



4545 East River Road, Suite 320  
West Henrietta, NY 14586

March 26th, 2020

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

**RE: Notice of Exempt Modification for Verizon  
Crown Castle Site ID#: 876342  
111 School House Rd., Milford, CT 06460  
Lat: 41° 12' 45.4"/ Long: 73° 05' 05.5"**

Dear Ms. Bachman:

Verizon currently maintains nine (9) total antennas at the 105'-foot mount on the existing 140-foot monopole tower located at 111 School House Road in Milford. The tower is owned by Crown Castle and the property is owned by Milford Enterprises LLC. Verizon now intends to add three (3) antennas to the existing configuration.

**Tower modifications:**

- Add three (3) new CBRS antennas
- Remove twelve (12) RRUs
- Add nine (9) new RRUs
- Add three (3) diplexers

**Ground modifications:**

- None

Melanie A. Bachman

The City of Milford Planning and Zoning board approved this facility on May 6th, 1997. This approval was given without conditions.

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 Ben Blake, Mayor of the City of Milford, as well as Stephen Harris, Zoning Enforcement Officer for the City of Milford. A copy of this letter will also be sent to the property owner, Milford Enterprises LLC.

Additionally:

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

For the foregoing reasons, Verizon 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 my attention at the address listed below.

Sincerely,



Richard Zajac  
Network Real Estate Specialist  
4545 East River Road, Suite 320  
Rochester, NY 14586  
585-445-5896  
[richard.zajac@crowncastle.com](mailto:richard.zajac@crowncastle.com)

Melanie A. Bachman

cc:

City of Milford  
Attn: Benjamin Blake - Mayor  
110 River St  
Milford, CT 06460  
203-783-3201

City of Milford  
Attn: Stephen H. Harris – Zoning Enforcement Officer  
70 West River St  
Milford, CT 06460  
203-783-3245

Milford Enterprises LLC  
Attn: Vipul Mehta  
1207 E Main Street  
Stamford, CT 06702

**From:** [Zajac, Richard](#)  
**To:** ["mayor@ci.milford.ct.us"](mailto:mayor@ci.milford.ct.us)  
**Subject:** Connecticut Siting Council exempt modification application notification  
**Date:** Friday, March 27, 2020 10:13:00 AM  
**Attachments:** [CSC exempt modification application - 111 School House Rd.pdf](#)

---

Good morning Mayor Blake,

Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 111 Schoolhouse Road in Milford.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,

**RICH ZAJAC**

Network Real Estate Specialist

T: (585) 445-5896 M: (607) 346-7212

F: (724) 416-4461

**CROWN CASTLE**

4545 East River Road, Suite 320

West Henrietta, NY 14586

**From:** [Zajac, Richard](#)  
**To:** [shharris@ci.milford.ct.us](mailto:shharris@ci.milford.ct.us)  
**Subject:** Connecticut Siting Council exempt modification application notification  
**Date:** Friday, March 27, 2020 10:07:00 AM  
**Attachments:** [CSC exempt modification application - 111 School House Rd.pdf](#)

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Good morning Mr. Harris,  
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 111 Schoolhouse Road in Milford.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,  
**RICH ZAJAC**  
Network Real Estate Specialist  
T: (585) 445-5896 M: (607) 346-7212  
F: (724) 416-4461  
**CROWN CASTLE**  
4545 East River Road, Suite 320  
West Henrietta, NY 14586

ORIGIN ID: ONHA (585) 445-5896  
RICHARD ZAJAC  
CROWN CASTLE  
4545 EAST RIVER ROAD  
SUITE 320  
WEST HENRIETTA, NY 14568  
UNITED STATES US

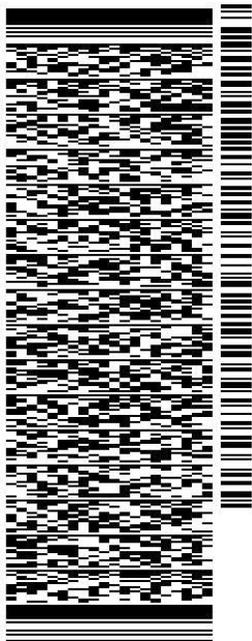
SHIP DATE: 27MAR20  
ACT WGT: 1.00 LB  
CAD: 104924194/NET4220

BILL SENDER

TO **VIPUL MEHTA**  
**MILFORD ENTERPRISES, LLC**  
**1207 E MAIN STREET**

**STAMFORD CT 06702**

(585) 445-5896 REF: 1734 7890  
INV/ PO: DEPT:



56BJ2J64E0/FE4A

TRK# 7701 1807 9390 MON - 30 MAR 3:00P  
0201 STANDARD OVERNIGHT

**XE BNHA** 06702  
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**



DATE FILED 5/15/97  
 RECEIPT # 10391  
 FEE (INCLUDES CZC) \$ \$ 2200

# City of Milford, Connecticut

## APPLICATION FOR ZONING PERMIT

INSTRUCTIONS: Fill out this application in ball point pen. A scaled plot plan in duplicate, based on a certified surveyor's plot plan must be submitted with this application showing the proposed or existing lot and building dimensions and the location of all buildings in relation to the street lines, side lot lines and rear lot lines.

ADDRESS OF PROPERTY 111 School House Rd. ZONE G.I.

MAP 33 BLOCK 335 PARCEL 5 LOT NO. \_\_\_\_\_ ADDRESS MAP NO. \_\_\_\_\_ LOT SIZE \_\_\_\_\_

WIDTH OF STREET RIGHT OF WAY LESS THAN 50 FT.? YES \_\_\_\_\_ NO  CORNER LOT? YES \_\_\_\_\_ NO

IS ANY PORTION OF THE LOT BELOW REGULATORY FLOOD ELEVATION? YES \_\_\_\_\_ NO  CAM YES \_\_\_\_\_ NO

CITY WATER  PRIVATE WELL\* \_\_\_\_\_ SEWER\*\*  SEPTIC\*\*\* \_\_\_\_\_ ENGINEERING OFF STREET PERMIT # \_\_\_\_\_

OWNER Telach Prop. L.P. PHONE ( ) 877-8000

ADDRESS OF OWNER 111 School House Rd. 11162 CT

PRESENT USE OF PROPERTY Motel STREET \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

PROPOSED CONSTRUCTION NEW  ADDITION \_\_\_\_\_ ALTERATION \_\_\_\_\_ REPAIR \_\_\_\_\_

SIZE/USE OF PROPOSED CONSTRUCTION 140' Telecommunications monopole  
-Netherlands Permit Req-

NO. OF STORIES \_\_\_\_\_ HEIGHT 140' REQUIRED PARKING SPACES \_\_\_\_\_ LOT COVERAGE \_\_\_\_\_ %

DATE OF APPROVALS: ZBA 2/11/97 CASPR \_\_\_\_\_ SITE PLAN May 6, 1997 SPECIAL PERMIT May 6, 1997

EXEMPTION ISSUED \_\_\_\_\_ SUBDIV. NAME \_\_\_\_\_ HISTORIC DIST. CERT. OF APPROPRIATENESS

CERTIFICATION: (WARNING) I hereby certify that I am making this application on behalf of and with full authority of the owner of the property and that I am aware of the Zoning Regulations pertinent in this case and that the statements made herein are true and correct. APPROVAL SHALL BE VALID FOR PLANS AS SUBMITTED.

THE OCCUPANCY AND USE OF LAND AND BUILDINGS OR STRUCTURES PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY IS PROHIBITED

APPROVED BY: Richard J. Vassich  
 Zoning Official

APPLICANT: NAME MIKE EVANCHICK AGENT FOR SPRINT PCS  
 SIGNATURE Mike Evanchick (Please Print)

DATE ISSUED 5/15/97

ADDRESS 9 RARVES INDUSTRIAL ROAD  
 CITY WALTONFORD STATE CT ZIP 06494  
 TELEPHONE NO. (203) 299-5609

\* Permit required from State Health Dept. for apartments, subdivisions, trailer parks, shopping centers and public buildings.  
 \*\* Permits for sewer connections are granted by Sewer Commission  
 \*\*\* Septic system approvals are granted by Health Department



**PROCEDURE FOLLOWING APPROVAL  
BY  
PLANNING & ZONING BOARD**

**SITE PLAN REVIEW**

Following approval by the Planning & Zoning Board, it is necessary to obtain a zoning permit at the Planning & Zoning Office. Plans for this permit will be the Board approved plans on file in our office unless the Board has stipulated revisions to be made. Please call the reviewing officer for this application at 783-3245 to make arrangements for the issuance of a zoning permit. The fee for a zoning permit following Board approval is \$22.00. The zoning permit, associated plans and other exhibits must then be taken to the Building Inspector for the issuance of a building permit.

