469
			Max. Vy	8	50.672	-4817.971	15.788
			Max. Vx	14	51.475	13.341	-4763.863
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-94.024	-4.793	4.429
L50	33 - 32.75	Pole	Max. Mx	8	-57.330	-4830.649	15.820
			Max. My	2	-57.334	-15.711	4807.100
			Max. Vy	8	50.742	-4830.649	15.820
			Max. Vx	14	51.544	13.366	-4776.736
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-97.570	-4.939	4.648
			Max. Mx	8	-60.118	-5074.761	16.422
L51	32.75 - 19	Pole	Max. My	2	-60.122	-16.347	5050.169
			Max. Vy	8	52.036	-5074.761	16.422
			Max. Vx	14	52.793	13.840	-5024.425
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-111.081	-5.252	5.125
			Max. Mx	8	-71.043	-5609.834	17.689
			Max. My	2	-71.047	-17.685	5582.255
L52	19 - 18	Pole	Max. Vy	8	54.947	-5609.834	17.689
			Max. Vx	14	55.607	14.836	-5566.322
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-114.882	-5.411	5.361
			Max. Mx	8	-74.114	-5887.690	18.322
			Max. My	2	-74.117	-18.356	5858.227
			Max. Vy	8	56.192	-5887.690	18.322
L53	18 - 13	Pole	Max. Vx	14	56.804	15.329	-5847.220
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-118.708	-5.572	5.595
			Max. Mx	8	-74.114	-5887.690	18.322
			Max. My	2	-74.117	-18.356	5858.227
			Max. Vy	8	56.192	-5887.690	18.322
			Max. Vx	14	56.804	15.329	-5847.220
L54	13 - 8	Pole	Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-118.708	-5.572	5.595

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L55	8 - 3	Pole	Max. Mx	8	-77.235	-6171.806	18.955
			Max. My	2	-77.237	-19.027	6140.217
			Max. Vy	8	57.450	-6171.806	18.955
			Max. Vx	14	58.015	15.819	-6134.136
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-122.540	-5.734	5.822
			Max. Mx	8	-80.405	-6462.266	19.586
			Max. My	2	-80.406	-19.698	6428.313
			Max. Vy	8	58.729	-6462.266	19.586
L56	3 - 0	Pole	Max. Vy	14	59.246	16.305	-6427.156
			Max. Torque	16			-0.879
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-124.743	-5.879	5.927
			Max. Mx	8	-82.334	-6639.318	19.965
			Max. My	14	-82.334	16.595	-6605.672
			Max. Vy	8	59.298	-6639.318	19.965
			Max. Vx	14	59.815	16.595	-6605.672
			Max. Torque	16			-0.879

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	124.743	0.000	-0.001
	Max. H _x	21	61.759	56.956	-0.115
	Max. H _z	2	82.345	-0.115	58.795
	Max. M _x	2	6603.875	-0.115	58.795
	Max. M _z	8	6639.318	-59.283	0.115
	Max. Torsion	4	0.879	-29.515	50.916
	Min. Vert	9	61.759	-59.283	0.115
	Min. H _x	8	82.345	-59.283	0.115
	Min. H _z	15	61.759	0.115	-59.801
	Min. M _x	14	-6605.672	0.115	-59.801
	Min. M _z	20	-6483.892	56.956	-0.115
	Min. Torsion	16	-0.879	29.569	-51.010

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	68.621	0.000	-0.000	-1.302	-1.433	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	82.345	0.115	-58.795	-6603.875	-20.101	-0.868
0.9 Dead+1.0 Wind 0 deg - No Ice	61.759	0.115	-58.794	-6561.042	-19.529	-0.859
1.2 Dead+1.0 Wind 30 deg - No Ice	82.345	29.515	-50.916	-5645.815	-3278.834	-0.879
0.9 Dead+1.0 Wind 30 deg - No Ice	61.759	29.515	-50.916	-5609.329	-3257.442	-0.866
1.2 Dead+1.0 Wind 60 deg - No Ice	82.345	51.937	-30.000	-3321.165	-5746.554	-0.655
0.9 Dead+1.0 Wind 60 deg - No Ice	61.759	51.937	-30.000	-3299.625	-5709.564	-0.642
1.2 Dead+1.0 Wind 90 deg - No Ice	82.345	59.283	-0.115	-19.965	-6639.318	-0.255
0.9 Dead+1.0 Wind 90 deg - No Ice	61.759	59.283	-0.115	-19.422	-6596.315	-0.246
1.2 Dead+1.0 Wind 120 deg - No Ice	82.345	50.950	29.298	3283.666	-5723.903	0.213
0.9 Dead+1.0 Wind 120 deg - No Ice	61.759	50.950	29.298	3263.007	-5686.744	0.216

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 150 deg - No Ice	82.345	29.311	50.794	5622.869	-3246.267	0.624
0.9 Dead+1.0 Wind 150 deg - No Ice	61.759	29.311	50.794	5587.350	-3225.100	0.620
1.2 Dead+1.0 Wind 180 deg - No Ice	82.345	-0.115	59.801	6605.672	16.595	0.868
0.9 Dead+1.0 Wind 180 deg - No Ice	61.759	-0.115	59.801	6564.083	16.912	0.858
1.2 Dead+1.0 Wind 210 deg - No Ice	82.345	-29.569	51.010	5737.467	3330.110	0.879
0.9 Dead+1.0 Wind 210 deg - No Ice	61.759	-29.569	51.010	5701.082	3309.184	0.866
1.2 Dead+1.0 Wind 240 deg - No Ice	82.345	-51.066	29.497	3315.423	5738.706	0.655
0.9 Dead+1.0 Wind 240 deg - No Ice	61.759	-51.066	29.497	3294.544	5702.307	0.642
1.2 Dead+1.0 Wind 270 deg - No Ice	82.345	-56.956	0.115	16.730	6483.892	0.255
0.9 Dead+1.0 Wind 270 deg - No Ice	61.759	-56.956	0.115	17.019	6442.765	0.246
1.2 Dead+1.0 Wind 300 deg - No Ice	82.345	-51.822	-29.801	-3289.419	5724.758	-0.213
0.9 Dead+1.0 Wind 300 deg - No Ice	61.759	-51.822	-29.801	-3268.097	5688.779	-0.216
1.2 Dead+1.0 Wind 330 deg - No Ice	82.345	-29.365	-50.887	-5720.987	3297.542	-0.624
0.9 Dead+1.0 Wind 330 deg - No Ice	61.759	-29.365	-50.888	-5683.908	3276.842	-0.620
1.2 Dead+1.0 Ice+1.0 Temp	124.743	-0.000	0.001	-5.927	-5.879	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	124.743	0.018	-10.997	-1365.654	-9.165	-0.189
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	124.743	5.521	-9.532	-1181.783	-687.667	-0.232
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	124.743	9.543	-5.513	-686.956	-1183.960	-0.214
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	124.743	11.069	-0.018	-9.353	-1369.655	-0.138
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	124.743	9.527	5.482	670.714	-1183.809	-0.025
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	124.743	5.490	9.513	1166.096	-682.441	0.094
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	124.743	-0.018	10.993	1349.675	-3.131	0.188
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	124.743	-5.523	9.535	1173.075	677.659	0.232
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	124.743	-9.546	5.514	675.940	1174.531	0.213
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	124.743	-10.983	0.018	-3.318	1350.952	0.137
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	124.743	-9.525	-5.481	-681.731	1168.649	0.025
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	124.743	-5.491	-9.517	-1182.729	672.433	-0.095
Dead+Wind 0 deg - Service	68.621	0.023	-11.795	-1321.144	-5.120	-0.174
Dead+Wind 30 deg - Service	68.621	5.921	-10.215	-1129.722	-656.602	-0.176
Dead+Wind 60 deg - Service	68.621	10.420	-6.019	-665.000	-1149.979	-0.131
Dead+Wind 90 deg - Service	68.621	11.893	-0.023	-5.009	-1328.329	-0.051
Dead+Wind 120 deg - Service	68.621	10.222	5.878	655.451	-1145.424	0.043
Dead+Wind 150 deg - Service	68.621	5.880	10.190	1123.088	-650.088	0.125
Dead+Wind 180 deg - Service	68.621	-0.023	11.997	1319.487	2.213	0.174
Dead+Wind 210 deg - Service	68.621	-5.932	10.234	1146.023	664.656	0.176
Dead+Wind 240 deg - Service	68.621	-10.245	5.918	661.802	1146.183	0.131
Dead+Wind 270 deg - Service	68.621	-11.426	0.023	2.324	1295.025	0.051

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 300 deg - Service	68.621	-10.397	-5.979	-658.649	1143.405	-0.043
Dead+Wind 330 deg - Service	68.621	-5.891	-10.209	-1144.759	658.141	-0.126

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-68.621	0.000	-0.000	68.621	0.000	0.000%
2	0.115	-82.345	-58.795	-0.115	82.345	58.795	0.001%
3	0.115	-61.759	-58.795	-0.115	61.759	58.794	0.001%
4	29.515	-82.345	-50.916	-29.515	82.345	50.916	0.000%
5	29.515	-61.759	-50.916	-29.515	61.759	50.916	0.000%
6	51.937	-82.345	-30.000	-51.937	82.345	30.000	0.000%
7	51.937	-61.759	-30.000	-51.937	61.759	30.000	0.000%
8	59.284	-82.345	-0.115	-59.283	82.345	0.115	0.001%
9	59.284	-61.759	-0.115	-59.283	61.759	0.115	0.001%
10	50.950	-82.345	29.298	-50.950	82.345	-29.298	0.000%
11	50.950	-61.759	29.298	-50.950	61.759	-29.298	0.000%
12	29.311	-82.345	50.794	-29.311	82.345	-50.794	0.000%
13	29.311	-61.759	50.794	-29.311	61.759	-50.794	0.000%
14	-0.115	-82.345	59.801	0.115	82.345	-59.801	0.001%
15	-0.115	-61.759	59.801	0.115	61.759	-59.801	0.000%
16	-29.569	-82.345	51.010	29.569	82.345	-51.010	0.000%
17	-29.569	-61.759	51.010	29.569	61.759	-51.010	0.000%
18	-51.066	-82.345	29.497	51.066	82.345	-29.497	0.000%
19	-51.066	-61.759	29.497	51.066	61.759	-29.497	0.000%
20	-56.957	-82.345	0.115	56.956	82.345	-0.115	0.001%
21	-56.957	-61.759	0.115	56.956	61.759	-0.115	0.001%
22	-51.822	-82.345	-29.801	51.822	82.345	29.801	0.000%
23	-51.822	-61.759	-29.801	51.822	61.759	29.801	0.000%
24	-29.365	-82.345	-50.888	29.365	82.345	50.887	0.000%
25	-29.365	-61.759	-50.888	29.365	61.759	50.888	0.000%
26	0.000	-124.743	0.000	0.000	124.743	-0.001	0.001%
27	0.018	-124.743	-10.997	-0.018	124.743	10.997	0.000%
28	5.522	-124.743	-9.532	-5.521	124.743	9.532	0.000%
29	9.543	-124.743	-5.513	-9.543	124.743	5.513	0.000%
30	11.069	-124.743	-0.018	-11.069	124.743	0.018	0.000%
31	9.527	-124.743	5.482	-9.527	124.743	-5.482	0.000%
32	5.490	-124.743	9.513	-5.490	124.743	-9.513	0.000%
33	-0.018	-124.743	10.994	0.018	124.743	-10.993	0.000%
34	-5.523	-124.743	9.535	5.523	124.743	-9.535	0.000%
35	-9.546	-124.743	5.514	9.546	124.743	-5.514	0.000%
36	-10.983	-124.743	0.018	10.983	124.743	-0.018	0.000%
37	-9.525	-124.743	-5.481	9.525	124.743	5.481	0.000%
38	-5.491	-124.743	-9.517	5.491	124.743	9.517	0.000%
39	0.023	-68.621	-11.796	-0.023	68.621	11.795	0.002%
40	5.922	-68.621	-10.215	-5.921	68.621	10.215	0.000%
41	10.420	-68.621	-6.019	-10.420	68.621	6.019	0.000%
42	11.894	-68.621	-0.023	-11.893	68.621	0.023	0.002%
43	10.222	-68.621	5.878	-10.222	68.621	-5.878	0.000%
44	5.881	-68.621	10.191	-5.880	68.621	-10.190	0.000%
45	-0.023	-68.621	11.998	0.023	68.621	-11.997	0.002%
46	-5.932	-68.621	10.234	5.932	68.621	-10.234	0.000%
47	-10.245	-68.621	5.918	10.245	68.621	-5.918	0.000%
48	-11.427	-68.621	0.023	11.426	68.621	-0.023	0.002%
49	-10.397	-68.621	-5.979	10.397	68.621	5.979	0.000%
50	-5.891	-68.621	-10.209	5.891	68.621	10.209	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00000001	0.00007397
3	Yes	16	0.00000001	0.00010836
4	Yes	21	0.00000001	0.00013031
5	Yes	21	0.00000001	0.00009550
6	Yes	21	0.00000001	0.00013528
7	Yes	21	0.00000001	0.00009892
8	Yes	17	0.00000001	0.00007983
9	Yes	16	0.00000001	0.00011746
10	Yes	21	0.00000001	0.00013618
11	Yes	21	0.00000001	0.00009972
12	Yes	21	0.00000001	0.00012820
13	Yes	21	0.00000001	0.00009406
14	Yes	17	0.00000001	0.00011414
15	Yes	17	0.00000001	0.00008383
16	Yes	21	0.00000001	0.00013942
17	Yes	21	0.00000001	0.00010203
18	Yes	21	0.00000001	0.00013702
19	Yes	21	0.00000001	0.00010027
20	Yes	16	0.00000001	0.00013166
21	Yes	16	0.00000001	0.00007826
22	Yes	21	0.00000001	0.00013173
23	Yes	21	0.00000001	0.00009638
24	Yes	21	0.00000001	0.00013690
25	Yes	21	0.00000001	0.00010024
26	Yes	7	0.00000001	0.00010986
27	Yes	19	0.00000001	0.00014982
28	Yes	20	0.00000001	0.00007440
29	Yes	20	0.00000001	0.00007455
30	Yes	19	0.00000001	0.00014969
31	Yes	20	0.00000001	0.00007366
32	Yes	20	0.00000001	0.00007320
33	Yes	19	0.00000001	0.00014751
34	Yes	20	0.00000001	0.00007357
35	Yes	20	0.00000001	0.00007350
36	Yes	19	0.00000001	0.00014806
37	Yes	20	0.00000001	0.00007365
38	Yes	20	0.00000001	0.00007404
39	Yes	14	0.00000001	0.00013437
40	Yes	16	0.00000001	0.00010400
41	Yes	16	0.00000001	0.00011262
42	Yes	14	0.00000001	0.00013126
43	Yes	16	0.00000001	0.00011100
44	Yes	16	0.00000001	0.00010238
45	Yes	14	0.00000001	0.00013416
46	Yes	16	0.00000001	0.00011566
47	Yes	16	0.00000001	0.00010928
48	Yes	14	0.00000001	0.00012812
49	Yes	16	0.00000001	0.00010698
50	Yes	16	0.00000001	0.00011319

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	185 - 180	19.205	42	1.171	0.001
L2	180 - 175	17.986	42	1.158	0.001
L3	175 - 170	16.789	42	1.131	0.001
L4	170 - 165	15.625	42	1.091	0.001
L5	165 - 160	14.511	42	1.038	0.001
L6	160 - 155	13.455	42	0.978	0.001
L7	155 - 154	12.464	42	0.914	0.001
L8	154 - 153.75	12.274	42	0.901	0.001
L9	153.75 - 152	12.227	42	0.899	0.001
L10	152 - 151.75	11.900	42	0.883	0.001
L11	151.75 - 151.5	11.854	42	0.882	0.001
L12	151.5 - 151.25	11.808	42	0.880	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L13	151.25 - 146.25	11.762	42	0.878	0.001
L14	146.25 - 141.25	10.865	42	0.835	0.001
L15	141.25 - 136.25	10.015	42	0.789	0.000
L16	136.25 - 130	9.213	42	0.742	0.000
L17	135 - 129	9.020	42	0.730	0.000
L18	129 - 124	8.119	42	0.700	0.000
L19	124 - 121.42	7.408	42	0.659	0.000
L20	121.42 - 121.17	7.057	42	0.638	0.000
L21	121.17 - 121	7.024	42	0.637	0.000
L22	121 - 120.75	7.001	42	0.635	0.000
L23	120.75 - 115.75	6.968	42	0.634	0.000
L24	115.75 - 115	6.324	42	0.596	0.000
L25	115 - 114	6.231	42	0.590	0.000
L26	114 - 113.75	6.108	42	0.583	0.000
L27	113.75 - 108.75	6.078	42	0.581	0.000
L28	108.75 - 103.75	5.489	42	0.543	0.000
L29	103.75 - 95	4.941	42	0.504	0.000
L30	101 - 94	4.657	42	0.483	0.000
L31	94 - 91.4	3.965	42	0.457	0.000
L32	91.4 - 91.15	3.720	42	0.442	0.000
L33	91.15 - 91	3.697	42	0.440	0.000
L34	91 - 86	3.684	42	0.439	0.000
L35	86 - 81	3.241	42	0.405	0.000
L36	81 - 76	2.834	42	0.373	0.000
L37	76 - 71	2.460	42	0.341	0.000
L38	71 - 66	2.120	42	0.309	0.000
L39	66 - 63.75	1.812	42	0.279	0.000
L40	63.75 - 63.5	1.684	42	0.265	0.000
L41	63.5 - 58.5	1.670	42	0.264	0.000
L42	58.5 - 51	1.410	42	0.234	0.000
L43	58 - 50	1.385	42	0.231	0.000
L44	50 - 45	1.018	42	0.206	0.000
L45	45 - 40.42	0.815	42	0.181	0.000
L46	40.42 - 40.17	0.653	42	0.157	0.000
L47	40.17 - 40	0.645	42	0.156	0.000
L48	40 - 35	0.639	42	0.155	0.000
L49	35 - 33	0.490	42	0.130	0.000
L50	33 - 32.75	0.438	42	0.120	0.000
L51	32.75 - 19	0.432	42	0.119	0.000
L52	28 - 18	0.324	42	0.098	0.000
L53	18 - 13	0.140	42	0.075	0.000
L54	13 - 8	0.073	42	0.054	0.000
L55	8 - 3	0.027	42	0.033	0.000
L56	3 - 0	0.004	42	0.012	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.000	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	42	19.205	1.171	0.001	13617
175.000	7770.00 w/ Mount Pipe	42	16.789	1.131	0.001	8649
165.000	APXV18-206517S-C	42	14.511	1.038	0.001	5043
155.000	(4) SBNHH-1D65B w/ Mount Pipe	42	12.464	0.914	0.001	4935

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	185 - 180	96.084	18	5.854	0.008
L2	180 - 175	89.995	18	5.790	0.007
L3	175 - 170	84.012	18	5.661	0.007