**SPECIAL PERMIT/SPECIAL EXCEPTION**

Following approval by the Planning & Zoning Board, it is necessary to obtain a zoning permit at the Planning & Zoning Office. Plans for this permit will be the Board approved plans on file in our office unless the Board has stipulated revisions to be made. Please call the reviewing officer for this application at 783-3245 to make arrangements for the issuance of a zoning permit. The fee for a zoning permit following Board approval is \$22.00. The zoning permit, associated plans and other exhibits must then be taken to the Building Inspector for the issuance of a building permit.

Prior to the issuance of a zoning permit, a certificate, which is being held at the office must be filed on the land records in the City Clerk's Office for which a fee of \$10.00 is required. You must present your receipt from the City Clerk's Office at the Planning & Zoning Office to be recorded in your file.

# Exhibit B

## **Property Card**

# 111 SCHOOLHOUSE RD #CELL

**Location** 111 SCHOOLHOUSE RD #CELL

**Mblu** 33/ 335/ 5/A /

**Acct#** 023043

**Owner** MILFORD ENTERPRISES LLC

**Assessment** \$245,000

**Appraisal** \$350,000

**PID** 100242

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$350,000	\$0	\$350,000

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$245,000	\$0	\$245,000

## Owner of Record

**Owner** MILFORD ENTERPRISES LLC  
**Other** C/O VIPUL MEHTA  
**Address** 1207 E MAIN STREET  
STAMFORD, CT 06702

**Sale Price** \$3,675,000  
**Certificate**  
**Book & Page** 03622/0230  
**Sale Date** 03/27/2015  
**Instrument** 18

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
MILFORD ENTERPRISES LLC	\$3,675,000		03622/0230	18	03/27/2015
CSMC 2007 C5 FFI HOTEL PORTFOLIO LLC	\$6,930,207		03602/0294	22	10/06/2014
MILFORD FFI LLC	\$4,800,000		03168/0407	00	05/10/2007
OLY REALTY ONE LLC	\$3,800,000		02396/0375		02/28/2000
TELAHC PROPERTIES L P	\$0		02040/0184		03/11/1994

## Building Information

### Building 1 : Section 1

**Year Built:**  
**Living Area:** 0

**Building Photo**

Replacement Cost: \$0

Building Percent Good:

Replacement Cost

Less Depreciation: \$0

Building Attributes	
Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Description:	
Kitchen Descrip:	
Num Kitchens	
Cndtn	
Usrflid 103	
Int Condition:	
Solar Panels	
House Generator	
Usrflid 107	
Num Park	
Fireplaces	
Usrflid 108	
Usrflid 101	
Usrflid 102	
Usrflid 100	



(<http://images.vgsi.com/photos/MilfordCTPhotos//default.jpg>)

### Building Layout

Building Layout

([http://images.vgsi.com/photos/MilfordCTPhotos//Sketches/100242\\_100241](http://images.vgsi.com/photos/MilfordCTPhotos//Sketches/100242_100241))

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

Usrflid 300	
Usrflid 301	

**Extra Features**

Extra Features	<u>Legend</u>
No Data for Extra Features	

**Land**

**Land Use**

**Use Code** 434V  
**Description** CELL TOWER MDL-00  
**Zone**  
**Neighborhood** C  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 0  
**Frontage**  
**Depth**  
**Assessed Value** \$0  
**Appraised Value** \$0

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CEL1	CEL TWR SITE			1.00 UNITS	\$350,000	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$350,000	\$0	\$350,000
2017	\$350,000	\$0	\$350,000
2016	\$350,000	\$0	\$350,000

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$245,000	\$0	\$245,000
2017	\$245,000	\$0	\$245,000
2016	\$245,000	\$0	\$245,000



Imagery ©2020 Maxar Technologies, New York GIS, USDA Farm Service Agency, Map data ©2020 500 ft



### 111 Schoolhouse Rd

Milford, CT 06460



Directions



Save



Nearby



Send to your phone



Share

### At this location

#### Fairfield Inn Milford

4.3 ★★★★★ (20)

2-star hotel



# Exhibit C

## **Construction Drawings**



**VERIZON SITE NUMBER: NG32385**  
**VERIZON SITE NAME: MILFORD 2 CT MONOPOLE**  
**SITE TYPE: 140'-0"**  
**TOWER HEIGHT: 140'-0"**

**BUSINESS UNIT #: 876342**  
**SITE ADDRESS: 111 SCHOOL HOUSE ROAD, A/K/A BIC DRIVE MILFORD, CT 06460**  
**COUNTY: NEW HAVEN**  
**JURISDICTION: CITY OF MILFORD**



20 ALEXANDER DRIVE  
WALLINGFORD, CT 06492



3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065

**VERIZON LTE**

VERIZON SITE NUMBER:  
NG32385

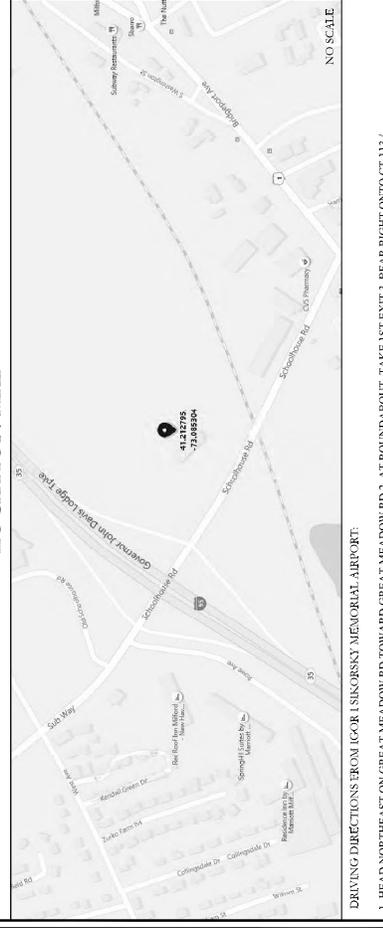
BU #: 876342  
**BIC DRIVE (SSUSA)**  
 111 SCHOOL HOUSE ROAD,  
 A/K/A BIC DRIVE  
 MILFORD, CT 06460  
 EXISTING 140'-0" MONOPOLE

**DRAWING INDEX**

SHEET #	TITLE	DESCRIPTION
T-1	GENERAL NOTES	
T-2	SITE PLAN	
G-2	TOWER ELEVATION MAINTENANCE PLANS	
G-3	EQUIPMENT SCHEDULES	
G-4	EQUIPMENT DETAILS	
G-5	EQUIPMENT DETAILS	
G-6	GROUNDING DETAILS	
G-7	ATTACHED MOUNT/MODIFICATION DRAWINGS	

ALL DRAWINGS CONTAINED HEREIN ARE FORWARDED FOR PERMITTING AND CONSTRUCTION. 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.

**LOCATION MAP**



**SITE INFORMATION**

**GROWN CASTLE USA INC.**  
 BIC DRIVE (SSUSA)  
 111 SCHOOL HOUSE ROAD, A/K/A BIC DRIVE  
 MILFORD, CT 06460  
 COUNTY: NEW HAVEN  
 MAP/PARCEL #: MILF060003500035400005  
 AREA OF CONSTRUCTION: EXISTING  
 LANGUAGE: ENGLISH  
 LATITUDE: 41° 05' 07.10"  
 LONGITUDE: -72° 46' 07.10"  
 LAYING TYPE: NAD83  
 GROUND ELEVATION: 41 FT.  
 JURISDICTION: CITY OF MILFORD  
 OCCUPANCY CLASSIFICATION: U  
 TYPE OF CONSTRUCTION: U  
 A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION  
**PROPERTY OWNER:** MILFORD ENTERPRISES LLC  
 111 SCHOOL HOUSE ROAD  
 MILFORD, CT 06460  
**TOWER OWNER:** GLOBAL SIGNAL ACQUISITIONS II LLC  
 2000 CORPORATE DRIVE  
 GANCONSBURG, VA 15117  
**CARRIER/APPLICANT:** VERIZON WIRELESS  
 NETWORK REAL ESTATE  
 20 ALEXANDER DRIVE  
 WALLINGFORD, CT 06492  
**ELECTRIC PROVIDER:** UNITED ILLUMINATING CO  
 (800) 722-5384  
**TELECO PROVIDER:** AT&T  
 (866) 626-6900

**PROJECT TEAM**

**ARE FIRM:** GROWN CASTLE USA INC.  
 2000 CORPORATE DRIVE  
 GANCONSBURG, VA 15117  
 CONTACT: JASON DAMICO - CONSTRUCTION MANAGER  
 (818) 375-5817  
 (866) 2046104  
**GROWN CASTLE USA INC. DISTRICT CONTACTS:** WILLIAM GATES - PROJECT MANAGER  
 (818) 375-5817  
 JASON DAMICO - CONSTRUCTION MANAGER  
 (818) 375-5817  
**VERIZON CONTACT:** TIMOTHY PARKS - PROJECT MANAGER  
 TIMOTHY.PARKS@VERIZONWIRELESS.COM