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L4	170 - 165	78.198	18	5.462	0.005
L5	165 - 160	72.624	18	5.201	0.005
L6	160 - 155	67.343	18	4.903	0.004
L7	155 - 154	62.384	18	4.584	0.004
L8	154 - 153.75	61.433	18	4.519	0.003
L9	153.75 - 152	61.197	18	4.508	0.003
L10	152 - 151.75	59.562	18	4.428	0.003
L11	151.75 - 151.5	59.331	18	4.420	0.003
L12	151.5 - 151.25	59.100	18	4.412	0.003
L13	151.25 - 146.25	58.869	18	4.402	0.003
L14	146.25 - 141.25	54.380	18	4.185	0.003
L15	141.25 - 136.25	50.124	18	3.955	0.002
L16	136.25 - 130	46.111	18	3.719	0.002
L17	135 - 129	45.147	18	3.660	0.002
L18	129 - 124	40.635	18	3.510	0.002
L19	124 - 121.42	37.072	18	3.303	0.001
L20	121.42 - 121.17	35.317	18	3.198	0.001
L21	121.17 - 121	35.150	18	3.190	0.001
L22	121 - 120.75	35.036	18	3.185	0.001
L23	120.75 - 115.75	34.870	18	3.176	0.001
L24	115.75 - 115	31.647	18	2.985	0.001
L25	115 - 114	31.181	18	2.957	0.001
L26	114 - 113.75	30.566	18	2.924	0.001
L27	113.75 - 108.75	30.413	18	2.914	0.001
L28	108.75 - 103.75	27.465	18	2.720	0.001
L29	103.75 - 95	24.721	16	2.528	0.001
L30	101 - 94	23.297	16	2.423	0.001
L31	94 - 91.4	19.837	16	2.293	0.001
L32	91.4 - 91.15	18.611	16	2.215	0.001
L33	91.15 - 91	18.495	16	2.205	0.001
L34	91 - 86	18.426	16	2.199	0.001
L35	86 - 81	16.214	16	2.031	0.001
L36	81 - 76	14.175	16	1.868	0.001
L37	76 - 71	12.305	8	1.707	0.000
L38	71 - 66	10.601	8	1.548	0.000
L39	66 - 63.75	9.062	8	1.394	0.000
L40	63.75 - 63.5	8.421	8	1.326	0.000
L41	63.5 - 58.5	8.351	8	1.319	0.000
L42	58.5 - 51	7.050	8	1.169	0.000
L43	58 - 50	6.928	8	1.154	0.000
L44	50 - 45	5.088	8	1.031	0.000
L45	45 - 40.42	4.076	8	0.903	0.000
L46	40.42 - 40.17	3.265	8	0.787	0.000
L47	40.17 - 40	3.224	8	0.780	0.000
L48	40 - 35	3.197	8	0.775	0.000
L49	35 - 33	2.451	8	0.650	0.000
L50	33 - 32.75	2.189	8	0.600	0.000
L51	32.75 - 19	2.158	8	0.594	0.000
L52	28 - 18	1.618	8	0.492	0.000
L53	18 - 13	0.699	8	0.375	0.000
L54	13 - 8	0.363	8	0.268	0.000
L55	8 - 3	0.137	8	0.164	0.000
L56	3 - 0	0.019	8	0.061	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.000	APX16DWV-16DWVS-E-A20 w/ Mount Pipe	18	96.084	5.854	0.008	2818
175.000	7770.00 w/ Mount Pipe	18	84.012	5.661	0.007	1784
165.000	APXV18-206517S-C	18	72.624	5.201	0.005	1031
155.000	(4) SBNHH-1D65B w/ Mount Pipe	18	62.384	4.584	0.004	1002

Compression Checks Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K
L1	185 - 180 (1)	TP18x18x0.1875	5.000	0.000	0.0	10.754	-3.963
L2	180 - 175 (2)	TP19.6313x18x0.25	5.000	0.000	0.0	15.601	-4.283
L3	175 - 170 (3)	TP21.2625x19.6313x0.25	5.000	0.000	0.0	16.915	-7.426
L4	170 - 165 (4)	TP22.8938x21.2625x0.25	5.000	0.000	0.0	18.228	-7.910
L5	165 - 160 (5)	TP24.525x22.8938x0.25	5.000	0.000	0.0	19.541	-8.733
L6	160 - 155 (6)	TP26.1563x24.525x0.25	5.000	0.000	0.0	20.854	-9.326
L7	155 - 154 (7)	TP26.4825x26.1563x0.25	1.000	0.000	0.0	21.117	-12.596
L8	154 - 153.75 (8)	TP26.5641x26.4825x0.36	0.250	0.000	0.0	31.103	-12.646
L9	153.75 - 152 (9)	TP27.135x26.5641x0.362	1.750	0.000	0.0	31.250	-12.924
L10	152 - 151.75 (10)	TP27.2166x27.135x0.55	0.250	0.000	0.0	47.226	-12.992
L11	151.75 - 151.5 (11)	TP27.2981x27.2166x0.55	0.250	0.000	0.0	47.370	-13.008
L12	151.5 - 151.25 (12)	TP27.3797x27.2981x0.42	0.250	0.000	0.0	36.887	-13.052
L13	151.25 - 146.25 (13)	TP29.0109x27.3797x0.41	5.000	0.000	0.0	37.985	-13.944
L14	146.25 - 141.25 (14)	TP30.6422x29.0109x0.4	5.000	0.000	0.0	38.951	-14.881
L15	141.25 - 136.25 (15)	TP32.2734x30.6422x0.39	5.000	0.000	0.0	40.419	-15.853
L16	136.25 - 130 (16)	TP34.3125x32.2734x0.39	6.250	0.000	0.0	40.936	-16.100
L17	130 - 129 (17)	TP34.1331x32.1813x0.47	6.000	0.000	0.0	51.480	-18.288
L18	129 - 124 (18)	TP35.7597x34.1331x0.46	5.000	0.000	0.0	52.566	-19.493
L19	124 - 121.42 (19)	TP36.599x35.7597x0.462	2.580	0.000	0.0	53.816	-20.126
L20	121.42 - 121.17 (20)	TP36.6803x36.599x0.637	0.250	0.000	0.0	73.986	-20.217
L21	121.17 - 121 (21)	TP36.7356x36.6803x0.62	0.170	0.000	0.0	72.672	-20.271
L22	121 - 120.75 (22)	TP36.817x36.7356x0.5	0.250	0.000	0.0	58.470	-20.337
L23	120.75 - 115.75 (23)	TP38.4435x36.817x0.487	5.000	0.000	0.0	59.581	-21.671
L24	115.75 - 115 (24)	TP38.6875x38.4435x0.48	0.750	0.000	0.0	59.964	-21.879
L25	115 - 114 (25)	TP39.0125x38.6875x0.55	1.000	0.000	0.0	68.117	-22.182
L26	114 - 113.75 (26)	TP39.0938x39.0125x0.46	0.250	0.000	0.0	58.299	-22.257
L27	113.75 - 108.75 (27)	TP40.7188x39.0938x0.46	5.000	0.000	0.0	59.951	-23.636
L28	108.75 - 103.75 (28)	TP42.3438x40.7188x0.45	5.000	0.000	0.0	61.538	-25.038
L29	103.75 - 95 (29)	TP45.1875x42.3438x0.45	8.750	0.000	0.0	61.999	-25.828
L30	95 - 94 (30)	TP44.8525x42.6125x0.58	7.000	0.000	0.0	83.738	-29.836
L31	94 - 91.4 (31)	TP45.6845x44.8525x0.57	2.600	0.000	0.0	83.520	-30.793
L32	91.4 - 91.15 (32)	TP45.7645x45.6845x0.44	0.250	0.000	0.0	64.757	-30.879

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K
L33	91.15 - 91 (33)	TP45.8125x45.7645x0.44 38	0.150	0.000	0.0	64.826 3	-30.926
L34	91 - 86 (34)	TP47.4453x45.8125x0.5	5.000	0.000	0.0	75.582 0	-32.632
L35	86 - 81 (35)	TP49.0781x47.4453x0.5	5.000	0.000	0.0	78.210 8	-34.401
L36	81 - 76 (36)	TP50.7109x49.0781x0.49 38	5.000	0.000	0.0	79.839 1	-36.214
L37	76 - 71 (37)	TP52.3438x50.7109x0.48 75	5.000	0.000	0.0	81.401 4	-38.070
L38	71 - 66 (38)	TP53.9766x52.3438x0.48 75	5.000	0.000	0.0	83.964 5	-39.970
L39	66 - 63.75 (39)	TP54.7113x53.9766x0.48 75	2.250	0.000	0.0	85.117 9	-40.836
L40	63.75 - 63.5 (40)	TP54.793x54.7113x0.487 5	0.250	0.000	0.0	85.246 0	-40.942
L41	63.5 - 58.5 (41)	TP56.4258x54.793x0.481 3	5.000	0.000	0.0	86.693 0	-42.899
L42	58.5 - 51 (42)	TP58.875x56.4258x0.481 3	7.500	0.000	0.0	86.946 1	-43.105
L43	51 - 50 (43)	TP58.4384x55.8391x0.55	8.000	0.000	0.0	102.52 00	-49.142
L44	50 - 45 (44)	TP60.0629x58.4384x0.55	5.000	0.000	0.0	105.39 70	-51.466
L45	45 - 40.42 (45)	TP61.551x60.0629x0.543 8	4.580	0.000	0.0	106.81 60	-53.633
L46	40.42 - 40.17 (46)	TP61.6323x61.551x0.475	0.250	0.000	0.0	93.540 0	-53.748
L47	40.17 - 40 (47)	TP61.6875x61.6323x0.47 5	0.170	0.000	0.0	93.624 5	-53.822
L48	40 - 35 (48)	TP63.3095x61.6875x0.53 13	5.000	0.000	0.0	107.39 00	-56.203
L49	35 - 33 (49)	TP63.9583x63.3095x0.52 5	2.000	0.000	0.0	107.23 40	-57.175
L50	33 - 32.75 (50)	TP64.0394x63.9583x0.6	0.250	0.000	0.0	122.56 50	-57.330
L51	32.75 - 19 (51)	TP68.5x64.0394x0.6	13.750	0.000	0.0	125.54 20	-60.119
L52	19 - 18 (52)	TP67.9579x64.7054x0.6	10.000	0.000	0.0	130.13 50	-71.043
L53	18 - 13 (53)	TP69.5842x67.9579x0.58 75	5.000	0.000	0.0	130.52 40	-74.114
L54	13 - 8 (54)	TP71.2105x69.5842x0.58 75	5.000	0.000	0.0	133.60 10	-77.235
L55	8 - 3 (55)	TP72.8367x71.2105x0.58 75	5.000	0.000	0.0	136.67 70	-80.405
L56	3 - 0 (56)	TP73.8125x72.8367x0.57 5	3.000	0.000	0.0	135.59 90	-82.335

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft
L1	185 - 180 (1)	TP18x18x0.1875	40.054
L2	180 - 175 (2)	TP19.6313x18x0.25	82.311
L3	175 - 170 (3)	TP21.2625x19.6313x0.25	158.876
L4	170 - 165 (4)	TP22.8938x21.2625x0.25	237.738
L5	165 - 160 (5)	TP24.525x22.8938x0.25	322.922
L6	160 - 155 (6)	TP26.1563x24.525x0.25	411.080
L7	155 - 154 (7)	TP26.4825x26.1563x0.25	433.522
L8	154 - 153.75 (8)	TP26.5641x26.4825x0.36 88	439.222
L9	153.75 - 152 (9)	TP27.135x26.5641x0.362 5	479.386
L10	152 - 151.75 (10)	TP27.2166x27.135x0.55	485.202
L11	151.75 - 151.5 (11)	TP27.2981x27.2166x0.55	491.041

Section No.	Elevation ft	Size	M_{ux} kip-ft
L12	151.5 - 151.25 (12)	TP27.3797x27.2981x0.42 5	496.897
L13	151.25 - 146.25 (13)	TP29.0109x27.3797x0.41 25	616.431
L14	146.25 - 141.25 (14)	TP30.6422x29.0109x0.4	740.584
L15	141.25 - 136.25 (15)	TP32.2734x30.6422x0.39 38	869.458
L16	136.25 - 130 (16)	TP34.3125x32.2734x0.39 38	902.442
L17	130 - 129 (17)	TP34.1331x32.1813x0.47 5	1065.567
L18	129 - 124 (18)	TP35.7597x34.1331x0.46 25	1207.642
L19	124 - 121.42 (19)	TP36.599x35.7597x0.462 5	1283.175
L20	121.42 - 121.17 (20)	TP36.6803x36.599x0.637 5	1290.583
L21	121.17 - 121 (21)	TP36.7356x36.6803x0.62 5	1295.625
L22	121 - 120.75 (22)	TP36.817x36.7356x0.5	1303.050
L23	120.75 - 115.75 (23)	TP38.4435x36.817x0.487 5	1454.683
L24	115.75 - 115 (24)	TP38.6875x38.4435x0.48 75	1477.933
L25	115 - 114 (25)	TP39.0125x38.6875x0.55	1509.142
L26	114 - 113.75 (26)	TP39.0938x39.0125x0.46 88	1516.975
L27	113.75 - 108.75 (27)	TP40.7188x39.0938x0.46 25	1676.092
L28	108.75 - 103.75 (28)	TP42.3438x40.7188x0.45 63	1839.833
L29	103.75 - 95 (29)	TP45.1875x42.3438x0.45	1933.367
L30	95 - 94 (30)	TP44.8525x42.6125x0.58 75	2180.550
L31	94 - 91.4 (31)	TP45.6845x44.8525x0.57 5	2275.717
L32	91.4 - 91.15 (32)	TP45.7645x45.6845x0.44 38	2284.967
L33	91.15 - 91 (33)	TP45.8125x45.7645x0.44 38	2290.525
L34	91 - 86 (34)	TP47.4453x45.8125x0.5	2478.883
L35	86 - 81 (35)	TP49.0781x47.4453x0.5	2672.858
L36	81 - 76 (36)	TP50.7109x49.0781x0.49 38	2871.817
L37	76 - 71 (37)	TP52.3438x50.7109x0.48 75	3075.825
L38	71 - 66 (38)	TP53.9766x52.3438x0.48 75	3284.933
L39	66 - 63.75 (39)	TP54.7113x53.9766x0.48 75	3380.867
L40	63.75 - 63.5 (40)	TP54.793x54.7113x0.487 5	3391.608
L41	63.5 - 58.5 (41)	TP56.4258x54.793x0.481 3	3609.200
L42	58.5 - 51 (42)	TP58.875x56.4258x0.481 3	3631.242
L43	51 - 50 (43)	TP58.4384x55.8391x0.55	3995.192
L44	50 - 45 (44)	TP60.0629x58.4384x0.55	4231.042
L45	45 - 40.42 (45)	TP61.551x60.0629x0.543 8	4451.667
L46	40.42 - 40.17 (46)	TP61.6323x61.551x0.475	4463.833
L47	40.17 - 40 (47)	TP61.6875x61.6323x0.47 5	4472.117
L48	40 - 35 (48)	TP63.3095x61.6875x0.53 13	4719.125

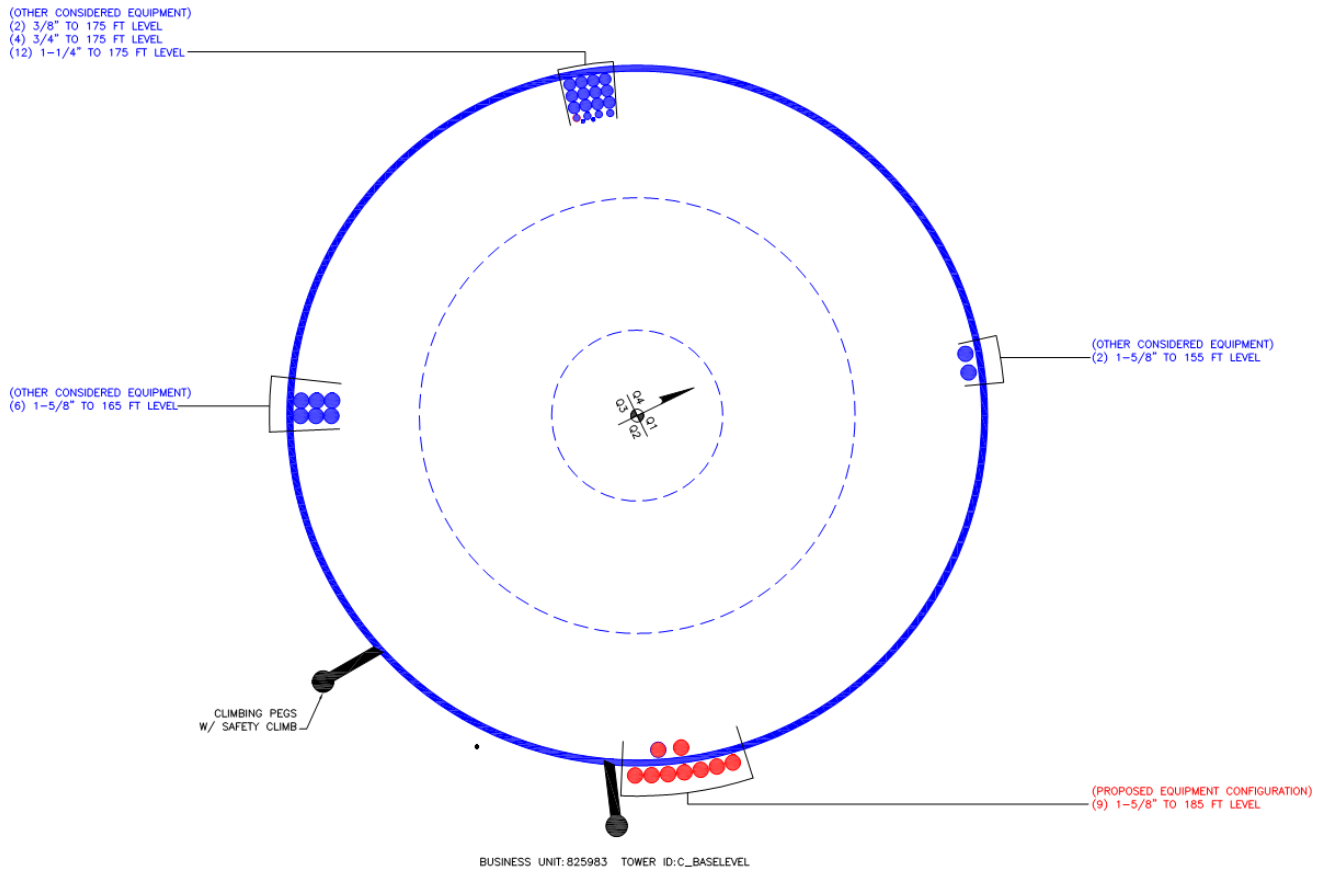
Section No.	Elevation ft	Size	M_{ux} kip-ft
L49	35 - 33 (49)	TP63.9583x63.3095x0.525	4819.825
L50	33 - 32.75 (50)	TP64.0394x63.9583x0.6	4832.492
L51	32.75 - 19 (51)	TP68.5x64.0394x0.6	5076.242
L52	19 - 18 (52)	TP67.9579x64.7054x0.6	5609.858
L53	18 - 13 (53)	TP69.5842x67.9579x0.5875	5887.717
L54	13 - 8 (54)	TP71.2105x69.5842x0.5875	6171.833
L55	8 - 3 (55)	TP72.8367x71.2105x0.5875	6462.300
L56	3 - 0 (56)	TP73.8125x72.8367x0.575	6639.350

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K
L1	185 - 180 (1)	TP18x18x0.1875	8.206
L2	180 - 175 (2)	TP19.6313x18x0.25	8.699
L3	175 - 170 (3)	TP21.2625x19.6313x0.25	15.500
L4	170 - 165 (4)	TP22.8938x21.2625x0.25	16.051
L5	165 - 160 (5)	TP24.525x22.8938x0.25	17.331
L6	160 - 155 (6)	TP26.1563x24.525x0.25	17.941
L7	155 - 154 (7)	TP26.4825x26.1563x0.25	22.776
L8	154 - 153.75 (8)	TP26.5641x26.4825x0.3688	22.817
L9	153.75 - 152 (9)	TP27.135x26.5641x0.3625	23.240
L10	152 - 151.75 (10)	TP27.2166x27.135x0.55	23.292
L11	151.75 - 151.5 (11)	TP27.2981x27.2166x0.55	23.428
L12	151.5 - 151.25 (12)	TP27.3797x27.2981x0.425	23.473
L13	151.25 - 146.25 (13)	TP29.0109x27.3797x0.4125	24.384
L14	146.25 - 141.25 (14)	TP30.6422x29.0109x0.4	25.314
L15	141.25 - 136.25 (15)	TP32.2734x30.6422x0.3938	26.275
L16	136.25 - 130 (16)	TP34.3125x32.2734x0.3938	26.528
L17	130 - 129 (17)	TP34.1331x32.1813x0.475	27.880
L18	129 - 124 (18)	TP35.7597x34.1331x0.4625	28.992
L19	124 - 121.42 (19)	TP36.599x35.7597x0.4625	29.601
L20	121.42 - 121.17 (20)	TP36.6803x36.599x0.6375	29.672
L21	121.17 - 121 (21)	TP36.7356x36.6803x0.625	29.734
L22	121 - 120.75 (22)	TP36.817x36.7356x0.5	29.771
L23	120.75 - 115.75 (23)	TP38.4435x36.817x0.4875	30.933
L24	115.75 - 115 (24)	TP38.6875x38.4435x0.4875	31.105
L25	115 - 114 (25)	TP39.0125x38.6875x0.55	31.342
L26	114 - 113.75 (26)	TP39.0938x39.0125x0.4688	31.407
L27	113.75 - 108.75 (27)	TP40.7188x39.0938x0.4625	32.290

Section No.	Elevation ft	Size	Actual V_u/K
L28	108.75 - 103.75 (28)	TP42.3438x40.7188x0.45 63	33.697
L29	103.75 - 95 (29)	TP45.1875x42.3438x0.45	34.376
L30	95 - 94 (30)	TP44.8525x42.6125x0.58 75	36.288
L31	94 - 91.4 (31)	TP45.6845x44.8525x0.57 5	36.970
L32	91.4 - 91.15 (32)	TP45.7645x45.6845x0.44 38	37.034
L33	91.15 - 91 (33)	TP45.8125x45.7645x0.44 38	37.086
L34	91 - 86 (34)	TP47.4453x45.8125x0.5	38.328
L35	86 - 81 (35)	TP49.0781x47.4453x0.5	39.318
L36	81 - 76 (36)	TP50.7109x49.0781x0.49 38	40.321
L37	76 - 71 (37)	TP52.3438x50.7109x0.48 75	41.337
L38	71 - 66 (38)	TP53.9766x52.3438x0.48 75	42.365
L39	66 - 63.75 (39)	TP54.7113x53.9766x0.48 75	42.963
L40	63.75 - 63.5 (40)	TP54.793x54.7113x0.487 5	43.023
L41	63.5 - 58.5 (41)	TP56.4258x54.793x0.481 3	44.068
L42	58.5 - 51 (42)	TP58.875x56.4258x0.481 3	44.166
L43	51 - 50 (43)	TP58.4384x55.8391x0.55	46.675
L44	50 - 45 (44)	TP60.0629x58.4384x0.55	47.722
L45	45 - 40.42 (45)	TP61.551x60.0629x0.543 8	48.679
L46	40.42 - 40.17 (46)	TP61.6323x61.551x0.475	48.721
L47	40.17 - 40 (47)	TP61.6875x61.6323x0.47 5	48.756
L48	40 - 35 (48)	TP63.3095x61.6875x0.53 13	50.102
L49	35 - 33 (49)	TP63.9583x63.3095x0.52 5	50.657
L50	33 - 32.75 (50)	TP64.0394x63.9583x0.6	50.718
L51	32.75 - 19 (51)	TP68.5x64.0394x0.6	51.967
L52	19 - 18 (52)	TP67.9579x64.7054x0.6	54.947
L53	18 - 13 (53)	TP69.5842x67.9579x0.58 75	56.192
L54	13 - 8 (54)	TP71.2105x69.5842x0.58 75	57.450
L55	8 - 3 (55)	TP72.8367x71.2105x0.58 75	58.730
L56	3 - 0 (56)	TP73.8125x72.8367x0.57 5	59.298

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Site BU: 825983
Work Order: _____

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	185	5	0	12	18	18	0.1875	Auto	A36M-42
2	180	50	5	12	18.00	34.3125	0.25	Auto	A36M-42
3	135	20	0	12	32.18	38.6875	0.25	Auto	A36M-42
4	115	20	6	12	38.69	45.1875	0.3125	Auto	A36M-42
5	101	10	0	12	42.61	45.8125	0.3125	Auto	A36M-42
6	91	40	7	12	45.81	58.875	0.375	Auto	A36M-42
7	58	18	0	12	55.84	61.6875	0.375	Auto	A36M-42
8	40	21	9	12	61.69	68.5	0.4375	Auto	A36M-42
9	28	28	0	12	64.71	73.8125	0.4375	Auto	A36M-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	40.42	51.42	plate	CI-045100; (1) (1.1875)	3	o				o				o			
2	91.4	121.42	plate	CI-060100; (1) (1.1875)	3	o				o				o			
3	121	152	plate	CI-045100; (1) (1.1875)	3		o				o				o		
4	0	33	plate	CI-085125; (1) (1.1875)	4			o			o			o		o	
5	33	63.75	plate	CI-060100; (1) (1.1875)	3				o				o				o
6	63.75	99.25	plate	CI-060100; (1) (1.1875)	3			o				o				o	
7	114	130	plate	CI-040075; (1) (1.1875)	3			o				o				o	
8	151.5	154	plate	CI-040075; (1) (1.1875)	3			o				o				o	
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _v (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
2	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
3	4.5	1	4.5	0.5	24.000	24.000	20.000	3.250	1.1875	A572-65
4	8.5	1.25	10.625	0.625	48.000	51.000	17.000	9.063	1.1875	A572-65
5	6	1	6	0.5	27.000	27.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	27.000	27.000	16.000	4.750	1.1875	A572-65
7	4	0.75	3	0.375	15.000	18.000	16.000	2.063	1.1875	A572-65
8	4	0.75	3	0.375	15.000	15.000	16.000	2.063	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	185 - 180	5	0	12	18.000	18.000	0.1875	A36M-42	1.000
2	180 - 175	5		12	18.000	19.631	0.25	A36M-42	1.000
3	175 - 170	5		12	19.631	21.263	0.25	A36M-42	1.000
4	170 - 165	5		12	21.263	22.894	0.25	A36M-42	1.000
5	165 - 160	5		12	22.894	24.525	0.25	A36M-42	1.000
6	160 - 155	5		12	24.525	26.156	0.25	A36M-42	1.000
7	155 - 154	1		12	26.156	26.483	0.25	A36M-42	1.000
8	154 - 153.75	0.25		12	26.483	26.564	0.36875	A36M-42	0.971
9	153.75 - 152	1.75		12	26.564	27.135	0.3625	A36M-42	0.981
10	152 - 151.75	0.25		12	27.135	27.217	0.55	A36M-42	0.937
11	151.75 - 151.5	0.25		12	27.217	27.298	0.55	A36M-42	0.935
12	151.5 - 151.25	0.25		12	27.298	27.380	0.425	A36M-42	0.959
13	151.25 - 146.25	5		12	27.380	29.011	0.4125	A36M-42	0.965
14	146.25 - 141.25	5		12	29.011	30.642	0.4	A36M-42	0.975
15	141.25 - 136.25	5		12	30.642	32.273	0.39375	A36M-42	0.972
16	136.25 - 135	6.25	5	12	32.273	34.313	0.39375	A36M-42	0.968
17	135 - 129	6		12	32.181	34.133	0.475	A36M-42	0.968
18	129 - 124	5		12	34.133	35.760	0.4625	A36M-42	0.972
19	124 - 121.42	2.58		12	35.760	36.599	0.4625	A36M-42	0.962
20	121.42 - 121.17	0.25		12	36.599	36.680	0.6375	A36M-42	0.945
21	121.17 - 121	0.17		12	36.680	36.736	0.625	A36M-42	0.962
22	121 - 120.75	0.25		12	36.736	36.817	0.5	A36M-42	0.966
23	120.75 - 115.75	5		12	36.817	38.444	0.4875	A36M-42	0.970
24	115.75 - 115	0.75	0	12	38.444	38.688	0.4875	A36M-42	0.967
25	115 - 114	1		12	38.688	39.013	0.55	A36M-42	0.969
26	114 - 113.75	0.25		12	39.013	39.094	0.46875	A36M-42	0.979
27	113.75 - 108.75	5		12	39.094	40.719	0.4625	A36M-42	0.979
28	108.75 - 103.75	5		12	40.719	42.344	0.45625	A36M-42	0.980
29	103.75 - 101	8.75	6	12	42.344	45.188	0.45	A36M-42	0.987
30	101 - 94	7		12	42.613	44.853	0.5875	A36M-42	0.966
31	94 - 91.4	2.6		12	44.853	45.685	0.575	A36M-42	0.978
32	91.4 - 91.15	0.25		12	45.685	45.765	0.44375	A36M-42	0.985
33	91.15 - 91	0.15	0	12	45.765	45.813	0.44375	A36M-42	0.984
34	91 - 86	5		12	45.813	47.445	0.5	A36M-42	0.990
35	86 - 81	5		12	47.445	49.078	0.5	A36M-42	0.982
36	81 - 76	5		12	49.078	50.711	0.49375	A36M-42	0.987
37	76 - 71	5		12	50.711	52.344	0.4875	A36M-42	0.992
38	71 - 66	5		12	52.344	53.977	0.4875	A36M-42	0.986
39	66 - 63.75	2.25		12	53.977	54.711	0.4875	A36M-42	0.983
40	63.75 - 63.5	0.25		12	54.711	54.793	0.4875	A36M-42	0.982
41	63.5 - 58.5	5		12	54.793	56.426	0.48125	A36M-42	0.989
42	58.5 - 58	7.5	7	12	56.426	58.875	0.48125	A36M-42	0.988
43	58 - 50	8		12	55.839	58.438	0.55	A36M-42	0.992
44	50 - 45	5		12	58.438	60.063	0.55	A36M-42	0.983
45	45 - 40.42	4.58		12	60.063	61.551	0.54375	A36M-42	0.987
46	40.42 - 40.17	0.25		12	61.551	61.632	0.475	A36M-42	0.983
47	40.17 - 40	0.17	0	12	61.632	61.688	0.475	A36M-42	0.983
48	40 - 35	5		12	61.688	63.310	0.53125	A36M-42	0.993
49	35 - 33	2		12	63.310	63.958	0.525	A36M-42	1.003
50	33 - 32.75	0.25		12	63.958	64.039	0.6	A36M-42	1.078
51	32.75 - 28	13.75	9	12	64.039	68.500	0.6	A36M-42	1.070
52	28 - 18	10		12	64.705	67.958	0.6	A36M-42	1.058
53	18 - 13	5		12	67.958	69.584	0.5875	A36M-42	1.072
54	13 - 8	5		12	69.584	71.210	0.5875	A36M-42	1.065
55	8 - 3	5		12	71.210	72.837	0.5875	A36M-42	1.058
56	3 - 0	3		12	72.837	73.813	0.575	A36M-42	1.076

TNX Section Forces

Increment (ft):		TNX Output		
5				
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	185 - 180	3.96	40.05	8.21
2	180 - 175	4.28	82.31	8.70
3	175 - 170	7.43	158.88	15.50
4	170 - 165	7.91	237.74	16.05
5	165 - 160	8.73	322.92	17.33
6	160 - 155	9.33	411.08	17.94
7	155 - 154	12.60	433.52	22.78
8	154 - 153.75	12.65	439.22	22.82
9	153.75 - 152	12.91	479.43	23.14
10	152 - 151.75	12.98	485.21	23.18
11	151.75 - 151.5	13.01	491.04	23.43
12	151.5 - 151.25	13.05	496.90	23.47
13	151.25 - 146.25	13.94	616.43	24.38
14	146.25 - 141.25	14.88	740.58	25.31
15	141.25 - 136.25	15.85	869.46	26.28
16	136.25 - 135	16.10	902.44	26.53
17	135 - 129	18.29	1065.57	27.88
18	129 - 124	19.49	1207.64	28.99
19	124 - 121.42	20.13	1283.17	29.60
20	121.42 - 121.17	20.22	1290.58	29.67
21	121.17 - 121	20.27	1295.62	29.73
22	121 - 120.75	20.34	1303.05	29.77
23	120.75 - 115.75	21.67	1454.68	30.93
24	115.75 - 115	21.88	1477.93	31.11
25	115 - 114	22.18	1509.14	31.34
26	114 - 113.75	22.26	1516.98	31.41
27	113.75 - 108.75	23.64	1676.09	32.29
28	108.75 - 103.75	25.04	1839.83	33.70
29	103.75 - 101	25.83	1933.37	34.38
30	101 - 94	29.84	2180.55	36.29
31	94 - 91.4	30.79	2275.72	36.97
32	91.4 - 91.15	30.88	2284.97	37.03
33	91.15 - 91	30.93	2290.52	37.09
34	91 - 86	32.63	2478.88	38.33
35	86 - 81	34.40	2672.86	39.32
36	81 - 76	36.21	2871.82	40.32
37	76 - 71	38.07	3075.83	41.34
38	71 - 66	39.97	3284.94	42.37
39	66 - 63.75	40.84	3380.87	42.96
40	63.75 - 63.5	40.94	3391.61	43.02
41	63.5 - 58.5	42.90	3609.20	44.07
42	58.5 - 58	43.10	3631.24	44.17
43	58 - 50	49.14	3995.19	46.68
44	50 - 45	51.47	4231.04	47.72
45	45 - 40.42	53.63	4451.67	48.68
46	40.42 - 40.17	53.75	4463.83	48.72
47	40.17 - 40	53.82	4472.12	48.76
48	40 - 35	56.20	4719.13	50.10
49	35 - 33	57.17	4819.83	50.66
50	33 - 32.75	57.33	4832.49	50.72
51	32.75 - 28	60.12	5076.24	51.97
52	28 - 18	71.04	5609.86	54.95
53	18 - 13	74.11	5887.72	56.19
54	13 - 8	77.23	6171.84	57.45
55	8 - 3	80.41	6462.30	58.73
56	3 - 0	82.33	6639.35	59.30

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
185 - 180	Pole	TP18x18x0.1875	Pole	21.4%	Pass
180 - 175	Pole	TP19.631x18x0.25	Pole	27.4%	Pass
175 - 170	Pole	TP21.263x19.631x0.25	Pole	44.9%	Pass
170 - 165	Pole	TP22.894x21.263x0.25	Pole	57.6%	Pass
165 - 160	Pole	TP24.525x22.894x0.25	Pole	67.8%	Pass
160 - 155	Pole	TP26.156x24.525x0.25	Pole	76.2%	Pass
155 - 154	Pole	TP26.483x26.156x0.25	Pole	79.0%	Pass
154 - 153.75	Pole + Reinf.	TP26.564x26.483x0.3688	Reinf. 8 Tension Rupture	62.1%	Pass
153.75 - 152	Pole + Reinf.	TP27.135x26.564x0.3625	Reinf. 8 Tension Rupture	65.3%	Pass
152 - 151.75	Pole + Reinf.	TP27.217x27.135x0.55	Reinf. 8 Tension Rupture	44.8%	Pass
151.75 - 151.5	Pole + Reinf.	TP27.298x27.217x0.55	Reinf. 8 Tension Rupture	45.1%	Pass
151.5 - 151.25	Pole + Reinf.	TP27.38x27.298x0.425	Reinf. 3 Tension Rupture	55.1%	Pass
151.25 - 146.25	Pole + Reinf.	TP29.011x27.38x0.4125	Reinf. 3 Tension Rupture	62.2%	Pass
146.25 - 141.25	Pole + Reinf.	TP30.642x29.011x0.4	Reinf. 3 Tension Rupture	68.2%	Pass
141.25 - 136.25	Pole + Reinf.	TP32.273x30.642x0.3938	Reinf. 3 Tension Rupture	73.5%	Pass
136.25 - 135	Pole + Reinf.	TP34.313x32.273x0.3938	Reinf. 3 Tension Rupture	74.7%	Pass
135 - 129	Pole + Reinf.	TP34.133x32.181x0.475	Reinf. 7 Tension Rupture	69.8%	Pass
129 - 124	Pole + Reinf.	TP35.76x34.133x0.4625	Reinf. 7 Tension Rupture	73.6%	Pass
124 - 121.42	Pole + Reinf.	TP36.599x35.76x0.4625	Pole	75.9%	Pass
121.42 - 121.17	Pole + Reinf.	TP36.68x36.599x0.6375	Pole	56.0%	Pass
121.17 - 121	Pole + Reinf.	TP36.736x36.68x0.625	Pole	56.1%	Pass
121 - 120.75	Pole + Reinf.	TP36.817x36.736x0.5	Pole	70.1%	Pass
120.75 - 115.75	Pole + Reinf.	TP38.444x36.817x0.4875	Pole	75.0%	Pass
115.75 - 115	Pole + Reinf.	TP38.688x38.444x0.4875	Pole	75.7%	Pass
115 - 114	Pole + Reinf.	TP39.013x38.688x0.55	Reinf. 7 Tension Rupture	65.3%	Pass
114 - 113.75	Pole + Reinf.	TP39.094x39.013x0.4688	Pole	71.6%	Pass
113.75 - 108.75	Pole + Reinf.	TP40.719x39.094x0.4625	Pole	75.1%	Pass
108.75 - 103.75	Pole + Reinf.	TP42.344x40.719x0.4563	Pole	78.4%	Pass
103.75 - 101	Pole + Reinf.	TP45.188x42.344x0.45	Pole	80.3%	Pass
101 - 94	Pole + Reinf.	TP44.853x42.613x0.5875	Pole	66.8%	Pass
94 - 91.4	Pole + Reinf.	TP45.685x44.853x0.575	Pole	68.4%	Pass
91.4 - 91.15	Pole + Reinf.	TP45.765x45.685x0.4438	Pole	88.5%	Pass
91.15 - 91	Pole + Reinf.	TP45.813x45.765x0.4438	Pole	88.6%	Pass
91 - 86	Pole + Reinf.	TP47.445x45.813x0.5	Pole	74.3%	Pass
86 - 81	Pole + Reinf.	TP49.078x47.445x0.5	Pole	76.5%	Pass
81 - 76	Pole + Reinf.	TP50.711x49.078x0.4938	Pole	78.7%	Pass
76 - 71	Pole + Reinf.	TP52.344x50.711x0.4875	Pole	80.8%	Pass
71 - 66	Pole + Reinf.	TP53.977x52.344x0.4875	Pole	82.9%	Pass
66 - 63.75	Pole + Reinf.	TP54.711x53.977x0.4875	Pole	83.8%	Pass
63.75 - 63.5	Pole + Reinf.	TP54.793x54.711x0.4875	Pole	83.9%	Pass
63.5 - 58.5	Pole + Reinf.	TP56.426x54.793x0.4813	Pole	86.0%	Pass
58.5 - 58	Pole + Reinf.	TP58.875x56.426x0.4813	Pole	86.2%	Pass
58 - 50	Pole + Reinf.	TP58.438x55.839x0.55	Pole	78.7%	Pass
50 - 45	Pole + Reinf.	TP60.063x58.438x0.55	Pole	80.8%	Pass
45 - 40.42	Pole + Reinf.	TP61.551x60.063x0.5438	Pole	82.7%	Pass
40.42 - 40.17	Pole + Reinf.	TP61.632x61.551x0.475	Pole	95.2%	Pass
40.17 - 40	Pole + Reinf.	TP61.688x61.632x0.475	Pole	95.3%	Pass
40 - 35	Pole + Reinf.	TP63.31x61.688x0.5313	Pole	79.3%	Pass
35 - 33	Pole + Reinf.	TP63.958x63.31x0.525	Pole	79.9%	Pass
33 - 32.75	Pole + Reinf.	TP64.039x63.958x0.6	Pole	72.2%	Pass
32.75 - 28	Pole + Reinf.	TP68.5x64.039x0.6	Pole	73.6%	Pass
28 - 18	Pole + Reinf.	TP67.958x64.705x0.6	Pole	77.9%	Pass
18 - 13	Pole + Reinf.	TP69.584x67.958x0.5875	Pole	79.4%	Pass
13 - 8	Pole + Reinf.	TP71.21x69.584x0.5875	Pole	81.0%	Pass
8 - 3	Pole + Reinf.	TP72.837x71.21x0.5875	Pole	82.5%	Pass
3 - 0	Pole + Reinf.	TP73.813x72.837x0.575	Pole	83.5%	Pass
				Summary	
			Pole	95.3%	Pass
			Reinforcement	77.3%	Pass
			Overall	95.3%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*								
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8
185 - 180	436	n/a	436	10.74	n/a	10.74	21.4%								
180 - 175	749	n/a	749	15.58	n/a	15.58	27.4%								
175 - 170	955	n/a	955	16.89	n/a	16.89	44.9%								
170 - 165	1195	n/a	1195	18.20	n/a	18.20	57.6%								
165 - 160	1472	n/a	1472	19.51	n/a	19.51	67.8%								
160 - 155	1789	n/a	1789	20.82	n/a	20.82	76.2%								
155 - 154	1857	n/a	1857	21.09	n/a	21.09	79.0%								
154 - 153.75	1875	846	2720	21.15	9.00	30.15	53.0%								62.1%
153.75 - 152	1999	881	2880	21.61	9.00	30.61	56.2%								65.3%
152 - 151.75	2018	2242	4259	21.68	22.50	44.18	38.6%			43.1%					44.8%
151.75 - 151.5	2036	2255	4291	21.74	22.50	44.24	38.9%			43.4%					45.1%
151.5 - 151.25	2054	1371	3426	21.81	13.50	35.31	49.5%			55.1%					
151.25 - 146.25	2448	1532	3980	23.12	13.50	36.62	57.0%			62.2%					
146.25 - 141.25	2888	1702	4590	24.43	13.50	37.93	63.9%			68.2%					
141.25 - 136.25	3379	1880	5259	25.74	13.50	39.24	70.3%			73.5%					
136.25 - 135	3510	1926	5436	26.07	13.50	39.57	71.9%			74.7%					
135 - 129	4002	3470	7472	27.24	22.50	49.74	65.7%			66.9%				69.8%	
129 - 124	4607	3798	8405	28.54	22.50	51.04	70.7%			70.6%				73.6%	
124 - 121.42	4941	3973	8914	29.22	22.50	51.72	75.9%			72.3%				75.4%	
121.42 - 121.17	4975	7213	12187	29.28	40.50	69.78	56.0%		48.7%	53.3%				55.6%	
121.17 - 121	4997	7234	12231	29.33	40.50	69.83	56.1%		48.7%	53.4%				55.7%	
121 - 120.75	5031	4839	9870	29.39	27.00	56.39	70.1%		60.9%					69.5%	
120.75 - 115.75	5732	5263	10995	30.70	27.00	57.70	75.0%		63.7%					72.7%	
115.75 - 115	5843	5328	11171	30.90	27.00	57.90	75.7%		64.0%					73.2%	
115 - 114	7454	5415	12869	38.89	27.00	65.89	59.5%		57.2%					65.3%	
114 - 113.75	7501	3645	11146	38.97	18.00	56.97	71.6%		66.5%						
113.75 - 108.75	8484	3944	12428	40.60	18.00	58.60	75.1%		68.6%						
108.75 - 103.75	9550	4255	13804	42.23	18.00	60.23	78.4%		70.4%						
103.75 - 101	10172	4431	14603	43.13	18.00	61.13	80.3%		71.4%						
101 - 94	11364	9517	20880	44.75	36.00	80.75	66.8%		58.4%				58.4%		
94 - 91.4	12013	9863	21876	45.59	36.00	81.59	68.4%		59.3%				59.3%		
91.4 - 91.15	12076	4948	17025	45.67	18.00	63.67	88.5%						76.6%		
91.15 - 91	12115	4958	17073	45.72	18.00	63.72	88.6%						76.7%		
91 - 86	16095	5308	21404	56.76	18.00	74.76	74.3%						68.5%		
86 - 81	17829	5670	23499	58.72	18.00	76.72	76.5%						69.5%		
81 - 76	19683	6044	25727	60.69	18.00	78.69	78.7%						70.5%		
76 - 71	21661	6430	28091	62.66	18.00	80.66	80.8%						71.3%		
71 - 66	23768	6828	30596	64.63	18.00	82.63	82.9%						72.1%		
66 - 63.75	24758	7011	31770	65.52	18.00	83.52	83.8%						72.5%		
63.75 - 63.5	24870	7032	31902	65.62	18.00	83.62	83.9%						72.5%		
63.5 - 58.5	27177	7448	34624	67.58	18.00	85.58	86.0%						73.2%		
58.5 - 58	27415	7490	34905	67.78	18.00	85.78	86.2%						73.2%		
58 - 50	30211	13951	44161	70.01	31.50	101.51	78.7%	72.0%					65.8%		
50 - 45	32818	14721	47539	71.97	31.50	103.47	80.8%	72.8%					66.6%		
45 - 40.42	35334	15446	50780	73.76	31.50	105.26	82.7%	73.5%					67.2%		
40.42 - 40.17	35475	8854	44329	73.86	18.00	91.86	95.2%						77.3%		
40.17 - 40	35571	8870	44441	73.93	18.00	91.93	95.3%						77.3%		
40 - 35	44748	9333	54081	88.44	18.00	106.44	79.3%						68.7%		
35 - 33	46148	9522	55669	89.36	18.00	107.36	79.9%						68.9%		
33 - 32.75	46436	17211	63646	89.47	42.50	131.97	72.2%				53.9%				
32.75 - 28	49889	18029	67918	91.64	42.50	134.14	73.6%				54.4%				
28 - 18	55547	19329	74876	94.98	42.50	137.48	77.9%				56.6%				
18 - 13	59654	20245	79898	97.27	42.50	139.77	79.4%				57.1%				
13 - 8	63958	21182	85140	99.56	42.50	142.06	81.0%				57.5%				
8 - 3	68464	22140	90605	101.85	42.50	144.35	82.5%				57.9%				
3 - 0	71267	22726	93993	103.22	42.50	145.72	83.5%				58.2%				