**APPLICABLE CODES/REFERENCE DOCUMENTS**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL JURISDICTION AUTHORITY. ANY CHANGES TO THESE PLANS IS TO BE CONSIDERED TO PERMIT THE WORK TO BE IN ACCORDANCE WITH THESE CODES.  
 CODE TYPE CODE  
 BUILDING 2018 CT STATE BUILDING CODE 2015 IBC W/ CT AMENDMENTS  
 MECHANICAL 2018 CT STATE BUILDING CODE 2015 IMC W/ CT AMENDMENTS  
 ELECTRICAL 2018 CT STATE BUILDING CODE 2017 NEC W/ CT AMENDMENTS  
 REFERENCE DOCUMENTS:  
 STRUCTURAL ANALYSIS: BY OTHERS  
 DATED: \_\_\_\_\_  
 MOUNT ANALYSIS: BY OTHERS  
 DATED: \_\_\_\_\_  
 MOUNT MODIFICATION: PAUL J. FORD & COMPANY  
 DATED: JANUARY 3, 2020  
 REVISIONS: 2  
 DATED: 01/27/20  
 ORDER ID: 508882  
 REVISION: 0

**PROJECT DESCRIPTION**

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.  
 TOWER SCOPE OF WORK:  
 • REMOVE EXISTING TOWER  
 • INSTALL (1) HYBRID CABLE (1-5/8")  
 • INSTALL (9) BERRHS  
 • INSTALL (1) HYBRID CABLE (1-5/8")

**ISSUED FOR:**

REV#	DATE	ISSUED FOR:	DESCRIPTION
0	12/26/19	ISSUED FOR:	CONSTRUCTION
1	02/12/20	ISSUED FOR:	CONSTRUCTION
2	02/25/20	ISSUED FOR:	CONSTRUCTION
3	03/02/20	ISSUED FOR:	CONSTRUCTION

**PROFESSIONAL SEAL**

**Andrew Faziozzi**  
 PROFESSIONAL ENGINEER  
 No. 39515  
 3/18/2020  
 3:38 PM EDT  
 State of Connecticut  
 100 State Street, 10th Floor  
 Hartford, CT 06103  
 860.426.1111  
 Fax: 860.426.1110  
 www.aefaziozzi.com  
 Cautions: 2/20/2020 #12-0001101

**NOTE:**

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

**INSTALLER NOTE**

NO PROPOSED WORKING TO BE ADDED TO THIS PROJECT. ALL WORK SHALL BE INSTALLED PER MOUNT MODIFICATION DESIGN BY PAUL J. FORD & COMPANY DATED JANUARY 3, 2020.  
 CALL CROWN PROJECT MANAGER AT (800) 924-4455 FOR DAILY CALL WORKING DAYS RETURN FOR DEL.

**SHEET NUMBER:**

T-1

**REVISION:**

3





20 ALEXANDER DRIVE  
WALLINGFORD, CT 06492



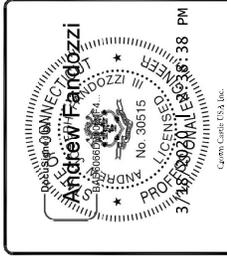
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12045

VERIZON SITE NUMBER:  
NG32385

BU #: 876342  
BIC DRIVE (SSUSA)  
111 SCHOOL HOUSE ROAD,  
A/K/A BIC DRIVE  
MILFORD, CT 06460

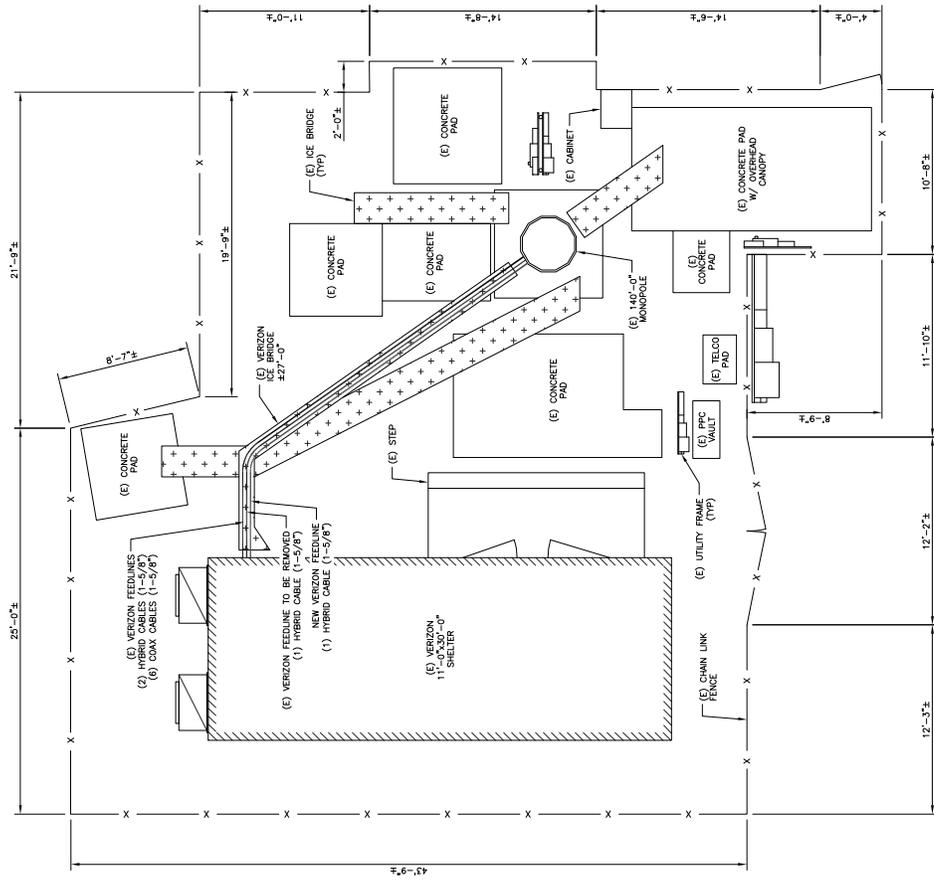
EXISTING 140'-0" MONOPOLE

REV.	DATE	ISSUED FOR:	DESCRIPTION	DESIGN
0	12/26/19	NO	CONSTRUCTION	SCALP
1	02/12/20	NO	CONSTRUCTION	AE
2	02/25/20	NO	CONSTRUCTION	AE
3	03/02/20	NO	CONSTRUCTION	AE



THE AUTHOR OF THESE DRAWINGS  
UNDERSTANDS THAT THESE DRAWINGS  
ARE BEING USED FOR CONSTRUCTION  
AND THAT HE IS NOT PROVIDING  
ANY WARRANTY.

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



1 SITE PLAN  
SCALE: 1/8" = 1'-0" (PLANS)  
1/4" = 1'-0" (ELEV)





VERIZON SITE NUMBER:  
NG32385

BU #: 876342  
BIC DRIVE (SSUSA)

111 SCHOOL HOUSE ROAD,  
A/K/A BIC DRIVE  
MILFORD, CT 06460

EXISTING 140'-0" MONOPOLE

REV	DATE	ISSUED FOR:	DESCRIPTION	DESIGN
0	12/26/19	TO CONSTRUCTION	RECAP	AE
1	02/12/20	TO CONSTRUCTION	AE	AE
2	02/25/20	TO CONSTRUCTION	AE	AE
3	05/02/20	TO CONSTRUCTION	AE	AE



3/18/20 3:38 PM EDT

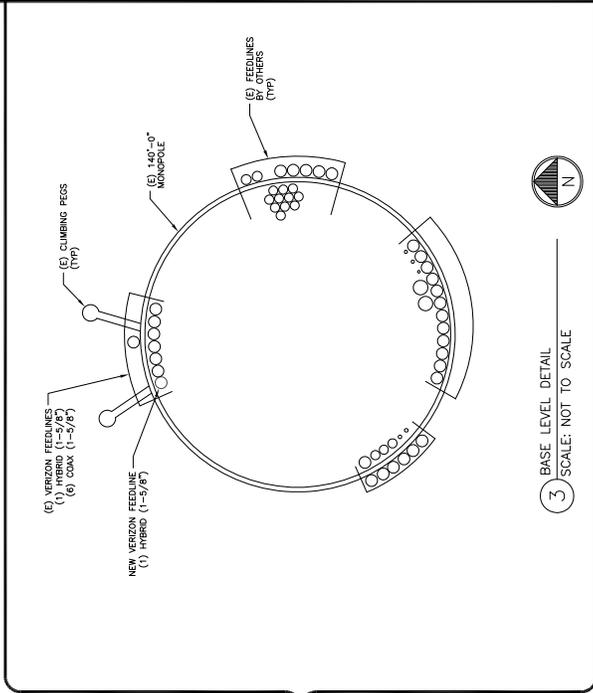
Professional Engineer  
No. 30615  
State of Connecticut  
Candidate of Registration # EC-0001101

SHEET NUMBER: **C-3**

REVISION: **3**

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	154'-0" ±	6
EXISTING	HYBRID	1-5/8"	154'-0" ±	2
TOTAL CABLE QTY: <b>8</b>				



BASE LEVEL DETAIL  
SCALE: NOT TO SCALE

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	154'-0" ±	6
EXISTING	HYBRID	1-5/8"	154'-0" ±	1
NEW	HYBRID	1-5/8"	154'-0" ±	1
TOTAL CABLE QTY: <b>8</b>				

ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZMUTH	MECHANICAL DOWNLITS	ELECTRICAL DOWNLITS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	ANDREW	SRNHH-10658	105'-0"	330°	-	-	ALCATEL LUCENT	(1) B66 RRH 4K45
A2	EXISTING	ANDREW	SRNHH-10658	105'-0"	330°	-	-	NOKIA	(1) AHCA
A3	EXISTING	ANDREW	SRNHH-10658	105'-0"	330°	-	-	RAYCAP	(1) DB-T1-62-848-02
A4	EXISTING	ANDREW	LWX-651405-A1M	105'-0"	330°	-	-	ALCATEL LUCENT	(1) B13 RRH 4X30 (1) B25 RRH 4X30
B1	EXISTING	ANDREW	SRNHH-10658	105'-0"	120°	-	-	ALCATEL LUCENT	(1) B66 RRH 4K45
B2	EXISTING	ANDREW	SRNHH-10658	105'-0"	120°	-	-	NOKIA	(1) AHCA
B3	EXISTING	ANDREW	SRNHH-10658	105'-0"	120°	-	-	ALCATEL LUCENT	(1) B13 RRH 4X30 (1) B25 RRH 4X30
B4	EXISTING	ANDREW	LWX-651405-A1M	105'-0"	120°	-	-	ALCATEL LUCENT	(1) B13 RRH 4X30 (1) B25 RRH 4X30
C1	EXISTING	ANDREW	SRNHH-10658	105'-0"	210°	-	-	ALCATEL LUCENT	(1) B66 RRH 4K45
C2	EXISTING	ANDREW	SRNHH-10658	105'-0"	210°	-	-	NOKIA	(1) AHCA
C3	EXISTING	ANDREW	SRNHH-10658	105'-0"	210°	-	-	RAYCAP	(1) DB-T1-62-848-02
C4	EXISTING	ANDREW	LWX-651405-A1M	105'-0"	210°	-	-	ALCATEL LUCENT	(1) B13 RRH 4X30 (1) B25 RRH 4X30

EXISTING EQUIPMENT SCHEDULE  
SCALE: NOT TO SCALE

ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZMUTH	MECHANICAL DOWNLITS	ELECTRICAL DOWNLITS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	ANDREW	SRNHH-10658	105'-0"	330°	-	-	SAMSUNG	(1) RP01U-D1A
A2	EXISTING	ANDREW	SRNHH-10658	105'-0"	330°	-	-	SAMSUNG	(1) RP01U-D2A
A3	EXISTING	ANDREW	SRNHH-10658	105'-0"	330°	-	-	RAYCAP	(1) DB-T1-62-848-02
A4	NEW	SAMSUNG	CBRS	105'-0"	330°	-	-	-	-
A5	EXISTING	ANDREW	LWX-651405-A1M	105'-0"	330°	-	-	-	-
B1	EXISTING	ANDREW	SRNHH-10658	105'-0"	120°	-	-	SAMSUNG	(1) RP01U-D1A
B2	EXISTING	ANDREW	SRNHH-10658	105'-0"	120°	-	-	SAMSUNG	(1) RP01U-D2A
B3	EXISTING	ANDREW	SRNHH-10658	105'-0"	120°	-	-	RAYCAP	(1) DB-T1-62-848-02
B4	NEW	SAMSUNG	CBRS	105'-0"	120°	-	-	-	-
B5	EXISTING	ANDREW	LWX-651405-A1M	105'-0"	120°	-	-	-	-
C1	EXISTING	ANDREW	SRNHH-10658	105'-0"	210°	-	-	SAMSUNG	(1) RP01U-D1A
C2	EXISTING	ANDREW	SRNHH-10658	105'-0"	210°	-	-	SAMSUNG	(1) RP01U-D2A
C3	EXISTING	ANDREW	SRNHH-10658	105'-0"	210°	-	-	RAYCAP	(1) DB-T1-62-848-02
C4	NEW	SAMSUNG	CBRS	105'-0"	210°	-	-	-	-
C5	EXISTING	ANDREW	LWX-651405-A1M	105'-0"	210°	-	-	-	-

FINAL EQUIPMENT SCHEDULE  
SCALE: NOT TO SCALE



20 ALEXANDER DRIVE  
WALLINGFORD, CT 06492



3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12045

VERIZON SITE NUMBER:  
NG32385

BU #: 876342  
BIC DRIVE (SSUSA)

111 SCHOOL HOUSE ROAD,  
A/K/A BIC DRIVE  
MILFORD, CT 06460

EXISTING 140'-0" MONOPOLE

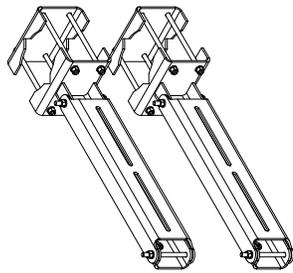
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1	02/25/20	TO CONSTRUCTION	AE	AE
2	02/25/20	TO CONSTRUCTION	AE	AE
3	08/02/20	TO CONSTRUCTION	AE	AE



3/14/2020 3:38 PM EDT  
Candidate Registration # EC-000100

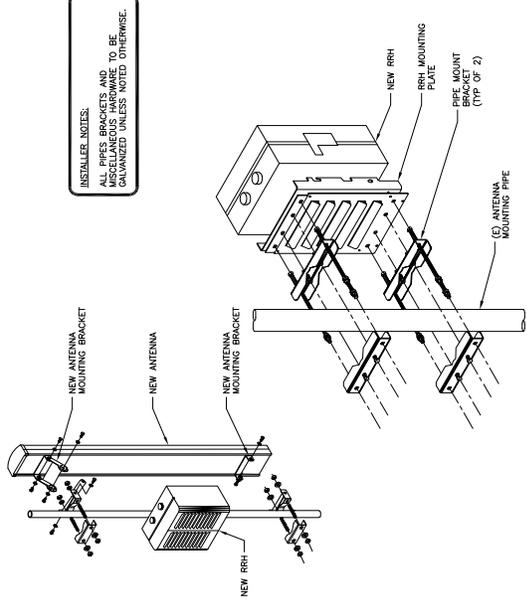
PLEASE PRINT OR TYPE IN ALL CAPS  
UNLESS THEY ARE ACTING UNDER THE DIRECTION  
OF A LICENSED PROFESSIONAL ENGINEER.  
DO NOT SIGN OR SEAL ANYTHING

SHEET NUMBER: **C-4**  
REVISION: **3**



VALMONT - BRUDEM  
DUAL SWIVEL MOUNT KITS FOR RRUs  
(2 SWIVEL MOUNTS PER KIT)

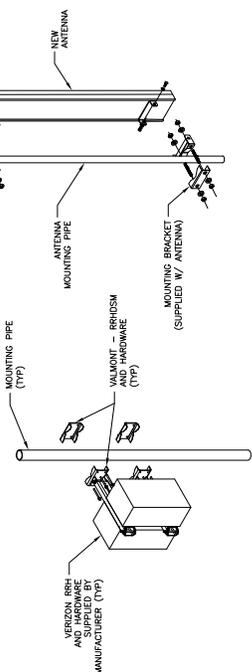
2 VALMONT - RRUDSM  
SCALE: NOT TO SCALE



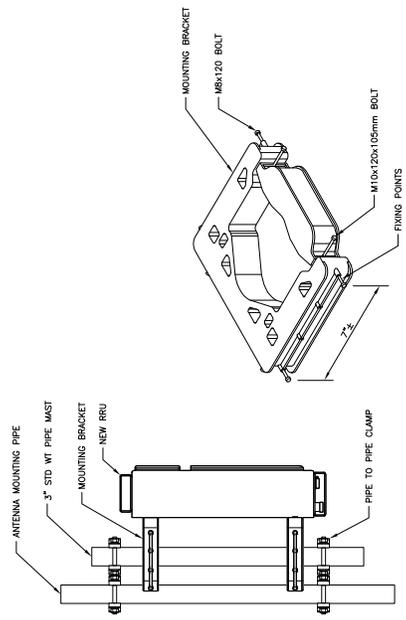
INSTALLER NOTES:  
ALL PIPES BRACKETS AND  
MISCELLANEOUS HARDWARE TO BE  
GALVANIZED UNLESS NOTED OTHERWISE.