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

v4.5.7 - Effective 2-28-19

Asymmetric Anchor Rod Analysis

Moment = **6639** k-ft
 Axial = **82.0** kips (+Comp, -Tension)
 Shear = **60.0** kips
 Anchor Qty = **30**

TIA Ref. = **H**
 ASIF = **N/A**
 Max Ratio = **100.0%**
 Location = **Base Plate**

η = **N/A** for Base Plates, Rev. G Sect. 4.9.9
 Threads = **N/A** for Flange Plates, Rev. G & H
 Grout = **0.00** psi, for Base Plates, Rev. H Sect 4.9.9 (Note)

Use An? **Yes** for Anchors or Bolts

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Type	Area Override, in ²	lar, in	Area, in ²	Max Net Comp, kips	Max Net Tension, kips	Tension Override, kips	Comp Override, kips	Tension Cap, kips	Comp Cap, kips	Capacity Ratio
1	2.000	A36	36	58	0.0	68.00	Original	0.00	1.75	2.50	64.46	57.63	0.00	0.00	108.67	89.83	69.1%
2	2.000	A36	36	58	15.0	68.00	Original	0.00	1.75	2.50	66.02	59.19	0.00	0.00	108.67	89.83	70.7%
3	2.000	A36	36	58	30.0	68.00	Original	0.00	1.75	2.50	67.54	60.70	0.00	0.00	108.67	89.83	72.3%
4	2.000	A36	36	58	45.0	68.00	Original	0.00	1.75	2.50	68.58	61.75	0.00	0.00	108.67	89.83	73.4%
5	2.000	A36	36	58	60.0	68.00	Original	0.00	1.75	2.50	68.85	62.02	0.00	0.00	108.67	89.83	73.7%
6	2.000	A36	36	58	75.0	68.00	Original	0.00	1.75	2.50	68.22	61.39	0.00	0.00	108.67	89.83	73.1%
7	2.000	A36	36	58	90.0	68.00	Original	0.00	1.75	2.50	66.79	59.95	0.00	0.00	108.67	89.83	71.5%
8	2.000	A36	36	58	105.0	68.00	Original	0.00	1.75	2.50	64.81	57.98	0.00	0.00	108.67	89.83	69.4%
9	2.000	A36	36	58	120.0	68.00	Original	0.00	1.75	2.50	62.73	55.90	0.00	0.00	108.67	89.83	67.2%
10	2.000	A36	36	58	135.0	68.00	Original	0.00	1.75	2.50	61.05	54.22	0.00	0.00	108.67	89.83	65.5%
11	2.000	A36	36	58	150.0	68.00	Original	0.00	1.75	2.50	60.23	53.40	0.00	0.00	108.67	89.83	64.6%
12	2.000	A36	36	58	165.0	68.00	Original	0.00	1.75	2.50	60.48	53.64	0.00	0.00	108.67	89.83	64.9%
13	2.000	A36	36	58	180.0	68.00	Original	0.00	1.75	2.50	61.70	54.86	0.00	0.00	108.67	89.83	66.2%
14	2.000	A36	36	58	195.0	68.00	Original	0.00	1.75	2.50	63.52	56.69	0.00	0.00	108.67	89.83	68.1%
15	2.000	A36	36	58	210.0	68.00	Original	0.00	1.75	2.50	65.45	58.61	0.00	0.00	108.67	89.83	70.1%
16	2.000	A36	36	58	225.0	68.00	Original	0.00	1.75	2.50	67.01	60.17	0.00	0.00	108.67	89.83	71.8%
17	2.000	A36	36	58	240.0	68.00	Original	0.00	1.75	2.50	67.87	61.03	0.00	0.00	108.67	89.83	72.7%
18	2.000	A36	36	58	255.0	68.00	Original	0.00	1.75	2.50	67.89	61.05	0.00	0.00	108.67	89.83	72.7%
19	2.000	A36	36	58	270.0	68.00	Original	0.00	1.75	2.50	67.12	60.29	0.00	0.00	108.67	89.83	71.9%
20	2.000	A36	36	58	285.0	68.00	Original	0.00	1.75	2.50	65.83	59.00	0.00	0.00	108.67	89.83	70.5%
21	2.000	A36	36	58	300.0	68.00	Original	0.00	1.75	2.50	64.41	57.57	0.00	0.00	108.67	89.83	69.0%
22	2.000	A36	36	58	315.0	68.00	Original	0.00	1.75	2.50	63.29	56.46	0.00	0.00	108.67	89.83	67.8%
23	2.000	A36	36	58	330.0	68.00	Original	0.00	1.75	2.50	62.87	56.03	0.00	0.00	108.67	89.83	67.4%
24	2.000	A36	36	58	345.0	68.00	Original	0.00	1.75	2.50	63.29	56.46	0.00	0.00	108.67	89.83	67.8%
25	0.000				45.0	169.81	Post-Installed	3.50	3.75	3.50	226.30	226.30	285.10	285.10	285.10	285.10	79.4%
26	0.000				165.0	169.81	Post-Installed	3.50	3.75	3.50	202.58	202.58	285.10	285.10	285.10	285.10	71.1%
27	0.000				285.0	169.81	Post-Installed	3.50	3.75	3.50	217.26	217.26	285.10	285.10	285.10	285.10	76.2%
28	0.000				105.0	169.81	Post-Installed	3.50	3.75	3.50	215.82	215.82	285.10	285.10	285.10	285.10	75.7%
29	0.000				210.0	169.81	Post-Installed	3.50	3.75	3.50	219.19	219.19	285.10	285.10	285.10	285.10	76.9%
30	0.000				335.0	169.81	Post-Installed	3.50	3.75	3.50	205.30	205.30	285.10	285.10	285.10	285.10	72.0%
										80.96							

Monopole Base Plate Connection

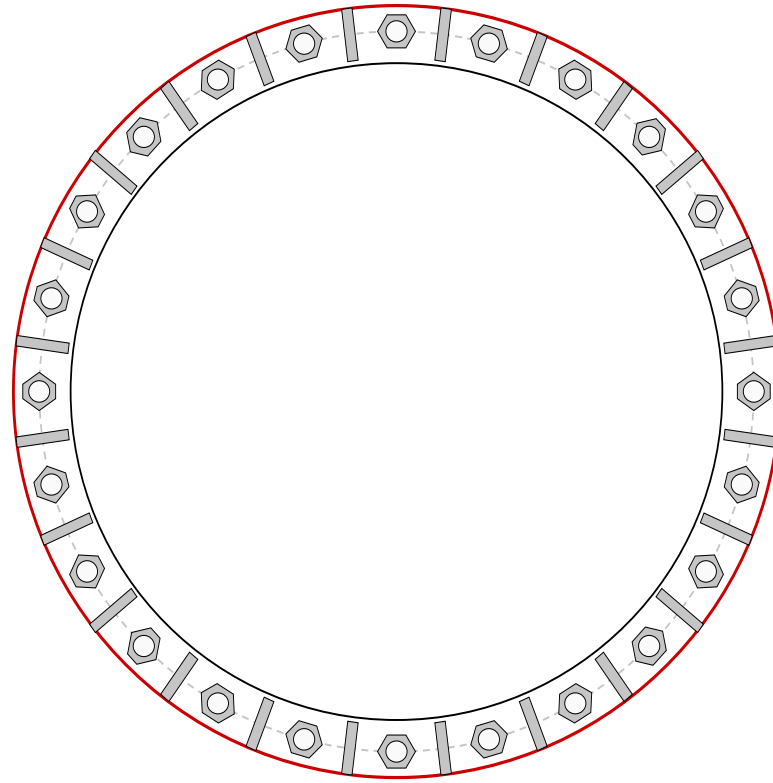


Site Info	
BU #	825983
Site Name	MIDDLETOWN_1
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	1.75

Applied Loads	
Moment (kip-ft)	2224.70
Axial Force (kips)	82.33
Shear Force (kips)	59.30

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results	
Anchor Rod Data	Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(24) 2" ϕ bolts (A36 N; Fy=36 ksi, Fu=58 ksi) on 68" BC	$Pu_c = 68.84$	$\phi Pn_c = 90$ Stress Rating
Base Plate Data	$Vu = 2.47$	$\phi Vn = 27$ 73.6%
62" ID x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)	$Mu = n/a$	$\phi Mn = n/a$ Pass
Stiffener Data	Base Plate Summary	
(24) 18"H x 5"W x 1"T, Notch: 1" plate: Fy= 50 ksi ; weld: Fy= 70 ksi horiz. weld: 0.75" fillet vert. weld: 0.375" fillet	Max Stress (ksi): 13.92	(Roark's Flexural)
Pole Data	Allowable Stress (ksi): 32.4	
73.8125" x 0.4375" 12-sided pole (A36M-42; Fy=42 ksi, Fu=60 ksi)	Stress Rating: 40.9%	Pass
	Stiffener Summary	
	Horizontal Weld: 22.2%	Pass
	Vertical Weld: 11.2%	Pass
	Plate Flexure+Shear: 2.1%	Pass
	Plate Tension+Shear: 16.4%	Pass
	Plate Compression: 14.7%	Pass
	Pole Summary	
	Punching Shear: 3.6%	Pass

Pier and Pad Foundation



BU #: 825983
 Site Name: MIDDLETOWN_1
 App. Number:

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	82	kips
Base Shear, V_{u_comp} :	60	kips
Moment, M_u :	2224.7	ft-kips
Tower Height, H :	185	ft
BP Dist. Above Fdn, bp_{dist} :	6	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	400.97	60.00	14.3%	Pass
<i>Bearing Pressure (ksf)</i>	5.82	2.42	39.6%	Pass
<i>Overtuning (kip*ft)</i>	8131.10	2899.70	35.7%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	8819.22	2689.70	29.0%	Pass
<i>Pier Compression (kip)</i>	28118.83	143.63	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	3818.20	969.95	24.2%	Pass
<i>Pad Shear - 1-way (kips)</i>	896.51	153.20	16.3%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.032	15.9%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	5013.71	1613.82	30.7%	Pass

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

*Rating per TIA-222-H Section 15.5

Soil Rating*:	39.6%
Structural Rating*:	30.7%

Pad Properties		
Depth, D :	10.5	ft
Pad Width, W :	25	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom), S_p :	8	
Pad Rebar Quantity (Bottom), mp :	35	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4	ksi
Dry Concrete Density, δ_c :	150	pcf

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

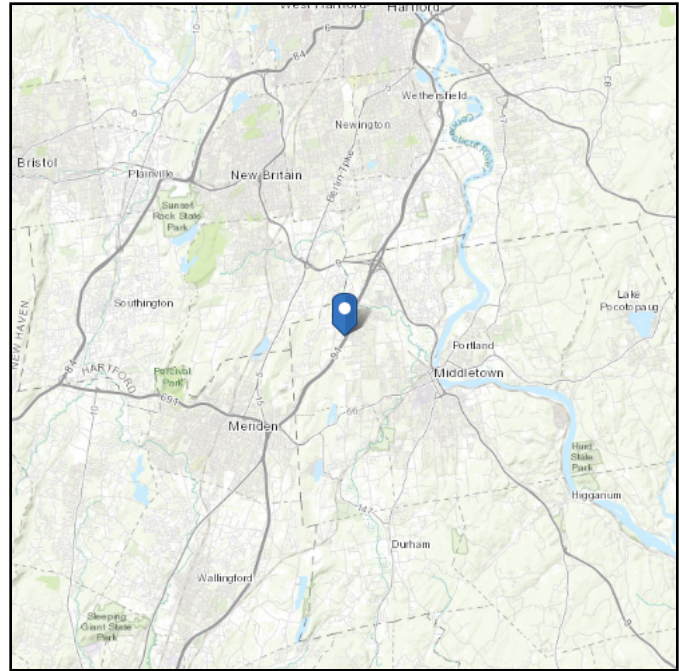
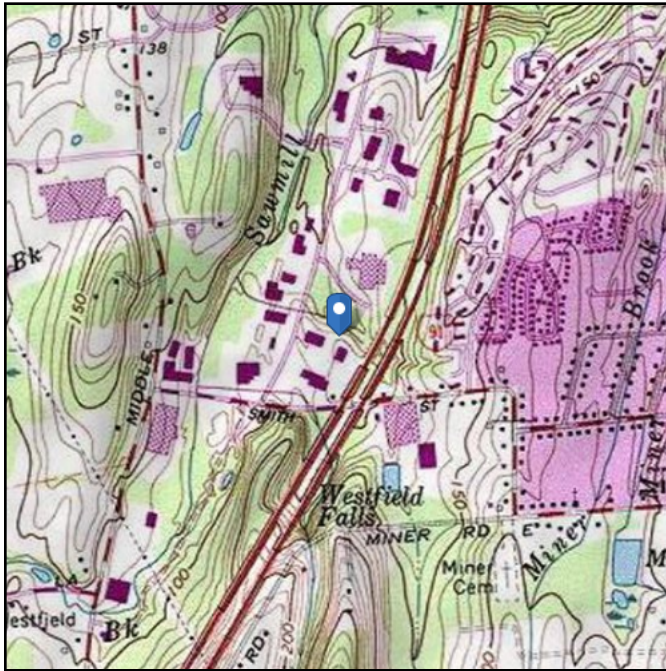
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ASCE 7 Hazards Report

Address:
No Address at This
Location

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

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



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	101 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Thu Jun 06 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

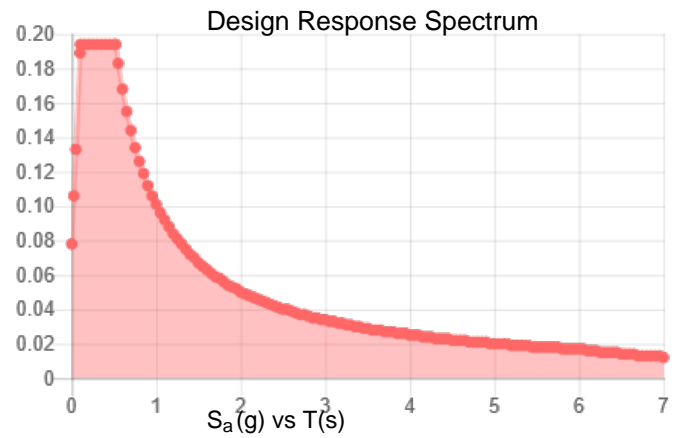
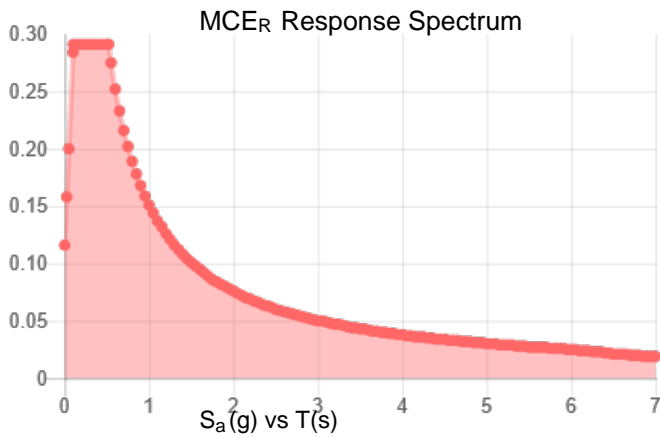
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.194
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.291	PGA _M :	0.148
S_{M1} :	0.151	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Jun 06 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Thu Jun 06 2019

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit E

Mount Analysis



Pier Structural Engineering Corp.
 55 Northfield Drive E, Suite 198
 Waterloo, ON N2K 3T6
 Tel: 519-885-3806
 Fax: 519-884-3806
 www.p-sec.ca

May 28, 2019

Kevin Morrow
 Crown Castle USA Inc.
 3530 Toringdon Way, Suite 300
 Charlotte, NC 28277

Subject: Mount Structural Analysis Report

Carrier Designation: Carrier Co-Locate: **T-Mobile**
 Carrier Site Number: **CT11057C**
 Carrier Site Name: **MIDDLETOWN_1**

Crown Castle Designation: Crown Castle BU Number: **825983**
 Crown Castle Site Name: **MIDDLETOWN_1**
 Crown Castle JDE Job Number: **559242**
 Crown Castle PO Number: **1388985**
 Crown Castle Order Number: **479802 Rev. 1**

Engineering Firm Designation: P-SEC Project Number: **20137**

Site Data: **90 Industrial Park Road, Middletown, Middlesex County, CT**
Latitude 41° 35' 8.30", Longitude -72° 42' 50.49"
185-ft Monopole Tower

Mount Type: **12.5ft Platform Mount**

Mount Elevation: **185.0-ft**

Dear Kevin Morrow,

Pier Structural Engineering Corp. (P-SEC) is pleased to submit this "Mount Structural Analysis Report" to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

Based upon our analysis, we have determined the adequacy of the antenna mounting system that will support the existing and proposed loading to be:

12.5ft Platform Mount

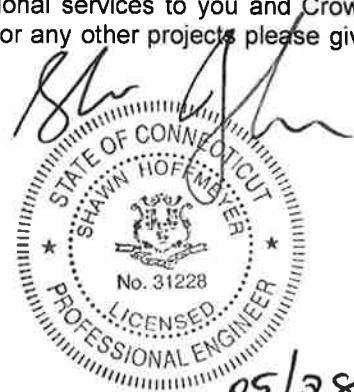
Sufficient

This analysis utilizes an ultimate 3-second gust wind speed of 124 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

We at P-SEC appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Shawn Hoffmeyer, P.E., P.Eng.
 CT PE# 31228



05/28/19



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 55 Northfield Drive E, Suite 198
 Waterloo, ON N2K 3T6
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Subject: Mount Structural Analysis Report

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Shawn Hoffmeyer, P.E., P.Eng.
 CT PE# 31228

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1) INTRODUCTION

This proposed mount is a 12.5-ft platform mount that is to be installed at the 185-ft centerline elevation on the 185-ft monopole.

2) ANALYSIS CRITERIA

The following design parameters have been used in our analysis:

Design Standard:		TIA-222-H Standard and 2018 Connecticut Building Code
County/State:		Middlesex County, CT
Wind Speeds:	CASE 1	124 mph (3-second gust)
	CASE 2	50 mph (3-second gust) with 1.5" radial solid ice (per ASCE7 ice map)
Exposure Category:		C
Topographic Category:		1
Structure Classification:		II
Live Loading Wind Speed:		30 mph
Man Live Load at Mid/End-Points:		250 lb
Man Live Load at Mount Pipes:		500 lb

Table 1 - Proposed Antenna and Cable Information

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
185	185	3	ericsson	AIR 32 B2A B66AA	Site Pro RMQP-496-HK
		3	rfs/celwave	APX16DWV-16DWV-S-E-A20	
		3	rfs/celwave	APXVAARR24_43-U-NA20	
		3	ericsson	KRY 112 144/1	
		3	ericsson	RADIO 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
APPLICATION	T-Mobile, Revision # 1 dated 4/17/2019	479802	CCSITES

3.1) Analysis Method

RISA 3D (17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases. Selected output from the analysis is included in the Appendices.

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

- 4) Steel grades have been assumed as follows:
- | | |
|------------------------------------|--------------------|
| Channel, Solid Round, Angle, Plate | ASTM A36 (GR 36) |
| HSS (Rectangular) | ASTM 500 (GR B-46) |
| Pipe | ASTM A53 (GR 35) |
| Connection Bolts | ASTM A325 |

This analysis may be affected if any assumptions are not valid or have been made in error. P-SEC should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 4 – Mount Component Stresses vs. Capacity

Notes	Component	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Main Pipe Horizontal	185.0	30.4	Pass
1	Main Standoff HSS	185.0	16.1	Pass
1	Cross Support HSS	185.0	30.5	Pass
1	Grating Angle	185.0	25.8	Pass
1	Kicker Angle	185.0	20.7	Pass
1	Handrail	185.0	33.2	Pass
1	Pipe Mount	185.0	74.8	Pass
1	Tower Connection	185.0	Adequate	
Structure Rating (max from all components) =				74.8%

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

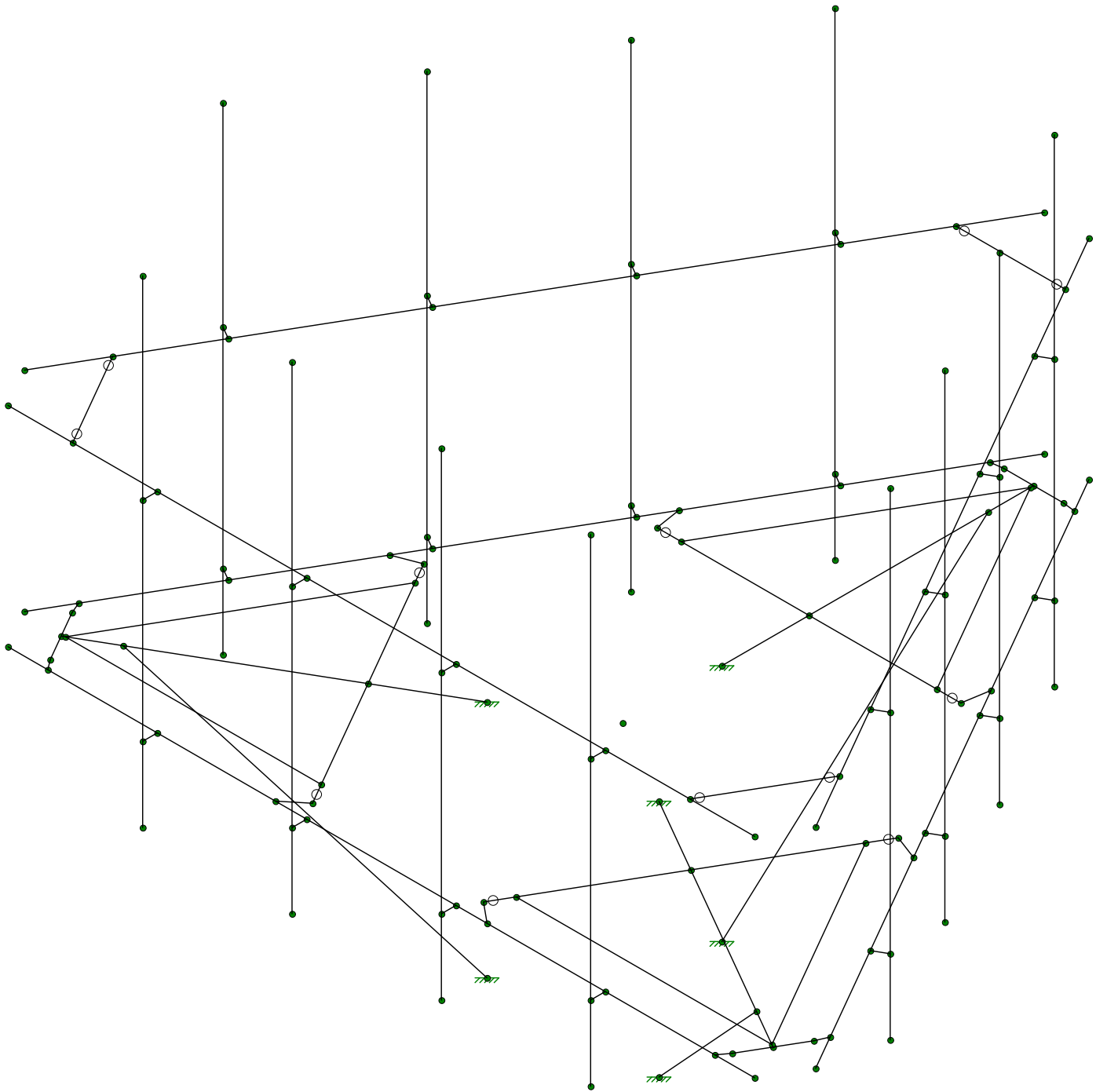
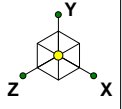
Based on information provided, our calculations conclude that the proposed antenna mounting system **WILL BE ADEQUATE** to safely support the proposed equipment.

Should you have any questions, please call us anytime at 519-885-3806.

encl.

825983_479802 Mount Analysis _20190528.doc

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Crown Castle

NWS

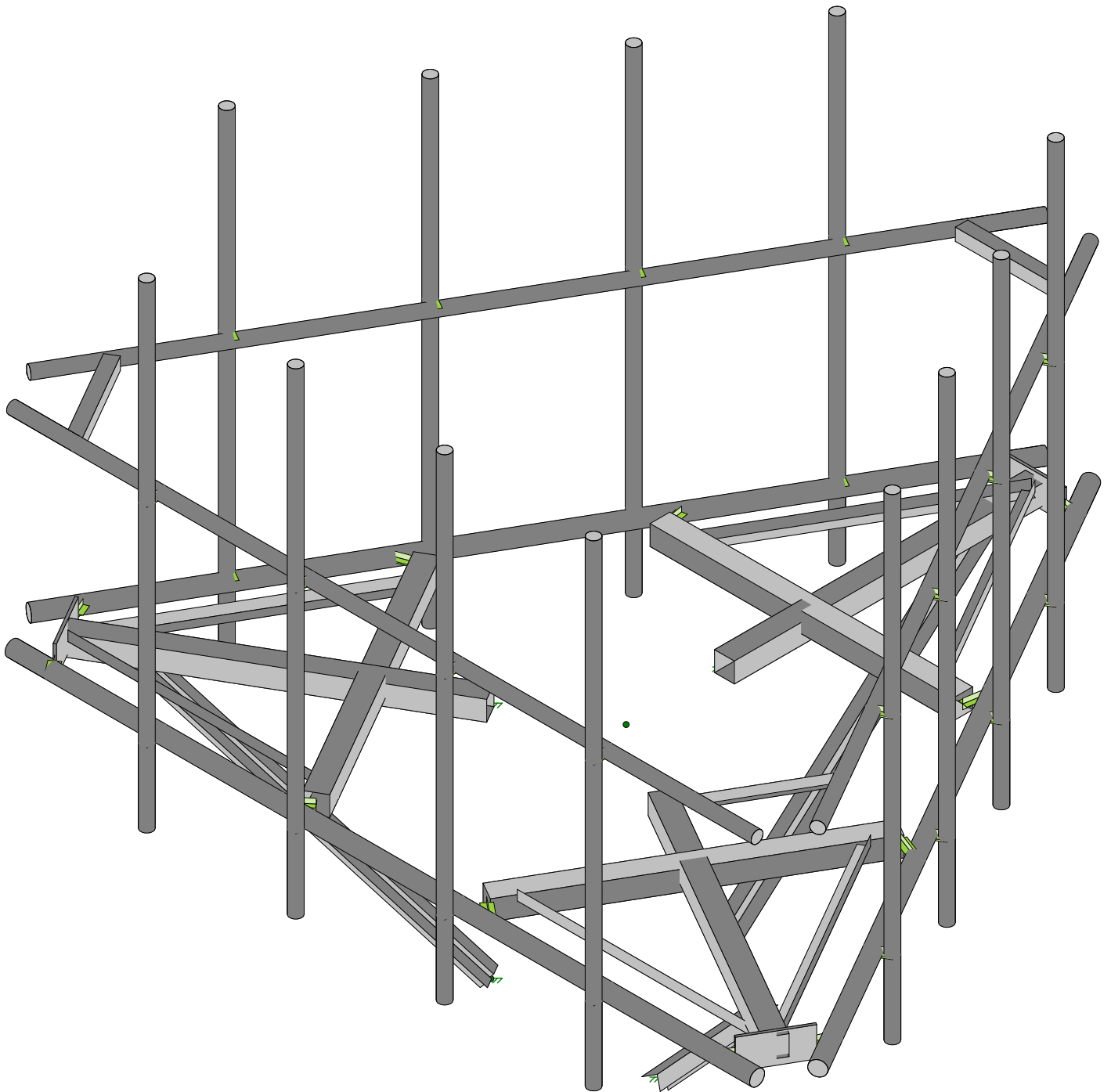
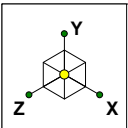
20137

825983 - MIDDLETOWN_1

SK - 1

May 28, 2019 at 12:22 PM

825983_Mount Analysis_Loaded.r3d



Envelope Only Solution

Crown Castle

NWS

20137

825983 - MIDDLETOWN_1

SK - 2

May 28, 2019 at 12:27 PM

825983_Mount Analysis_Loaded.r3d

APPENDIX B
SOFTWARE INPUT CALCULATIONS



Project No: **20137**
 Client Name: **Crown Castle**
 Site ID: **825983**

Site Name: **MIDDLETOWN_1**
 Other Site Name:

ENG: **NWS**
 CHK: **SH**

Site Parameters

Mount Elevation, z
 Tower Exposure category
 Tower Topographic Category
 Height of crest above surrounding Terrain, H
 Ground Elevation (above sea level)
 Ultimate 3-second gust wind speed
 Nominal 3-second gust wind speed, ICE
 Design Ice Thickness, t_i
 Structure Class
 Structure Type/ Appur.
 Structure Category
 Structure Height
 Type of Mount

185.0	ft
C	
1	
0	ft
89.45	ft
124	mph
50.00	mph
1.50	in
II	
Appurtenances	
Pole	
185.00	ft
Platform	

Wind Parameters

Mount Gust Effect Factor, G_h
 Velocity Pressure Coefficient, K_z
 Wind Direction Probability Factor, K_d
 Ground Elevation Factor, K_e
 Topographic Factor, K_{zt}
 Velocity Pressure, q_z
 Velocity Pressure With Ice, q_z
 Height Escalation Factor for Ice, k_{iz}
 Design Ice Thickness, t_{iz}

1.0
1.441
0.95
1.00
1.000
50.863 psf
8.27 psf
1.188
1.78 in

Loading Information

Antenna	Member Label	Azimuth	Lng, in	Width, in	Depth, in	Wght, Lb	Surface Type	Mounting Pipe Size, in	Mounting Pipe Lng, in	ka
AIR32 B2A B66AA [P]	P1	0	59.25	12.87	8.66	143.00	Flat	2.88	96.00	0.90
AIR32 B2A B66AA [P]	P5	0	59.25	12.87	8.66	143.00	Flat	2.38	96.00	0.90
AIR32 B2A B66AA [P]	P9	0	59.25	12.87	8.66	143.00	Flat	2.38	96.00	0.90
APXVAARR24_43-U-NA20 [P]	P3	0	95.90	24.00	8.70	128.00	Flat	2.88	96.00	0.90
APXVAARR24_43-U-NA20 [P]	P7	0	95.90	24.00	8.70	128.00	Flat	2.38	96.00	0.90
APXVAARR24_43-U-NA20 [P]	P11	0	95.90	24.00	8.70	128.00	Flat	2.38	96.00	0.90
APX16DWW-16DWW-S-E-A20	P2	0	55.90	13.30	3.15	40.70	Flat	2.88	96.00	0.90
APX16DWW-16DWW-S-E-A20	P6	0	55.90	13.30	3.15	40.70	Flat	2.38	96.00	0.90
APX16DWW-16DWW-S-E-A20	P10	0	55.90	13.30	3.15	40.70	Flat	2.38	96.00	0.90
RADIO 4449 B12/B71 [P]	P3	0	14.95	13.19	9.25	75.00	Flat			0.90
RADIO 4449 B12/B71 [P]	P7	0	14.95	13.19	9.25	75.00	Flat			0.90
RADIO 4449 B12/B71 [P]	P11	0	14.95	13.19	9.25	75.00	Flat			0.90
KRY 112 144/1	P2	0	7.00	6.00	3.00	11.00	Flat			0.90
KRY 112 144/1	P6	0	7.00	6.00	3.00	11.00	Flat			0.90
KRY 112 144/1	P10	0	7.00	6.00	3.00	11.00	Flat			0.90
Member Name	Member Label	Azimuth	Lng, in	Width, in	Depth, in	Orientation	Surface Type	HSS Height	HSS Thickness	ka
Handrail	HA	0	150.00	2.38	2.38	Horizontal	Round			0.90
Handrail	HB	120	150.00	2.38	2.38	Horizontal	Round			0.90
Handrail	HC	240	150.00	2.38	2.38	Horizontal	Round			0.90
Bottom Boom 1	BA	0	150.00	3.50	3.50	Horizontal	Round			0.90
Bottom Boom 2	BB	120	150.00	3.50	3.50	Horizontal	Round			0.90
Bottom Boom 3	BC	240	150.00	3.50	3.50	Horizontal	Round			0.90
Support HSS	S1	30	63.00	4.00	4.00	Horizontal	HSS	4.00	0.25	0.90
Support HSS	S2	-30	63.00	4.00	4.00	Horizontal	HSS	4.00	0.25	0.90
Support HSS	S3	90	63.00	4.00	4.00	Horizontal	HSS	4.00	0.25	0.90
Cross HSS	C1	-60	61.00	4.00	4.00	Horizontal	HSS	4.00	0.25	0.90
Cross HSS	C2	60	61.00	4.00	4.00	Horizontal	HSS	4.00	0.25	0.90
Cross HSS	C3	0	61.00	4.00	4.00	Horizontal	HSS	4.00	0.25	0.90
Grating Angle	AN1	0	51.00	2.00	2.00	Horizontal	Flat			0.90
Grating Angle	AN2	0	51.00	2.00	2.00	Horizontal	Flat			0.90
Grating Angle	AN3	120	51.00	2.00	2.00	Horizontal	Flat			0.90
Grating Angle	AN4	120	51.00	2.00	2.00	Horizontal	Flat			0.90
Grating Angle	AN5	240	51.00	2.00	2.00	Horizontal	Flat			0.90
Grating Angle	AN6	240	51.00	2.00	2.00	Horizontal	Flat			0.90
Handrail Corner	TC1	-60	18.00	2.50	2.50	Horizontal	Flat			0.90
Handrail Corner	TC2	60	18.00	2.50	2.50	Horizontal	Flat			0.90
Handrail Corner	TC3	0	18.00	2.50	2.50	Horizontal	Flat			0.90
Bottom Boom Corner	BC1	-60	13.00	6.00	6.00	Horizontal	Flat			0.90
Bottom Boom Corner	BC2	60	13.00	6.00	6.00	Horizontal	Flat			0.90
Bottom Boom Corner	BC3	0	13.00	6.00	6.00	Horizontal	Flat			0.90
Kicker Angle	K1	30	72.00	2.50	2.50	Vertical	Flat			0.90
Kicker Angle	K2	-30	72.00	2.50	2.50	Vertical	Flat			0.90
Kicker Angle	K3	90	72.00	2.50	2.50	Vertical	Flat			0.90
Empty Mount Pipe	P4	0	96.00	2.38	2.38	Vertical	Round			0.90
Empty Mount Pipe	P8	0	96.00	2.38	2.38	Vertical	Round			0.90
Empty Mount Pipe	P12	0	96.00	2.38	2.38	Vertical	Round			0.90