4 ANTENNA & RRU MOUNTING DETAIL  
SCALE: NOT TO SCALE

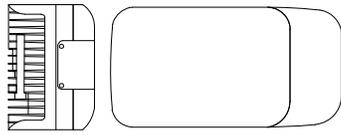
INSTALLER NOTES:  
1. FOLLOW MANUFACTURER'S INSTRUCTIONS TO ENSURE THAT ALL RRUs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF INSTALLATION FROM THE MANUFACTURER'S PACKAGING.  
2. DO NOT OPEN RRU PACKAGES IN THE RAIN.  
3. ALL HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



1 ANTENNA WITH RRHs MOUNTING DETAIL  
SCALE: NOT TO SCALE

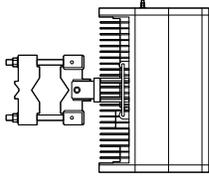


3 NOKIA - FPKA BRACKET MOUNTING DETAIL  
SCALE: NOT TO SCALE



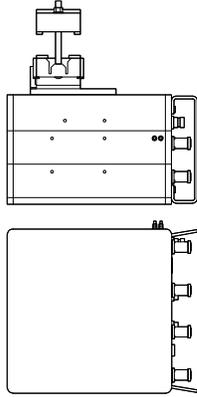
SAMSUNG - CBR8000  
 WEIGHT (FULLY EQUIPPED): 23.14 LBS  
 SIZE (H\*W\*D): 16.6x11.39x5.45 IN.

1 SAMSUNG - CBR8000  
 SCALE: NOT TO SCALE



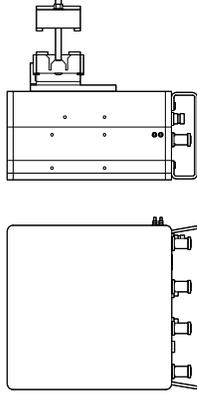
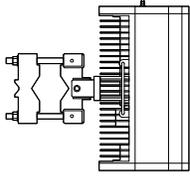
SAMSUNG - RFV01U-D1A  
 WEIGHT: 84.4 LBS  
 SIZE (H\*W\*D): 15.0x15.0x10.0 IN.

2 SAMSUNG - RFV01U-D1A  
 SCALE: NOT TO SCALE



SAMSUNG - RFV01U-D2A  
 WEIGHT: 70.3 LBS  
 SIZE (H\*W\*D): 15.0x15.0x8.1 IN.

3 SAMSUNG - RFV01U-D2A  
 SCALE: NOT TO SCALE



20 ALEXANDER DRIVE  
 WALLINGFORD, CT 06492



3 CORPORATE PARK DRIVE, SUITE 101  
 CLIFTON PARK, NY 12065

VERIZON SITE NUMBER:  
 NG32385

BU #: 876342  
 BIC DRIVE (SSUSA)

111 SCHOOL HOUSE ROAD,  
 A/K/A BIC DRIVE  
 MILFORD, CT 06460

EXISTING 140'-0" MONOPOLE

REV	DATE	BY/EN	DESCRIPTION	CHK/QC
0	12/26/19	TG	CONSTRUCTION	SK/AP
1	02/12/20	TG	CONSTRUCTION	AE
2	02/25/20	TG	CONSTRUCTION	AE
3	06/02/20	TG	CONSTRUCTION	AE



3/18/20 09:38 AM EDT  
 Andrew F. Faziozzi  
 Professional Engineer  
 No. 306515  
 State of Connecticut  
 Candidate's Registration # EC-0001801

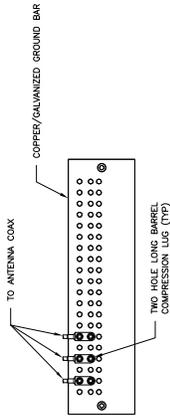
THE LICENSEE(S) OF THE STATE OF CONNECTICUT  
 UNDER THIS SEAL ARE ACTING UNDER THE DIRECTION  
 OF A LICENSED PROFESSIONAL ENGINEER  
 IN THE STATE OF CONNECTICUT

SHEET NUMBER: C-5  
 REVISION: 3

6 NOT USED  
 SCALE: NOT TO SCALE

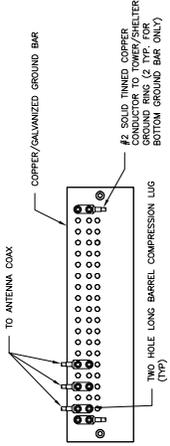
5 NOT USED  
 SCALE: NOT TO SCALE

4 NOT USED  
 SCALE: NOT TO SCALE



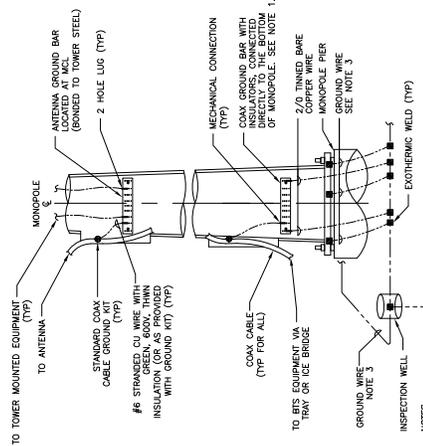
- NOTES:
1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
  2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
  3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER, MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

① ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE



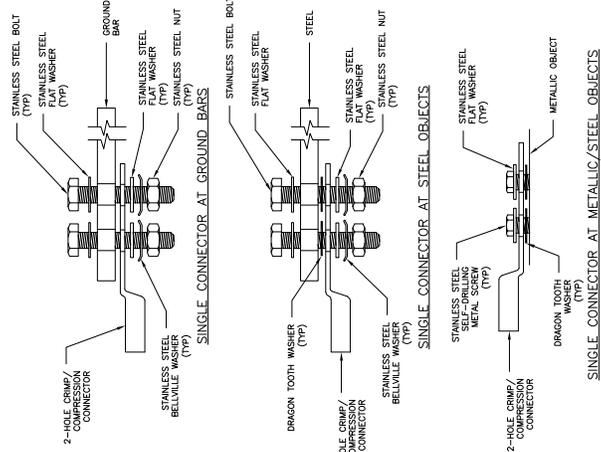
- NOTES:
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
  2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER, MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
  3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

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

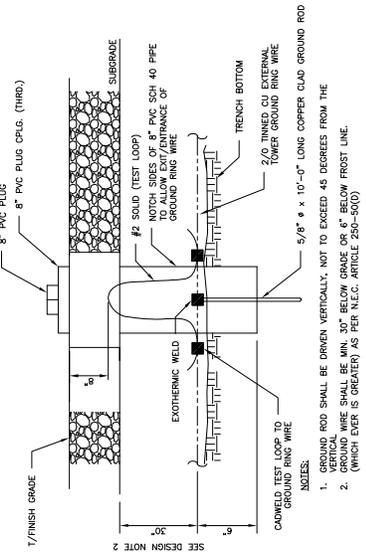


- NOTES:
1. NUMBER OF INSULATORS MAY VARY DEPENDING ON THE SIZE OF TOWER ANTENNA DOWNLEADS AND CONNECTION OBSERVATION. COAX CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND RINGS AT THE MIDPOINT. PROVIDE AS REQUIRED.
  2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO GROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
  3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 78B.

④ TYPICAL ANTENNA CABLE GROUNDING  
SCALE: NOT TO SCALE

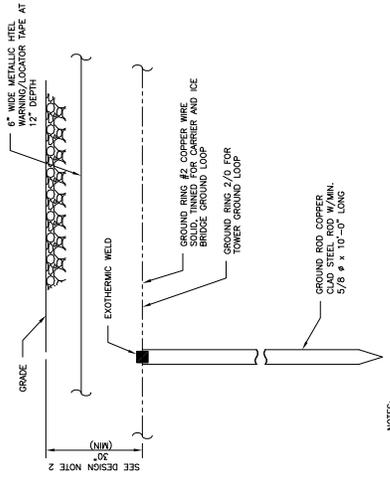


⑤ HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE



- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
  2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

③ INSPECTION WELL DETAIL  
SCALE: NOT TO SCALE



- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
  2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

⑥ GROUND ROD DETAIL  
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:  
NG32385

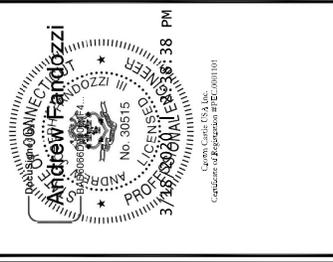
BU #: 876342  
BIC DRIVE (SSUSA)

111 SCHOOL HOUSE ROAD,  
A/K/A BIC DRIVE  
MILFORD, CT 06460

EXISTING 140'-0" MONOPOLE

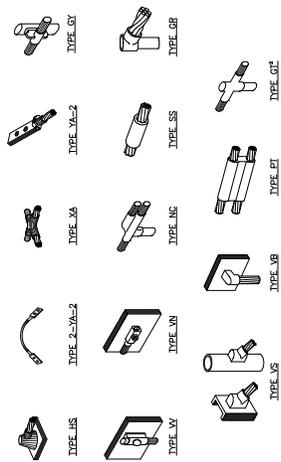
ISSUED FOR:

REV.	DATE	BY/REV	DESCRIPTION	INDICATED
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2	02/26/20	TS	CONSTRUCTION	AE
3	06/02/20	TS	CONSTRUCTION	AE



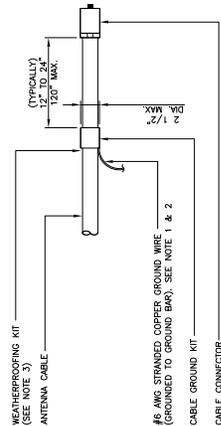
PLEASE REVIEW ALL THE WORK IN THIS REGION  
UNLESS THEY ARE ACTING UNDER THE DIRECTION  
OF A LICENSED PROFESSIONAL ENGINEER.  
DO NOT SIGN FOR ANY WORK.