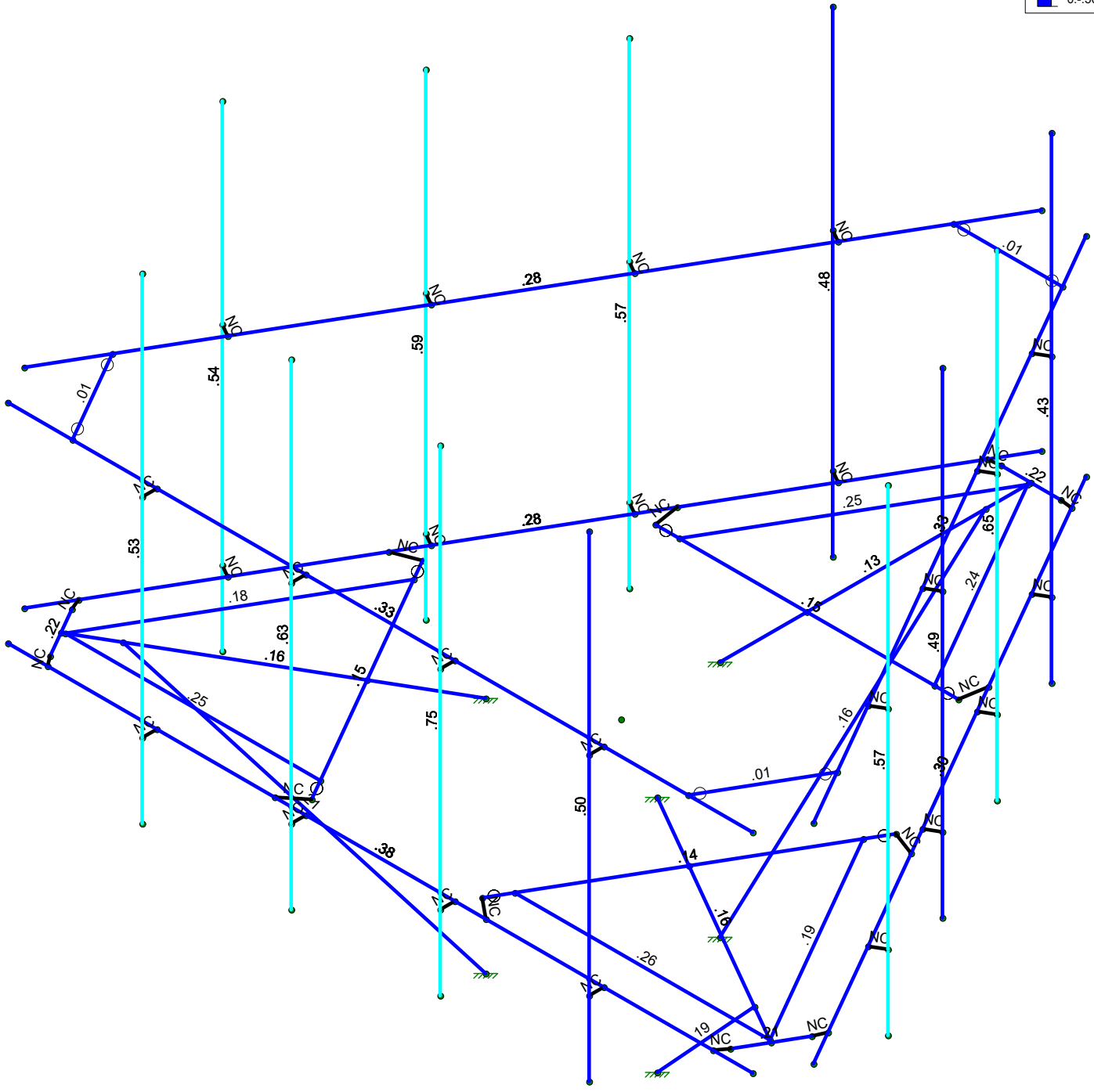
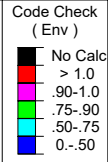
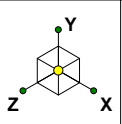
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	0		30		60				120		150	
Antenna	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb			Z, Lb	X, Lb	Z, Lb	X, Lb
AIR32 B2A B66AA [P]	-340.0	0.0	-283.3	-163.6	-158.5	-274.6	0.0	-316.3	158.5	-274.6	283.3	-163.6
AIR32 B2A B66AA [P]	-336.2	0.0	-276.9	-159.9	-151.2	-261.9	0.0	-298.0	151.2	-261.9	276.9	-159.9
AIR32 B2A B66AA [P]	-336.2	0.0	-276.9	-159.9	-151.2	-261.9	0.0	-298.0	151.2	-261.9	276.9	-159.9
APXVAARR24 43-U-NA20 [P]	-926.7	0.0	-696.0	-401.8	-284.2	-492.3	0.0	-441.2	284.2	-492.3	696.0	-401.8
APXVAARR24 43-U-NA20 [P]	-926.7	0.0	-692.0	-399.5	-277.3	-480.4	0.0	-422.9	277.3	-480.4	692.0	-399.5
APXVAARR24 43-U-NA20 [P]	-926.7	0.0	-692.0	-399.5	-277.3	-480.4	0.0	-422.9	277.3	-480.4	692.0	-399.5
APX16DWW-16DWW-S-E-A20	-330.8	0.0	-254.5	-146.9	-110.0	-190.5	0.0	-176.7	110.0	-190.5	254.5	-146.9
APX16DWW-16DWW-S-E-A20	-326.7	0.0	-247.9	-143.1	-102.6	-177.7	0.0	-158.4	102.6	-177.7	247.9	-143.1
APX16DWW-16DWW-S-E-A20	-326.7	0.0	-247.9	-143.1	-102.6	-177.7	0.0	-158.4	102.6	-177.7	247.9	-143.1
RADIO 4449 B12/B71 [P]	-75.2	0.0	-60.3	-34.8	-29.2	-50.6	0.0	-52.8	29.2	-50.6	60.3	-34.8
RADIO 4449 B12/B71 [P]	-75.2	0.0	-60.3	-34.8	-29.2	-50.6	0.0	-52.8	29.2	-50.6	60.3	-34.8
RADIO 4449 B12/B71 [P]	-75.2	0.0	-60.3	-34.8	-29.2	-50.6	0.0	-52.8	29.2	-50.6	60.3	-34.8
KRY 112 144/1	-16.0	0.0	-12.1	-7.0	-5.0	-8.7	0.0	-8.0	5.0	-8.7	12.1	-7.0
KRY 112 144/1	-16.0	0.0	-12.1	-7.0	-5.0	-8.7	0.0	-8.0	5.0	-8.7	12.1	-7.0
KRY 112 144/1	-16.0	0.0	-12.1	-7.0	-5.0	-8.7	0.0	-8.0	5.0	-8.7	12.1	-7.0
Member Name	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft
Handrail	-10.9	0.0	-7.1	-4.1	-1.4	-2.4	0.0	0.0	1.4	-2.4	7.1	-4.1
Handrail	-2.7	0.0	0.0	0.0	-1.4	-2.4	0.0	-8.2	5.4	-9.4	7.1	-4.1
Handrail	-2.7	0.0	-7.1	-4.1	-5.4	-9.4	0.0	-8.2	1.4	-2.4	0.0	0.0
Bottom Boom 1	-14.4	0.0	-9.4	-5.4	-1.8	-3.1	0.0	0.0	1.8	-3.1	9.4	-5.4
Bottom Boom 2	-3.6	0.0	0.0	0.0	-1.8	-3.1	0.0	-10.8	7.2	-12.5	9.4	-5.4
Bottom Boom 3	-3.6	0.0	-9.4	-5.4	-7.2	-12.5	0.0	-10.8	1.8	-3.1	0.0	0.0
Support HSS	-11.3	0.0	-14.1	-8.2	-5.7	-9.8	0.0	-3.8	0.0	0.0	3.3	-1.9
Support HSS	-11.3	0.0	-3.3	-1.9	0.0	0.0	0.0	-3.8	5.7	-9.8	14.1	-8.2
Support HSS	0.0	0.0	-3.3	-1.9	-5.7	-9.8	0.0	-16.3	5.7	-9.8	3.3	-1.9
Cross HSS	-3.7	0.0	0.0	0.0	-1.9	-3.2	0.0	-11.2	8.1	-14.0	9.7	-5.6
Cross HSS	-3.7	0.0	-9.7	-5.6	-8.1	-14.0	0.0	-11.2	1.9	-3.2	0.0	0.0
Cross HSS	-16.2	0.0	-9.7	-5.6	-1.9	-3.2	0.0	0.0	1.9	-3.2	9.7	-5.6
Grating Angle	-15.3	0.0	-8.9	-5.1	-1.7	-3.0	0.0	0.0	1.7	-3.0	8.9	-5.1
Grating Angle	-15.3	0.0	-8.9	-5.1	-1.7	-3.0	0.0	0.0	1.7	-3.0	8.9	-5.1
Grating Angle	-3.4	0.0	0.0	0.0	-1.7	-3.0	0.0	-10.2	7.6	-13.2	8.9	-5.1
Grating Angle	-3.4	0.0	0.0	0.0	-1.7	-3.0	0.0	-10.2	7.6	-13.2	8.9	-5.1
Grating Angle	-3.4	0.0	-8.9	-5.1	-7.6	-13.2	0.0	-10.2	1.7	-3.0	0.0	0.0
Grating Angle	-3.4	0.0	-8.9	-5.1	-7.6	-13.2	0.0	-10.2	1.7	-3.0	0.0	0.0
Handrail Corner	-3.2	0.0	0.0	0.0	-1.6	-2.7	0.0	-9.5	6.7	-11.6	8.2	-4.7
Handrail Corner	-3.2	0.0	-8.2	-4.7	-6.7	-11.6	0.0	-9.5	1.6	-2.7	0.0	0.0
Handrail Corner	-13.4	0.0	-8.2	-4.7	-1.6	-2.7	0.0	0.0	1.6	-2.7	8.2	-4.7
Bottom Boom Corner	-6.9	0.0	0.0	0.0	-3.4	-5.9	0.0	-20.6	13.7	-23.8	17.8	-10.3
Bottom Boom Corner	-6.9	0.0	-17.8	-10.3	-13.7	-23.8	0.0	-20.6	3.4	-5.9	0.0	0.0
Bottom Boom Corner	-27.5	0.0	-17.8	-10.3	-3.4	-5.9	0.0	0.0	3.4	-5.9	17.8	-10.3
Kicker Angle	-17.8	0.0	-16.5	-9.5	-8.9	-15.4	0.0	-17.8	9.5	-15.4	16.5	-9.5
Kicker Angle	-17.8	0.0	-15.4	-8.9	-9.5	-16.5	0.0	-17.8	8.9	-15.4	16.5	-9.5
Kicker Angle	-19.1	0.0	-15.4	-8.9	-8.9	-15.4	0.0	-19.1	8.9	-15.4	15.4	-8.9
Empty Mount Pipe	-10.9	0.0	-9.4	-5.4	-5.4	-9.4	0.0	-10.9	5.4	-9.4	9.4	-5.4
Empty Mount Pipe	-10.9	0.0	-9.4	-5.4	-5.4	-9.4	0.0	-10.9	5.4	-9.4	9.4	-5.4
Empty Mount Pipe	-10.9	0.0	-9.4	-5.4	-5.4	-9.4	0.0	-10.9	5.4	-9.4	9.4	-5.4

	NO ICE		NO ICE		NO ICE		NO ICE		NO ICE		NO ICE	
	180		210		240		270		300		330	
Antenna	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb
AIR32 B2A B66AA [P]	340.0	0.0	283.3	163.6	158.5	274.6	0.0	316.3	-158.5	274.6	-283.3	163.6
AIR32 B2A B66AA [P]	336.2	0.0	276.9	159.9	151.2	261.9	0.0	298.0	-151.2	261.9	-276.9	159.9
AIR32 B2A B66AA [P]	336.2	0.0	276.9	159.9	151.2	261.9	0.0	298.0	-151.2	261.9	-276.9	159.9
APXVAARR24 43-U-NA20 [P]	926.7	0.0	696.0	401.8	284.2	492.3	0.0	441.2	-284.2	492.3	-696.0	401.8
APXVAARR24 43-U-NA20 [P]	926.7	0.0	692.0	399.5	277.3	480.4	0.0	422.9	-277.3	480.4	-692.0	399.5
APXVAARR24 43-U-NA20 [P]	926.7	0.0	692.0	399.5	277.3	480.4	0.0	422.9	-277.3	480.4	-692.0	399.5
APX16DWW-16DWW-S-E-A20	330.8	0.0	254.5	146.9	110.0	190.5	0.0	176.7	-110.0	190.5	-254.5	146.9
APX16DWW-16DWW-S-E-A20	326.7	0.0	247.9	143.1	102.6	177.7	0.0	158.4	-102.6	177.7	-247.9	143.1
APX16DWW-16DWW-S-E-A20	326.7	0.0	247.9	143.1	102.6	177.7	0.0	158.4	-102.6	177.7	-247.9	143.1
RADIO 4449 B12/B71 [P]	75.2	0.0	60.3	34.8	29.2	50.6	0.0	52.8	-29.2	50.6	-60.3	34.8
RADIO 4449 B12/B71 [P]	75.2	0.0	60.3	34.8	29.2	50.6	0.0	52.8	-29.2	50.6	-60.3	34.8
RADIO 4449 B12/B71 [P]	75.2	0.0	60.3	34.8	29.2	50.6	0.0	52.8	-29.2	50.6	-60.3	34.8
KRY 112 144/1	16.0	0.0	12.1	7.0	5.0	8.7	0.0	8.0	-5.0	8.7	-12.1	7.0
KRY 112 144/1	16.0	0.0	12.1	7.0	5.0	8.7	0.0	8.0	-5.0	8.7	-12.1	7.0
KRY 112 144/1	16.0	0.0	12.1	7.0	5.0	8.7	0.0	8.0	-5.0	8.7	-12.1	7.0
Member Name	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft
Handrail	10.9	0.0	7.1	4.1	1.4	2.4	0.0	0.0	-1.4	2.4	-7.1	4.1
Handrail	2.7	0.0	0.0	0.0	1.4	2.4	0.0	8.2	-5.4	9.4	-7.1	4.1
Handrail	2.7	0.0	7.1	4.1	5.4	9.4	0.0	8.2	-1.4	2.4	0.0	0.0
Bottom Boom 1	14.4	0.0	9.4	5.4	1.8	3.1	0.0	0.0	-1.8	3.1	-9.4	5.4
Bottom Boom 2	3.6	0.0	0.0	0.0	1.8	3.1	0.0	10.8	-7.2	12.5	-9.4	5.4
Bottom Boom 3	3.6	0.0	9.4	5.4	7.2	12.5	0.0	10.8	-1.8	3.1	0.0	0.0
Support HSS	11.3	0.0	14.1	8.2	5.7	9.8	0.0	3.8	0.0	0.0	-3.3	1.9
Support HSS	11.3	0.0	3.3	1.9	0.0	0.0	0.0	3.8	-5.7	9.8	-14.1	8.2
Support HSS	0.0	0.0	3.3	1.9	5.7	9.8	0.0	16.3	-5.7	9.8	-3.3	1.9
Cross HSS	3.7	0.0	0.0	0.0	1.9	3.2	0.0	11.2	-8.1	14.0	-9.7	5.6
Cross HSS	3.7	0.0	9.7	5.6	8.1	14.0	0.0	11.2	-1.9	3.2	0.0	0.0
Cross HSS	16.2	0.0	9.7	5.6	1.9	3.2	0.0	0.0	-1.9	3.2	-9.7	5.6
Grating Angle	15.3	0.0	8.9	5.1	1.7	3.0	0.0	0.0	-1.7	3.0	-8.9	5.1
Grating Angle	15.3	0.0	8.9	5.1	1.7	3.0	0.0	0.0	-1.7	3.0	-8.9	5.1
Grating Angle	3.4	0.0	0.0	0.0	1.7	3.0	0.0	10.2	-7.6	13.2	-8.9	5.1
Grating Angle	3.4	0.0	0.0	0.0	1.7	3.0	0.0	10.2	-7.6	13.2	-8.9	5.1
Grating Angle	3.4	0.0	8.9	5.1	7.6	13.2	0.0	10.2	-1.7	3.0	0.0	0.0
Grating Angle	3.4	0.0	8.9	5.1	7.6	13.2	0.0	10.2	-1.7	3.0	0.0	0.0
Handrail Corner	3.2	0.0	0.0	0.0	1.6	2.7	0.0	9.5	-6.7	11.6	-8.2	4.7
Handrail Corner	3.2	0.0	8.2	4.7	6.7	11.6	0.0	9.5	-1.6	2.7	0.0	0.0
Handrail Corner	13.4	0.0	8.2	4.7	1.6	2.7	0.0	0.0	-1.6	2.7	-8.2	4.7
Bottom Boom Corner	6.9	0.0	0.0	0.0	3.4	5.9	0.0	20.6	-13.7	23.8	-17.8	10.3
Bottom Boom Corner	6.9	0.0	17.8	10.3	13.7	23.8	0.0	20.6	-3.4	5.9	0.0	0.0
Bottom Boom Corner	27.5	0.0	17.8	10.3	3.4	5.9	0.0	0.0	-3.4	5.9	-17.8	10.3
Kicker Angle	17.8	0.0	16.5	9.5	8.9	15.4	0.0	17.8	-9.5	16.5	-15.4	8.9
Kicker Angle	17.8	0.0	15.4	8.9	9.5	16.5	0.0	17.8	-8.9	15.4	-16.5	9.5
Kicker Angle	19.1	0.0	15.4	8.9	8.9	15.4	0.0	19.1	-8.9	15.4	-15.4	8.9
Empty Mount Pipe	10.9	0.0	9.4	5.4	5.4	9.4	0.0	10.9	-5.4	9.4	-9.4	5.4
Empty Mount Pipe	10.9	0.0	9.4	5.4	5.4	9.4	0.0	10.9	-5.4	9.4	-9.4	5.4

	ICE		ICE		ICE		ICE		ICE		ICE	
	0		30		60				120		150	
Antenna	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb			Z, Lb	X, Lb	Z, Lb	X, Lb
AIR32 B2A B66AA [P]	-65.7	0.0	-54.7	-31.6	-30.5	-52.9	0.0	-60.9	30.5	-52.9	54.7	-31.6
AIR32 B2A B66AA [P]	-65.1	0.0	-53.9	-31.1	-29.7	-51.5	0.0	-59.0	29.7	-51.5	53.9	-31.1
AIR32 B2A B66AA [P]	-65.1	0.0	-53.9	-31.1	-29.7	-51.5	0.0	-59.0	29.7	-51.5	53.9	-31.1
APXVAARR24 43-U-NA20 [P]	-160.7	0.0	-120.4	-69.5	-49.5	-85.8	0.0	-78.3	49.5	-85.8	120.4	-69.5
APXVAARR24 43-U-NA20 [P]	-160.7	0.0	-120.0	-69.3	-48.7	-84.4	0.0	-76.2	48.7	-84.4	120.0	-69.3
APXVAARR24 43-U-NA20 [P]	-160.7	0.0	-120.0	-69.3	-48.7	-84.4	0.0	-76.2	48.7	-84.4	120.0	-69.3
APX16DWV-16DWV-S-E-A20	-64.4	0.0	-50.0	-28.9	-22.6	-39.2	0.0	-38.5	22.6	-39.2	50.0	-28.9
APX16DWV-16DWV-S-E-A20	-63.8	0.0	-49.2	-28.4	-21.8	-37.8	0.0	-36.6	21.8	-37.8	49.2	-28.4
APX16DWV-16DWV-S-E-A20	-63.8	0.0	-49.2	-28.4	-21.8	-37.8	0.0	-36.6	21.8	-37.8	49.2	-28.4
RADIO 4449 B12/B71 [P]	-15.2	0.0	-12.3	-7.1	-6.1	-10.5	0.0	-11.1	6.1	-10.5	12.3	-7.1
RADIO 4449 B12/B71 [P]	-15.2	0.0	-12.3	-7.1	-6.1	-10.5	0.0	-11.1	6.1	-10.5	12.3	-7.1
RADIO 4449 B12/B71 [P]	-15.2	0.0	-12.3	-7.1	-6.1	-10.5	0.0	-11.1	6.1	-10.5	12.3	-7.1
KRY 112 144/1	-4.1	0.0	-3.2	-1.9	-1.5	-2.6	0.0	-2.6	1.5	-2.6	3.2	-1.9
KRY 112 144/1	-4.1	0.0	-3.2	-1.9	-1.5	-2.6	0.0	-2.6	1.5	-2.6	3.2	-1.9
KRY 112 144/1	-4.1	0.0	-3.2	-1.9	-1.5	-2.6	0.0	-2.6	1.5	-2.6	3.2	-1.9
Member Name	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft
Handrail	-4.7	0.0	-3.1	-1.8	-0.6	-1.0	0.0	0.0	0.6	-1.0	3.1	-1.8
Handrail	-1.2	0.0	0.0	0.0	-0.6	-1.0	0.0	-3.5	2.4	-4.1	3.1	-1.8
Handrail	-1.2	0.0	-3.1	-1.8	-2.4	-4.1	0.0	-3.5	0.6	-1.0	0.0	0.0
Bottom Boom 1	-4.7	0.0	-3.1	-1.8	-0.6	-1.0	0.0	0.0	0.6	-1.0	3.1	-1.8
Bottom Boom 2	-1.2	0.0	0.0	0.0	-0.6	-1.0	0.0	-3.6	2.4	-4.1	3.1	-1.8
Bottom Boom 3	-1.2	0.0	-3.1	-1.8	-2.4	-4.1	0.0	-3.6	0.6	-1.0	0.0	0.0
Support HSS	-3.0	0.0	-3.6	-2.1	-1.5	-2.6	0.0	-1.0	0.0	0.0	0.9	-0.5
Support HSS	-3.0	0.0	-0.9	-0.5	0.0	0.0	0.0	-1.0	1.5	-2.6	3.6	-2.1
Support HSS	0.0	0.0	-0.9	-0.5	-1.5	-2.6	0.0	-4.2	1.5	-2.6	0.9	-0.5
Cross HSS	-1.0	0.0	0.0	0.0	-0.5	-0.9	0.0	-3.0	2.1	-3.6	2.6	-1.5
Cross HSS	-1.0	0.0	-2.6	-1.5	-2.1	-3.6	0.0	-3.0	0.5	-0.9	0.0	0.0
Cross HSS	-4.1	0.0	-2.6	-1.5	-0.5	-0.9	0.0	0.0	0.5	-0.9	2.6	-1.5
Grating Angle	-4.0	0.0	-2.4	-1.4	-0.5	-0.8	0.0	0.0	0.5	-0.8	2.4	-1.4
Grating Angle	-4.0	0.0	-2.4	-1.4	-0.5	-0.8	0.0	0.0	0.5	-0.8	2.4	-1.4
Grating Angle	-0.9	0.0	0.0	0.0	-0.5	-0.8	0.0	-2.8	2.0	-3.4	2.4	-1.4
Grating Angle	-0.9	0.0	0.0	0.0	-0.5	-0.8	0.0	-2.8	2.0	-3.4	2.4	-1.4
Grating Angle	-0.9	0.0	-2.4	-1.4	-2.0	-3.4	0.0	-2.8	0.5	-0.8	0.0	0.0
Grating Angle	-0.9	0.0	-2.4	-1.4	-2.0	-3.4	0.0	-2.8	0.5	-0.8	0.0	0.0
Handrail Corner	-0.9	0.0	0.0	0.0	-0.4	-0.8	0.0	-2.7	1.9	-3.2	2.3	-1.3
Handrail Corner	-0.9	0.0	-2.3	-1.3	-1.9	-3.2	0.0	-2.7	0.4	-0.8	0.0	0.0
Handrail Corner	-3.7	0.0	-2.3	-1.3	-0.4	-0.8	0.0	0.0	0.4	-0.8	2.3	-1.3
Bottom Boom Corner	-1.4	0.0	0.0	0.0	-0.7	-1.2	0.0	-4.3	2.9	-5.0	3.7	-2.1
Bottom Boom Corner	-1.4	0.0	-3.7	-2.1	-2.9	-5.0	0.0	-4.3	0.7	-1.2	0.0	0.0
Bottom Boom Corner	-5.7	0.0	-3.7	-2.1	-0.7	-1.2	0.0	0.0	0.7	-1.2	3.7	-2.1
Kicker Angle	-4.4	0.0	-4.1	-2.4	-2.2	-3.8	0.0	-4.4	2.4	-4.1	3.8	-2.2
Kicker Angle	-4.4	0.0	-3.8	-2.2	-2.4	-4.1	0.0	-4.4	2.2	-3.8	4.1	-2.4
Kicker Angle	-4.7	0.0	-3.8	-2.2	-2.2	-3.8	0.0	-4.7	2.2	-3.8	3.8	-2.2
Empty Mount Pipe	-4.0	0.0	-3.5	-2.0	-2.0	-3.5	0.0	-4.0	2.0	-3.5	3.5	-2.0
Empty Mount Pipe	-4.0	0.0	-3.5	-2.0	-2.0	-3.5	0.0	-4.0	2.0	-3.5	3.5	-2.0
Empty Mount Pipe	-4.0	0.0	-3.5	-2.0	-2.0	-3.5	0.0	-4.0	2.0	-3.5	3.5	-2.0

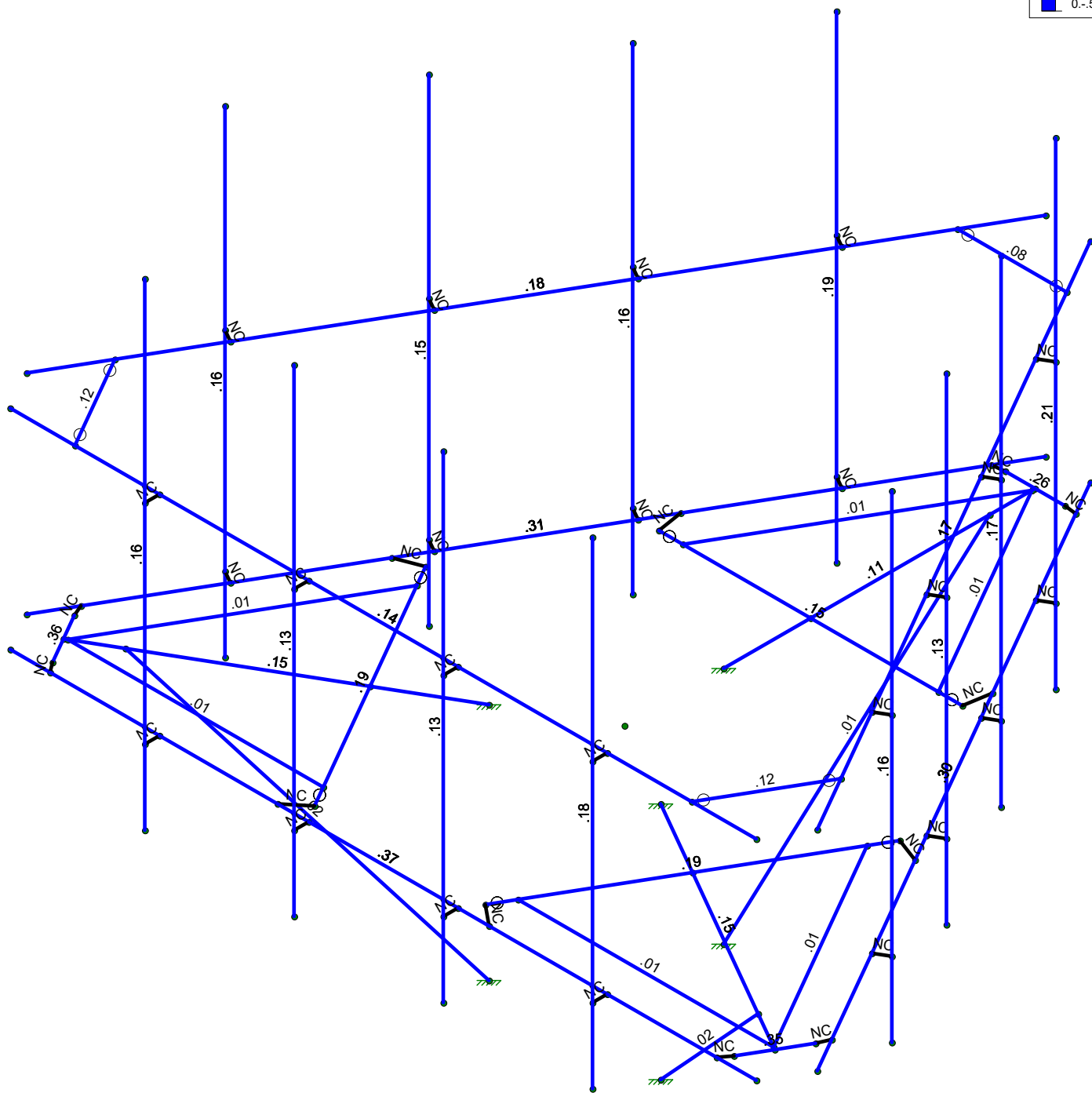
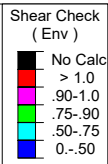
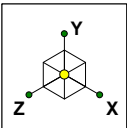
	ICE		ICE		ICE		ICE		ICE		ICE	
	180		210		240		270		300		330	
Antenna	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb	Z, Lb	X, Lb
AIR32 B2A B66AA [P]	65.7	0.0	54.7	31.6	30.5	52.9	0.0	60.9	-30.5	52.9	-54.7	31.6
AIR32 B2A B66AA [P]	65.1	0.0	53.9	31.1	29.7	51.5	0.0	59.0	-29.7	51.5	-53.9	31.1
AIR32 B2A B66AA [P]	65.1	0.0	53.9	31.1	29.7	51.5	0.0	59.0	-29.7	51.5	-53.9	31.1
APXVAARR24 43-U-NA20 [P]	160.7	0.0	120.4	69.5	49.5	85.8	0.0	78.3	-49.5	85.8	-120.4	69.5
APXVAARR24 43-U-NA20 [P]	160.7	0.0	120.0	69.3	48.7	84.4	0.0	76.2	-48.7	84.4	-120.0	69.3
APXVAARR24 43-U-NA20 [P]	160.7	0.0	120.0	69.3	48.7	84.4	0.0	76.2	-48.7	84.4	-120.0	69.3
APX16DWV-16DWV-S-E-A20	64.4	0.0	50.0	28.9	22.6	39.2	0.0	38.5	-22.6	39.2	-50.0	28.9
APX16DWV-16DWV-S-E-A20	63.8	0.0	49.2	28.4	21.8	37.8	0.0	36.6	-21.8	37.8	-49.2	28.4
APX16DWV-16DWV-S-E-A20	63.8	0.0	49.2	28.4	21.8	37.8	0.0	36.6	-21.8	37.8	-49.2	28.4
RADIO 4449 B12/B71 [P]	15.2	0.0	12.3	7.1	6.1	10.5	0.0	11.1	-6.1	10.5	-12.3	7.1
RADIO 4449 B12/B71 [P]	15.2	0.0	12.3	7.1	6.1	10.5	0.0	11.1	-6.1	10.5	-12.3	7.1
RADIO 4449 B12/B71 [P]	15.2	0.0	12.3	7.1	6.1	10.5	0.0	11.1	-6.1	10.5	-12.3	7.1
KRY 112 144/1	4.1	0.0	3.2	1.9	1.5	2.6	0.0	2.6	-1.5	2.6	-3.2	1.9
KRY 112 144/1	4.1	0.0	3.2	1.9	1.5	2.6	0.0	2.6	-1.5	2.6	-3.2	1.9
KRY 112 144/1	4.1	0.0	3.2	1.9	1.5	2.6	0.0	2.6	-1.5	2.6	-3.2	1.9
Member Name	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft	Z, Lb/ft	X, Lb/ft
Handrail	4.7	0.0	3.1	1.8	0.6	1.0	0.0	0.0	-0.6	1.0	-3.1	1.8
Handrail	1.2	0.0	0.0	0.0	0.6	1.0	0.0	3.5	-2.4	4.1	-3.1	1.8
Handrail	1.2	0.0	3.1	1.8	2.4	4.1	0.0	3.5	-0.6	1.0	0.0	0.0
Bottom Boom 1	4.7	0.0	3.1	1.8	0.6	1.0	0.0	0.0	-0.6	1.0	-3.1	1.8
Bottom Boom 2	1.2	0.0	0.0	0.0	0.6	1.0	0.0	3.6	-2.4	4.1	-3.1	1.8
Bottom Boom 3	1.2	0.0	3.1	1.8	2.4	4.1	0.0	3.6	-0.6	1.0	0.0	0.0
Support HSS	3.0	0.0	3.6	2.1	1.5	2.6	0.0	1.0	0.0	0.0	-0.9	0.5
Support HSS	3.0	0.0	0.9	0.5	0.0	0.0	0.0	1.0	-1.5	2.6	-3.6	2.1
Support HSS	0.0	0.0	0.9	0.5	1.5	2.6	0.0	4.2	-1.5	2.6	-0.9	0.5
Cross HSS	1.0	0.0	0.0	0.0	0.5	0.9	0.0	3.0	-2.1	3.6	-2.6	1.5
Cross HSS	1.0	0.0	2.6	1.5	2.1	3.6	0.0	3.0	-0.5	0.9	0.0	0.0
Cross HSS	4.1	0.0	2.6	1.5	0.5	0.9	0.0	0.0	-0.5	0.9	-2.6	1.5
Grating Angle	4.0	0.0	2.4	1.4	0.5	0.8	0.0	0.0	-0.5	0.8	-2.4	1.4
Grating Angle	4.0	0.0	2.4	1.4	0.5	0.8	0.0	0.0	-0.5	0.8	-2.4	1.4
Grating Angle	0.9	0.0	0.0	0.0	0.5	0.8	0.0	2.8	-2.0	3.4	-2.4	1.4
Grating Angle	0.9	0.0	0.0	0.0	0.5	0.8	0.0	2.8	-2.0	3.4	-2.4	1.4
Grating Angle	0.9	0.0	2.4	1.4	2.0	3.4	0.0	2.8	-0.5	0.8	0.0	0.0
Grating Angle	0.9	0.0	2.4	1.4	2.0	3.4	0.0	2.8	-0.5	0.8	0.0	0.0
Handrail Corner	0.9	0.0	0.0	0.0	0.4	0.8	0.0	2.7	-1.9	3.2	-2.3	1.3
Handrail Corner	0.9	0.0	2.3	1.3	1.9	3.2	0.0	2.7	-0.4	0.8	0.0	0.0
Handrail Corner	3.7	0.0	2.3	1.3	0.4	0.8	0.0	0.0	-0.4	0.8	-2.3	1.3
Bottom Boom Corner	1.4	0.0	0.0	0.0	0.7	1.2	0.0	4.3	-2.9	5.0	-3.7	2.1
Bottom Boom Corner	1.4	0.0	3.7	2.1	2.9	5.0	0.0	4.3	-0.7	1.2	0.0	0.0
Bottom Boom Corner	5.7	0.0	3.7	2.1	0.7	1.2	0.0	0.0	-0.7	1.2	-3.7	2.1
Kicker Angle	4.4	0.0	4.1	2.4	2.2	3.8	0.0	4.4	-2.4	4.1	-3.8	2.2
Kicker Angle	4.4	0.0	3.8	2.2	2.4	4.1	0.0	4.4	-2.2	3.8	-4.1	2.4
Kicker Angle	4.7	0.0	3.8	2.2	2.2	3.8	0.0	4.7	-2.2	3.8	-3.8	2.2
Empty Mount Pipe	4.0	0.0	3.5	2.0	2.0	3.5	0.0	4.0	-2.0	3.5	-3.5	2.0
Empty Mount Pipe	4.0	0.0	3.5	2.0	2.0	3.5	0.0	4.0	-2.0	3.5	-3.5	2.0
Empty Mount Pipe	4.0	0.0	3.5	2.0	2.0	3.5	0.0	4.0	-2.0	3.5	-3.5	2.0

APPENDIX C
SOFTWARE ANALYSIS CALCULATIONS



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Crown Castle	825983 - MIDDLETOWN_1	SK - 3
NWS		May 28, 2019 at 12:29 PM
20137		825983_Mount Analysis_Loaded.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Crown Castle	825983 - MIDDLETOWN_1	SK - 4
NWS		May 28, 2019 at 12:29 PM
20137		825983_Mount Analysis_Loaded.r3d



Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E...)	Density[k/ft...]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	ASTM A36 (GR 36)...	29000	11154	.3	.65	.49	36	1.4	58	1.2
2	ASTM A36 (GR 36)...	29000	11154	.3	.65	.49	36	1.3	58	1.2
3	ASTM 500 (GR B-4...	29000	11154	.3	.65	.527	42	1.4	58	1.2
4	ASTM A53 (GR 35)	29000	11154	.3	.65	.527	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Front Pipe	3 STD (0...	None	None	ASTM A53 (GR...	Typical	1.889	1.841	1.841	3.683
2	Main Boom	HSS4X4X4	None	None	ASTM 500 (GR...	Typical	3.37	7.8	7.8	12.8
3	Side Boom	HSS4X4X4	None	None	ASTM 500 (GR...	Typical	3.37	7.8	7.8	12.8
4	Grating Angle	L2x2x3	None	None	ASTM A36 (GR...	Typical	.722	.271	.271	.009
5	Mounting Pipe	2 STD (0...	None	None	ASTM A53 (GR...	Typical	1.075	.666	.666	1.331
6	PL 6x0.5	PL 6x0.5	None	None	ASTM A36 (GR...	Typical	3	.063	9	.237
7	PL 6x1.0	PL 6x1.0	None	None	ASTM A36 (GR...	Typical	6	.5	18	1.79
8	ST PL 3x0.375	PL 3x0.375	None	None	ASTM A36 (GR...	Typical	1.125	.013	.844	.049
9	PL 6x0.375	PL 6x0.375	None	None	ASTM A36 (GR...	Typical	2.25	.026	6.75	.101
10	PL 6x0.75	PL 6x0.75	None	None	ASTM A36 (GR...	Typical	4.5	.211	13.5	.777
11	ThreadedRod	THR 1.13...	None	None	ASTM A36 (GR...	Typical	1.014	.082	.082	.164
12	PL5.5x3/16	PL5.5x3/16	None	None	ASTM A36 (GR...	Typical	1.031	.003	2.6	.012
13	PL5.5x.25	PL5.5x.25	None	None	ASTM A36 (GR...	Typical	1.375	.007	3.466	.028
14	L3x3x1/4	L3X3X4	None	None	ASTM A36 (GR...	Typical	1.44	1.23	1.23	.031
15	L2.5x2.5x1/4	L2.5x2.5x4	None	None	ASTM A36 (GR...	Typical	1.19	.692	.692	.026
16	2L2.5x2.5x3/16	LL2.5x2.5...	None	None	ASTM A36 (GR...	Typical	1.8	3.09	1.07	.023