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



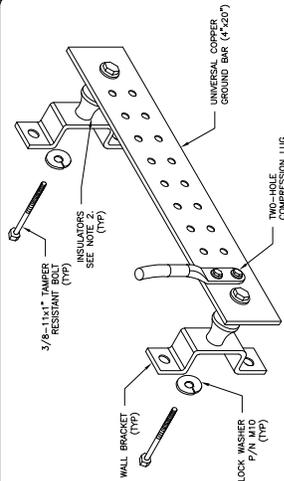
NOTE:  
 1. BEND SYSTEMS "WILD FIRE" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC WOLDS TO BE USED FOR THIS PROJECT.  
 2. WELD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS  
 SCALE: NOT TO SCALE



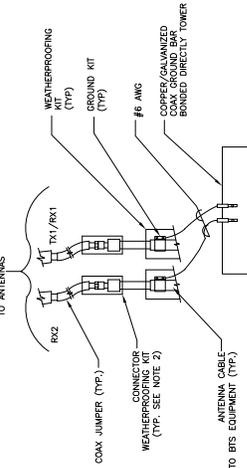
NOTE:  
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.  
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.  
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION  
 SCALE: NOT TO SCALE



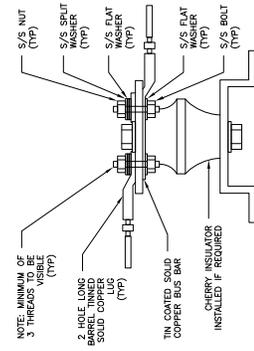
NOTE:  
 1. DOWN LEAD (10M RIN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWERS. PER THE GROUNDING DOWN CONDUCTOR POLICY (GAS-578-10091, NO CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.  
 2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL  
 SCALE: NOT TO SCALE



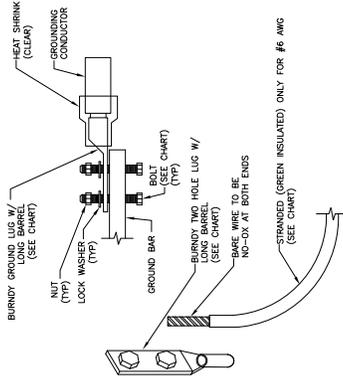
NOTE:  
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.  
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION  
 SCALE: NOT TO SCALE



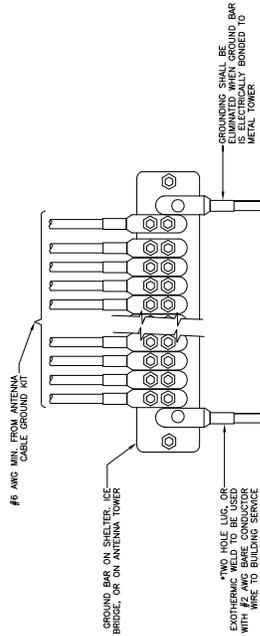
7 LUG DETAIL  
 SCALE: NOT TO SCALE

WIRE SIZE	BURNED LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC3B	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC3B	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC3B	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA2B-2N	1/2" - 16 NC S 2 BOLT

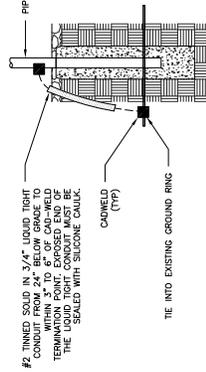


NOTE:  
 1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL FLAT WASHERS, BOLTS, FLAT WASHERS AND NUTS.  
 2. MECHANICAL LUG CONNECTION  
 SCALE: NOT TO SCALE

2 MECHANICAL LUG CONNECTION  
 SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION  
 SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL  
 SCALE: NOT TO SCALE



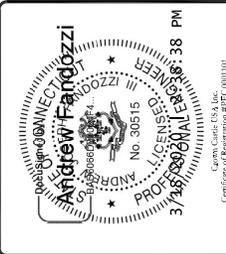
VERIZON SITE NUMBER:  
 NG32385

BU #: 876342  
 BIC DRIVE (SSUSA)

111 SCHOOL HOUSE ROAD,  
 A/K/A BIC DRIVE  
 MILFORD, CT 06460

EXISTING 140'-0" MONOPOLE.

REV.	DATE	REVISED FOR	DESCRIPTION	PREP'D
1	12/26/19	TS	CONSTRUCTION	SK/AP
2	02/12/20	TS	CONSTRUCTION	AR
3	02/25/20	TS	CONSTRUCTION	AR
4	06/10/20	TS	CONSTRUCTION	AR



PLEASE REVIEW THIS DRAWING FOR ANY CHANGES THAT ARE ACTING UNDER THE PROVISIONS OF THE PROFESSIONAL ENGINEERING ACT.

SHEET NUMBER: G-2  
 REVISION: 3

# Exhibit D

## **Structural Analysis Report**

Date: **January 14, 2020**

Denice Nicholson  
Crown Castle  
3 Corporate Dr  
Clifton Park, NY 12065

Paul J. Ford and Company  
250 E. Broad St., Ste 600  
Columbus, OH 43215  
614-221-6679

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **Verizon Wireless Co-Locate**  
**Carrier Site Number:** NG32385  
**Carrier Site Name:** MILFORD 2 CT

**Crown Castle Designation:** **Crown Castle BU Number:** 876342  
**Crown Castle Site Name:** BIC DRIVE (SSUSA)  
**Crown Castle JDE Job Number:** 595589  
**Crown Castle Work Order Number:** 1813005  
**Crown Castle Order Number:** 508882 Rev. 0

**Engineering Firm Designation:** **Paul J. Ford and Company Project Number:** 37520-0091.001.7805

**Site Data:** **111 School House Road, a/k/a Bic Drive, MILFORD, New Haven County, CT**  
**Latitude 41° 12' 46.06", Longitude -73° 5' 7.1"**  
**140 Foot - Monopole Tower**

Dear Denice Nicholson,

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

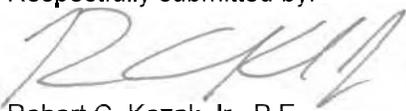
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

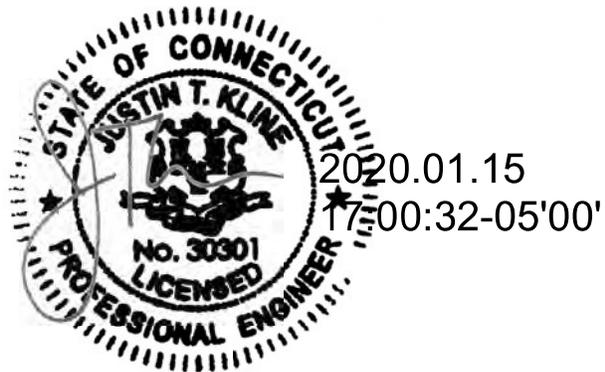
LC7: Proposed Equipment Configuration

**Sufficient Capacity – 81.9%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 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:

  
Robert C. Kozak Jr., P.E.  
Project Engineer  
rkozak@pauljford.com



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3.2) Assumptions

### 4) ANALYSIS RESULTS

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### 6) APPENDIX B

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Additional Calculations

## 1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by SUMMIT in October of 1999.

The tower has been modified per reinforcement drawings prepared by Paul J Ford, in December of 2009. Reinforcement consist of shaft reinforcement and base plate stiffeners.