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(Plate/...
1	Dead Load	None		-1					
2	Antenna Load	None					15		
3	Ice Load	None					15	30	
4	Wind-0	None					30	60	
5	Wind-30	None					30	60	
6	Wind-60	None					30	60	
7	Wind-90	None					30	60	
8	Wind-120	None					30	60	
9	Wind-150	None					30	60	
10	Wind-180	None					30	60	
11	Wind-210	None					30	60	
12	Wind-240	None					30	60	
13	Wind-270	None					30	60	
14	Wind-300	None					30	60	
15	Wind-330	None					30	60	
16	Ice Wind-0	None					30	60	
17	Ice Wind-30	None					30	60	
18	Ice Wind-60	None					30	60	
19	Ice Wind-90	None					30	60	
20	Ice Wind-120	None					30	60	
21	Ice Wind-150	None					30	60	
22	Ice Wind-180	None					30	60	
23	Ice Wind-210	None					30	60	
24	Ice Wind-240	None					30	60	
25	Ice Wind-270	None					30	60	
26	Ice Wind-300	None					30	60	
27	Ice Wind-330	None					30	60	



Basic Load Cases (Continued)

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(Plate/...
28 Maintenance	None				1			

Load Combinations

Description	Solve	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1 Dead-Bare	Yes	Y		1	1.4	2	1.4								
2 Dead-Ice	Yes	Y		1	1.4	2	1.4	3	1						
3 Wind-0	Yes	Y		1	1.2	2	1.2	4	1						
4 Wind-30	Yes	Y		1	1.2	2	1.2	5	1						
5 Wind-60	Yes	Y		1	1.2	2	1.2	6	1						
6 Wind-90	Yes	Y		1	1.2	2	1.2	7	1						
7 Wind-120	Yes	Y		1	1.2	2	1.2	8	1						
8 Wind-150	Yes	Y		1	1.2	2	1.2	9	1						
9 Wind-180	Yes	Y		1	1.2	2	1.2	10	1						
10 Wind-210	Yes	Y		1	1.2	2	1.2	11	1						
11 Wind-240	Yes	Y		1	1.2	2	1.2	12	1						
12 Wind-270	Yes	Y		1	1.2	2	1.2	13	1						
13 Wind-300	Yes	Y		1	1.2	2	1.2	14	1						
14 Wind-330	Yes	Y		1	1.2	2	1.2	15	1						
15 Ice Wind-0	Yes	Y		1	1.2	2	1.2	3	1	16	1				
16 Ice Wind-30	Yes	Y		1	1.2	2	1.2	3	1	17	1				
17 Ice Wind-60	Yes	Y		1	1.2	2	1.2	3	1	18	1				
18 Ice Wind-90	Yes	Y		1	1.2	2	1.2	3	1	19	1				
19 Ice Wind-120	Yes	Y		1	1.2	2	1.2	3	1	20	1				
20 Ice Wind-150	Yes	Y		1	1.2	2	1.2	3	1	21	1				
21 Ice Wind-180	Yes	Y		1	1.2	2	1.2	3	1	22	1				
22 Ice Wind-210	Yes	Y		1	1.2	2	1.2	3	1	23	1				
23 Ice Wind-240	Yes	Y		1	1.2	2	1.2	3	1	24	1				
24 Ice Wind-270	Yes	Y		1	1.2	2	1.2	3	1	25	1				
25 Ice Wind-300	Yes	Y		1	1.2	2	1.2	3	1	26	1				
26 Ice Wind-330	Yes	Y		1	1.2	2	1.2	3	1	27	1				
27 Maintenance Wind-0	Yes	Y		1	1.2	2	1.2	28	1.5	4	.098				
28 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	5	.098				
29 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	6	.098				
30 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	7	.098				
31 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	8	.098				
32 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	9	.098				
33 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	10	.098				
34 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	11	.098				
35 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	12	.098				
36 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	13	.098				
37 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	14	.098				
38 Maintenance Wind-...	Yes	Y		1	1.2	2	1.2	28	1.5	15	.098				

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1 N37	max	1312.917	6	1317.457	2	4658.199	3	1.348	2	1.256	12	.243	11
2	min	-1300.335	12	310.86	3	-3695.05	9	.126	9	-1.271	6	-.276	5
3 N4	max	2252.96	5	1317.454	2	2364.666	3	.13	3	1.781	8	1.145	2
4	min	-3099.711	11	331.426	10	-2836.347	9	-.889	33	-1.796	14	.189	6
5 N64	max	3100.606	7	1317.453	2	2246.995	3	.144	3	1.791	4	-.199	11
6	min	-2267.248	13	361.143	8	-2738.569	9	-.678	21	-1.806	10	-1.19	2
7 N140	max	1573.02	10	1721.214	10	968.581	10	.102	9	.177	3	.107	9
8	min	-578.456	4	-647.475	4	-407.99	4	-.138	3	-.16	9	-.076	3
9 N141A	max	63.478	11	2045.833	3	1058.638	9	.068	15	.127	4	.113	4



Envelope Joint Reactions (Continued)

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
10	min	-74.173	5	-974.202	9	-2198.147	3	-.02	9	-.112	10	-.1	10	
11	N142A	max	575.078	14	1717.944	8	986.222	8	.121	9	.185	9	.074	3
12		min	-1558.424	8	-644.271	14	-406.381	14	-.132	3	-.17	3	-.119	9
13	Totals:	max	4427.389	6	8223.585	2	6617.622	3						
14		min	-4427.39	12	3101.47	9	-6617.619	9						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

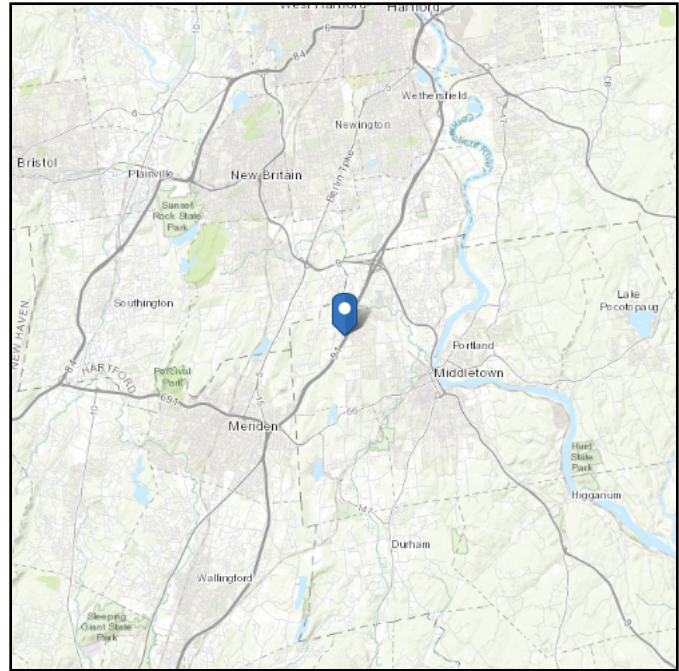
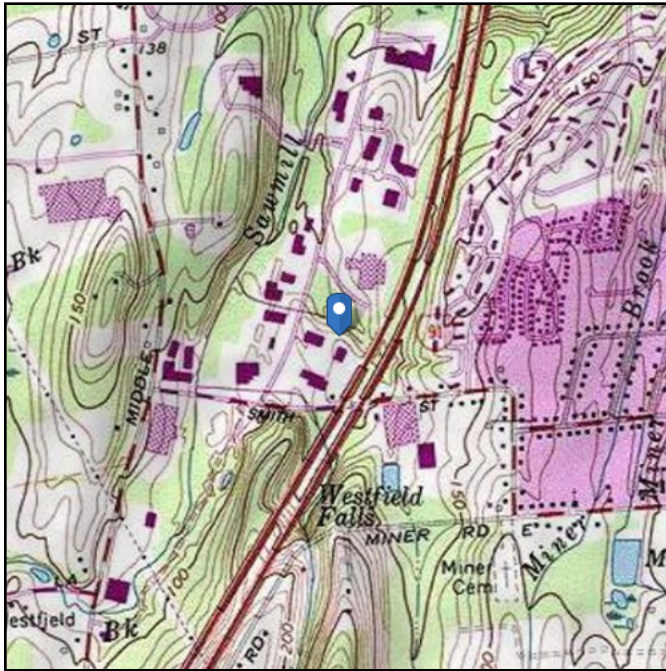
Member	Shape	Code Ch...	Loc[in]	LC	Shear ...	Loc[in]	...	phi*Pnc [lb]	phi*Pnt [lb]	phi*M...	phi*M...	...	Eqn
1	P3	2 STD (0.154)	.748	81	3	.135	49	10	15808.486	33847.758	1.997	1.997	... H1-1b
2	P7	2 STD (0.154)	.647	81	8	.173	49	3	15808.486	33847.758	1.997	1.997	... H1-1b
3	P2	2 STD (0.154)	.633	81	3	.129	49	8	15808.486	33847.758	1.997	1.997	... H1-1b
4	P11	2 STD (0.154)	.593	81	10	.149	49	8	15808.486	33847.758	1.997	1.997	... H1-1b
5	P5	2 STD (0.154)	.572	81	9	.161	49	10	15808.486	33847.758	1.997	1.997	... H1-1b
6	P10	2 STD (0.154)	.565	81	10	.160	49	3	15808.486	33847.758	1.997	1.997	... H1-1b
7	P12	2 STD (0.154)	.538	81	9	.159	81	8	15808.486	33847.758	1.997	1.997	... H1-1b
8	P1	2 STD (0.154)	.535	81	9	.160	49	8	15808.486	33847.758	1.997	1.997	... H1-1b
9	P4	2 STD (0.154)	.497	81	9	.180	81	10	15808.486	33847.758	1.997	1.997	... H1-1b
10	P6	2 STD (0.154)	.493	81	8	.127	49	10	15808.486	33847.758	1.997	1.997	... H1-1b
11	P9	2 STD (0.154)	.476	81	3	.195	49	3	15808.486	33847.758	1.997	1.997	... H1-1b
12	P8	2 STD (0.154)	.431	81	4	.206	81	3	15808.486	33847.758	1.997	1.997	... H1-1b
13	BA	3 STD (0.216)	.377	54.688	3	.372	54.688	3	18487.798	59509.107	4.403	4.403	... H3-6
14	HB	2 STD (0.154)	.332	118.75	3	.165	118.75	3	6684.463	33847.758	1.997	1.997	... H1-1b
15	HA	2 STD (0.154)	.328	59.375	9	.138	118.75	8	6684.463	33847.758	1.997	1.997	... H1-1b
16	BB	3 STD (0.216)	.304	59.375	14	.296	9.375	14	18487.798	59509.107	4.403	4.403	... H3-6
17	HC	2 STD (0.154)	.282	31.25	8	.177	118.75	3	6684.463	33847.758	1.997	1.997	... H1-1b
18	BC	3 STD (0.216)	.281	90.625	4	.307	140.625	4	18487.798	59509.107	4.403	4.403	... H3-6
19	AN2	L2x2x3	.258	51.384	9	.012	51.384	z 3	9335.822	23392.8	.558	1.216	... H2-1
20	AN1	L2x2x3	.255	51.384	9	.012	51.384	y 3	9335.822	23392.8	.558	1.212	2 H2-1
21	AN5	L2x2x3	.248	51.384	4	.010	51.384	y 11	9335.822	23392.8	.558	1.232	... H2-1
22	AN4	L2x2x3	.244	51.384	14	.011	0	y 16	9335.822	23392.8	.558	1.233	... H2-1
23	BC1	PL 6x0.5	.221	6	8	.356	6	y 4	67551.642	97200	1.012	12.15	... H1-1b
24	BC3	PL 6x0.5	.220	6	4	.258	6	y 5	67551.642	97200	1.012	12.15	... H1-1b
25	BC2	PL 6x0.5	.213	6	10	.354	6	y 8	67551.643	97200	1.012	12.15	... H1-1b
26	K1	LL2.5x2.5x3x6	.207	71.877	9	.016	71.877	z 10	36562.871	58320	4.643	1.593	... H1-1b
27	K2	LL2.5x2.5x3x6	.193	71.877	9	.016	71.877	z 14	36562.871	58320	4.643	1.593	... H1-1b
28	AN3	L2x2x3	.190	51.384	13	.010	51.384	y 7	9335.822	23392.8	.558	1.22	... H2-1
29	AN6	L2x2x3	.183	51.384	5	.011	0	y 20	9335.822	23392.8	.558	1.227	... H2-1
30	S1	HSS4X4X4	.161	62.625	9	.154	0	y 9	114795.327	127386	14.774	14.774	... H1-1b
31	K3	LL2.5x2.5x3x6	.160	71.877	5	.012	71.877	z 5	36562.871	58320	4.643	1.593	... H1-1b
32	S2	HSS4X4X4	.160	62.625	9	.147	0	z 14	114795.327	127386	14.774	14.774	... H1-1b
33	C1	HSS4X4X4	.148	30.5	21	.192	56.552	z 9	115408.914	127386	14.774	14.774	... H1-1b
34	C3	HSS4X4X4	.146	30.5	16	.150	4.448	y 4	115408.914	127386	14.774	14.774	... H1-1b
35	C2	HSS4X4X4	.144	30.5	25	.191	56.552	y 3	115408.914	127386	14.774	14.774	... H1-1b
36	S3	HSS4X4X4	.125	62.625	5	.114	0	y 5	114795.327	127386	14.774	14.774	... H1-1b
37	TC3	L2.5x2.5x4	.012	10.982	3	.085	0	y 7	34563.401	38556	1.114	2.537	... H2-1
38	TC1	L2.5x2.5x4	.011	10.982	7	.121	0	y 10	34563.401	38556	1.114	2.537	... H2-1
39	TC2	L2.5x2.5x4	.011	10.982	11	.120	21.964	z 14	34563.401	38556	1.114	2.537	... H2-1

ASCE 7 Hazards Report

Address:
No Address at This Location

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

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



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	101 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Wed May 01 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

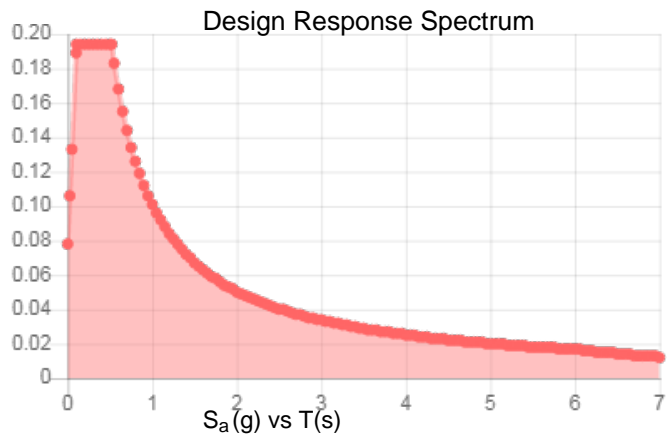
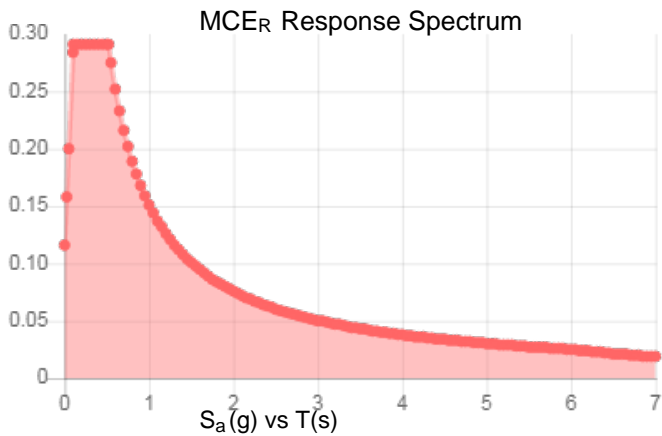
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.182	S_{DS} :	0.194
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.291	PGA _M :	0.148
S_{M1} :	0.151	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Wed May 01 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Wed May 01 2019

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit F

Power Density/RF Emissions Report

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11057C

MIDDLETOWN_1
90 Industrial Park Road
Middletown, CT 06457

May 21, 2019

Transcom Engineering Project Number: 737001-0032

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.85 %

Transcom Engineering, Inc.

Wireless Network Design and Deployment

May 21, 2019

T-MOBILE

Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11057C – MIDDLETOWN_1**

Transcom Engineering, Inc (“Transcom”) was directed to analyze the proposed upgrades to the T-MOBILE facility located at **90 Industrial Park Road, Middletown, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

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

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

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

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

Transcom Engineering, Inc.

Wireless Network Design and Deployment

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

Additional details can be found in FCC OET 65.

Transcom Engineering, Inc.

Wireless Network Design and Deployment

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **90 Industrial Park Road, Middletown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
UMTS	2100 MHz (AWS)	1	40
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

Transcom Engineering, Inc.

Wireless Network Design and Deployment

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR32 B66A / B2A	180
A	2	RFS APX16DWV-16DWV-S-E-ACU	180
A	3	RFS APXVAARR24_43-U-NA20	180
B	1	Ericsson AIR32 B66A / B2A	180
B	2	RFS APX16DWV-16DWV-S-E-ACU	180
B	3	RFS APXVAARR24_43-U-NA20	180
C	1	Ericsson AIR32 B66A / B2A	180
C	2	RFS APX16DWV-16DWV-S-E-ACU	180
C	3	RFS APXVAARR24_43-U-NA20	180

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **2.28 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **215 feet of 1-5/8" coax**.

Transcom Engineering, Inc.

Wireless Network Design and Deployment

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	7	295	11,345.46	1.35
Antenna A2	RFS APX16DWV-16DWV-S-E-ACU	2100 MHz (AWS)	15.9	1	40	920.58	0.11
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.69
Sector A Composite MPE%							2.15
Antenna B1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	7	295	11,345.46	1.35
Antenna B2	RFS APX16DWV-16DWV-S-E-ACU	2100 MHz (AWS)	15.9	1	40	920.58	0.11
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.69
Sector B Composite MPE%							2.15
Antenna C1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	7	295	11,345.46	1.35
Antenna C2	RFS APX16DWV-16DWV-S-E-ACU	2100 MHz (AWS)	15.9	1	40	920.58	0.11
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.69
Sector C Composite MPE%							2.15

Table 3: T-MOBILE Emissions Levels

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The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
T-MOBILE – Max Per Sector Value	2.15 %
MetroPCS	0.48 %
AT&T	2.52 %
Verizon Wireless	3.70 %
Site Total MPE %:	8.85 %

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	2.15 %
T-MOBILE Sector B Total:	2.15 %
T-MOBILE Sector C Total:	2.15 %
Site Total:	8.85 %

Table 5: Site MPE Summary

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FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,538.37	180	7.31	1900 MHz (PCS)	1000	0.73%
T-Mobile 2100 MHz (AWS) LTE	2	2,307.55	180	5.48	2100 MHz (AWS)	1000	0.55%
T-Mobile 1900 MHz (PCS) GSM	1	576.89	180	0.69	1900 MHz (PCS)	1000	0.07%
T-Mobile 2100 MHz (AWS) UMTS	1	920.58	180	1.09	2100 MHz (AWS)	1000	0.11%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	180	1.87	600 MHz	400	0.47%
T-Mobile 700 MHz LTE	2	432.54	180	1.03	700 MHz	467	0.22%
						Total:	2.15%

Table 6: T-MOBILE Maximum Sector MPE Power Values

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Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	2.15 %
Sector B:	2.15 %
Sector C:	2.15 %
T-MOBILE Maximum Total (per sector):	2.15 %
Site Total:	8.85 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.85 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



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