The tower has been modified per reinforcement drawings prepared by Paul J Ford, in October of 2015. Reinforcement consist of shaft reinforcement and anchor rods.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	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)
104.0	104.0	3	andrew	LNx-6514DS-VTM w/ Mount Pipe	8	1-5/8
		3	commscope	CBC78T-DS-43-2X		
		6	commscope	SBNHH-1D65B w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	20W CBRS		
		3	samsung telecommunications	CBRS w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		1	tower mounts	Platform Mount [LP 1201-1_KCKR-HR-1]		

**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)
140.0	140.0	3	alcatel lucent	TD-RRH8X20-25	3	1-5/8
		9	rfs celwave	ACU-A20-N		
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 1201-1]		
					1	1-1/4
					1	1/2

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
137.0	137.0	3	alcatel lucent	TME-1900MHz RRH (65MHz) w/ Mount Pipe	--	--
		3	alcatel lucent	TME-800MHZ RRH		
		3	alcatel lucent	TME-800MHz 2x50W RRH W/FILTER w/ Mount Pipe		
		1	tower mounts	Side Arm Mount [SO 103-3]		
121.0	123.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 2 2 2 2	1-5/8 3/4 7/16 3/8 2" Conduit
		2	commscope	WCS-IMFT-AMT-43		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS12/RRUS A2		
		3	kaelus	DBC0061F1V51-2		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		3	quintel technology	QS66512-6 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8C		
	1	raycap	DC6-48-60-18-8F			
	121.0	1	tower mounts	Platform Mount [LP 1201-1_HR-1]		
115.0	116.0	3	andrew	ETW200VS12UB	5 2 11	1-5/8 1-3/8 1-1/4
		3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe		
		3	ericsson	RADIO 4449 B12/B71		
		3	remec	S20070A1		
	3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe			
	115.0	1	tower mounts	Platform Mount [LP 1201-1_KCKR-HR-1]		
95.0	95.0	1	tower mounts	Pipe Mount [PM 601-3]	6	1-5/8
80.0	82.0	1	kathrein	OG-860/1920/GPS-A	1	1/2
	80.0	1	tower mounts	Side Arm Mount [SO 901-1]		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH, 08-12040E G1, 12/05/2008	1531894	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	PJF, 29299-549, 09/29/1999	1631615	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PJF, 29299-549, 10/29/1999	1630877	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 41709-0132, 12/2/2009	2547673	CCISITES
4-POST-MODIFICATION INSPECTION	PJF, 41709-0132, 12/04/2009	2547672	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37515-2876.001.7700 R1, 10/20/2015	6173982	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 25566, 04/21/2016	6234048	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 have been built and maintained in accordance with the manufacturer's specifications.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) Monopole was modified in conformance with the referenced modification drawings.
- 4) Base plate grout was not installed at the time of the analysis and has not been considered.

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
140 - 135	Pole	TP17.015x16x0.25	Pole	6.3%	Pass
135 - 130	Pole	TP18.03x17.015x0.25	Pole	12.5%	Pass
130 - 125	Pole	TP19.045x18.03x0.25	Pole	17.7%	Pass
125 - 120	Pole	TP20.061x19.045x0.25	Pole	25.6%	Pass
120 - 115	Pole	TP21.076x20.061x0.25	Pole	36.4%	Pass
115 - 110	Pole	TP22.091x21.076x0.25	Pole	51.1%	Pass
110 - 105	Pole	TP23.106x22.091x0.25	Pole	63.3%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
105 - 104	Pole	TP23.309x23.106x0.25	Pole	65.5%	Pass
104 - 103.75	Pole + Reinf.	TP23.36x23.309x0.4625	Reinf. 9 Tension Rupture	60.8%	Pass
103.75 - 98.75	Pole + Reinf.	TP24.375x23.36x0.45	Reinf. 9 Tension Rupture	73.9%	Pass
98.75 - 98.5	Pole + Reinf.	TP24.426x24.375x0.45	Reinf. 9 Tension Rupture	74.5%	Pass
98.5 - 98.25	Pole + Reinf.	TP24.476x24.426x0.725	Reinf. 9 Tension Rupture	48.1%	Pass
98.25 - 97	Pole + Reinf.	TP24.73x24.476x0.725	Reinf. 9 Tension Rupture	50.1%	Pass
97 - 96.75	Pole + Reinf.	TP24.781x24.73x0.5125	Reinf. 5 Tension Rupture	59.6%	Pass
96.75 - 91.75	Pole + Reinf.	TP26.456x24.781x0.5	Reinf. 5 Tension Rupture	68.4%	Pass
91.75 - 88.17	Pole + Reinf.	TP26.023x25.296x0.5625	Reinf. 5 Tension Rupture	67.8%	Pass
88.17 - 87.92	Pole + Reinf.	TP26.074x26.023x0.7625	Reinf. 5 Tension Rupture	53.0%	Pass
87.92 - 82.92	Pole + Reinf.	TP27.089x26.074x0.7375	Reinf. 5 Tension Rupture	58.5%	Pass
82.92 - 77.92	Pole + Reinf.	TP28.104x27.089x0.725	Reinf. 5 Tension Rupture	63.5%	Pass
77.92 - 72.92	Pole + Reinf.	TP29.12x28.104x0.7125	Reinf. 5 Tension Rupture	68.2%	Pass
72.92 - 68.08	Pole + Reinf.	TP30.102x29.12x0.6875	Reinf. 5 Tension Rupture	72.3%	Pass
68.08 - 67.83	Pole + Reinf.	TP30.153x30.102x0.8125	Reinf. 7 Tension Rupture	61.8%	Pass
67.83 - 62.83	Pole + Reinf.	TP31.168x30.153x0.7875	Reinf. 7 Tension Rupture	65.5%	Pass
62.83 - 57.83	Pole + Reinf.	TP32.184x31.168x0.7625	Reinf. 7 Tension Rupture	69.0%	Pass
57.83 - 52.83	Pole + Reinf.	TP33.199x32.184x0.75	Reinf. 7 Tension Rupture	72.3%	Pass
52.83 - 51.5	Pole + Reinf.	TP34.332x33.199x0.75	Reinf. 7 Tension Rupture	73.2%	Pass
51.5 - 46.5	Pole + Reinf.	TP33.859x32.844x0.8	Reinf. 7 Tension Rupture	72.4%	Pass
46.5 - 41.5	Pole + Reinf.	TP34.874x33.859x0.8	Reinf. 7 Tension Rupture	75.0%	Pass
41.5 - 37.75	Pole + Reinf.	TP35.636x34.874x0.775	Reinf. 7 Tension Rupture	76.9%	Pass
37.75 - 37.5	Pole + Reinf.	TP35.686x35.636x0.8	Reinf. 2 Tension Rupture	75.3%	Pass
37.5 - 32.5	Pole + Reinf.	TP36.702x35.686x0.775	Reinf. 2 Tension Rupture	77.4%	Pass
32.5 - 32.25	Pole + Reinf.	TP36.752x36.702x0.825	Reinf. 2 Tension Rupture	73.5%	Pass
32.25 - 27.25	Pole + Reinf.	TP37.767x36.752x0.8125	Reinf. 2 Tension Rupture	75.5%	Pass
27.25 - 23.5	Pole + Reinf.	TP38.529x37.767x0.8	Reinf. 2 Tension Rupture	76.9%	Pass
23.5 - 23.25	Pole + Reinf.	TP38.58x38.529x0.9	Reinf. 2 Tension Rupture	72.3%	Pass
23.25 - 20.75	Pole + Reinf.	TP39.087x38.58x0.9	Reinf. 2 Tension Rupture	73.1%	Pass
20.75 - 20.5	Pole + Reinf.	TP39.138x39.087x0.85	Reinf. 2 Tension Rupture	74.1%	Pass
20.5 - 15.5	Pole + Reinf.	TP40.153x39.138x0.825	Reinf. 2 Tension Rupture	75.8%	Pass
15.5 - 10.5	Pole + Reinf.	TP41.168x40.153x0.825	Reinf. 2 Tension Rupture	77.3%	Pass
10.5 - 5.5	Pole + Reinf.	TP42.183x41.168x0.8	Reinf. 2 Tension Rupture	78.8%	Pass
5.5 - 3	Pole + Reinf.	TP42.691x42.183x0.8	Reinf. 2 Tension Rupture	79.5%	Pass
3 - 2.75	Pole + Reinf.	TP42.742x42.691x0.95	Reinf. 10 Connection	79.9%	Pass
2.75 - 1.75	Pole + Reinf.	TP42.945x42.742x0.95	Reinf. 10 Compression	80.2%	Pass
1.75 - 1.5	Pole + Reinf.	TP42.995x42.945x1.125	Reinf. 10 Compression	69.8%	Pass
1.5 - 0	Pole + Reinf.	TP43.3x42.995x1.1	Reinf. 10 Connection	70.2%	Pass
				Summary	
			Pole	65.5%	Pass
			Reinforcement	80.2%	Pass
			Overall	80.2%	Pass

**Table 5 - Tower Component Stresses vs. Capacity – LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	81.9	Pass
1	Base Plate	0	61.2	Pass
1	Base Foundation Soil Interaction	0	52.2	Pass
1	Base Foundation Structural Steel	0	52.0	Pass

<b>Structure Rating (max from all components) =</b>	<b>81.9%</b>
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Notes:

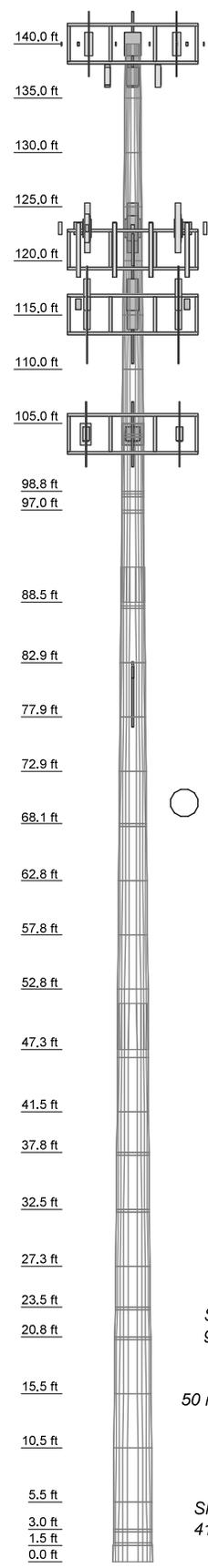
- All structural ratings are per TIA-222-H Section 15.5.
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

**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**

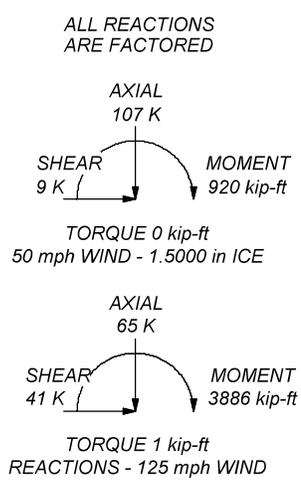
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	16.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
2	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
3	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
4	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
5	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
6	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
7	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
8	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
9	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
10	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
11	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
12	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
13	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
14	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
15	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
16	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
17	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
18	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
19	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
20	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
21	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
22	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
23	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
24	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
25	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
26	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
27	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
28	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
29	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
30	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
31	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
32	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
33	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
34	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
35	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
36	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
37	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
38	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
39	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
40	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
41	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
42	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
43	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
44	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
45	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
46	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
47	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
48	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
49	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
50	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
51	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
52	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
53	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
54	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
55	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
56	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
57	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
58	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
59	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
60	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
61	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
62	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
63	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
64	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
65	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
66	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
67	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
68	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
69	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
70	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
71	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
72	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
73	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
74	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
75	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
76	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
77	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
78	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
79	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
80	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
81	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
82	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
83	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
84	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
85	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
86	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
87	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
88	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
89	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
90	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
91	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
92	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
93	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
94	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
95	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
96	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
97	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
98	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
99	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2
100	5.0000	12	0.2500	3.2500	40.1531	41.1682	1.8	0.2



MATERIAL STRENGTH					
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 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 0.0000 ft
8. TIA-222-H Annex S



 <b>Paul J. Ford and Company</b> 250 E. Broad St., Ste 600 Columbus, OH 43215 Phone: 614-221-6679 FAX:	Job: <b>140-Ft Monopole / Bic Drive (SSUSA)</b>
	Project: <b>PJF# 37520-0091 / BU# 876342</b>
	Client: <b>Crown Castle</b> Drawn by: <b>Robert Kozak</b> App'd:
	Code: <b>TIA-222-H</b> Date: <b>01/14/20</b> Scale: <b>NTS</b>
	Path:

## 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 New Haven County, Connecticut.
- 2) Tower base elevation above sea level: 44.0000 ft.
- 3) Basic wind speed of 125 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: 0.0000 ft.
- 9) Nominal ice thickness of 1.5000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56.00 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °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;"><b>Poles</b></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	140.0000- 135.0000	5.0000	0.00	12	16.0000	17.0151	0.2500	1.0000	A572-65 (65 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
L2	135.0000-130.0000	5.0000	0.00	12	17.0151	18.0303	0.2500	1.0000	A572-65 (65 ksi)
L3	130.0000-125.0000	5.0000	0.00	12	18.0303	19.0454	0.2500	1.0000	A572-65 (65 ksi)
L4	125.0000-120.0000	5.0000	0.00	12	19.0454	20.0606	0.2500	1.0000	A572-65 (65 ksi)
L5	120.0000-115.0000	5.0000	0.00	12	20.0606	21.0757	0.2500	1.0000	A572-65 (65 ksi)
L6	115.0000-110.0000	5.0000	0.00	12	21.0757	22.0909	0.2500	1.0000	A572-65 (65 ksi)
L7	110.0000-105.0000	5.0000	0.00	12	22.0909	23.1060	0.2500	1.0000	A572-65 (65 ksi)
L8	105.0000-104.0000	1.0000	0.00	12	23.1060	23.3090	0.2500	1.0000	A572-65 (65 ksi)
L9	104.0000-103.7500	0.2500	0.00	12	23.3090	23.3598	0.4625	1.8500	A572-65 (65 ksi)
L10	103.7500-98.7500	5.0000	0.00	12	23.3598	24.3750	0.4500	1.8000	A572-65 (65 ksi)
L11	98.7500-98.5000	0.2500	0.00	12	24.3750	24.4257	0.4500	1.8000	A572-65 (65 ksi)
L12	98.5000-98.2500	0.2500	0.00	12	24.4257	24.4765	0.7250	2.9000	A572-65 (65 ksi)
L13	98.2500-97.0000	1.2500	0.00	12	24.4765	24.7303	0.7250	2.9000	A572-65 (65 ksi)
L14	97.0000-96.7500	0.2500	0.00	12	24.7303	24.7810	0.5125	2.0500	A572-65 (65 ksi)
L15	96.7500-88.5000	8.2500	3.25	12	24.7810	26.4560	0.5000	2.0000	A572-65 (65 ksi)
L16	88.5000-88.1700	3.5800	0.00	12	25.2962	26.0231	0.5625	2.2500	A572-65 (65 ksi)
L17	88.1700-87.9200	0.2500	0.00	12	26.0231	26.0738	0.7625	3.0500	A572-65 (65 ksi)
L18	87.9200-82.9200	5.0000	0.00	12	26.0738	27.0891	0.7375	2.9500	A572-65 (65 ksi)
L19	82.9200-77.9200	5.0000	0.00	12	27.0891	28.1044	0.7250	2.9000	A572-65 (65 ksi)
L20	77.9200-72.9200	5.0000	0.00	12	28.1044	29.1196	0.7125	2.8500	A572-65 (65 ksi)
L21	72.9200-68.0800	4.8400	0.00	12	29.1196	30.1024	0.6875	2.7500	A572-65 (65 ksi)
L22	68.0800-67.8300	0.2500	0.00	12	30.1024	30.1532	0.8125	3.2500	A572-65 (65 ksi)
L23	67.8300-62.8300	5.0000	0.00	12	30.1532	31.1684	0.7875	3.1500	A572-65 (65 ksi)
L24	62.8300-57.8300	5.0000	0.00	12	31.1684	32.1837	0.7625	3.0500	A572-65 (65 ksi)
L25	57.8300-52.8300	5.0000	0.00	12	32.1837	33.1990	0.7500	3.0000	A572-65 (65 ksi)
L26	52.8300-47.2500	5.5800	4.25	12	33.1990	34.3320	0.7500	3.0000	A572-65 (65 ksi)
L27	47.2500-46.5000	5.0000	0.00	12	32.8440	33.8592	0.8000	3.2000	A572-65 (65 ksi)
L28	46.5000-41.5000	5.0000	0.00	12	33.8592	34.8743	0.8000	3.2000	A572-65 (65 ksi)
L29	41.5000-37.7500	3.7500	0.00	12	34.8743	35.6357	0.7750	3.1000	A572-65 (65 ksi)
L30	37.7500-37.5000	0.2500	0.00	12	35.6357	35.6864	0.8000	3.2000	A572-65 (65 ksi)
L31	37.5000-32.5000	5.0000	0.00	12	35.6864	36.7016	0.7750	3.1000	A572-65 (65 ksi)
L32	32.5000-32.2500	0.2500	0.00	12	36.7016	36.7523	0.8250	3.3000	A572-65 (65 ksi)
L33	32.2500-27.2500	5.0000	0.00	12	36.7523	37.7675	0.8125	3.2500	A572-65 (65 ksi)
L34	27.2500-23.5000	3.7500	0.00	12	37.7675	38.5288	0.8000	3.2000	A572-65 (65 ksi)
L35	23.5000-23.2500	0.2500	0.00	12	38.5288	38.5796	0.9000	3.6000	A572-65 (65 ksi)
L36	23.2500-	2.5000	0.00	12	38.5796	39.0872	0.9000	3.6000	A572-65

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
L37	20.7500 20.7500- 20.5000	0.2500	0.00	12	39.0872	39.1379	0.8500	3.4000	(65 ksi) A572-65
L38	20.5000- 15.5000	5.0000	0.00	12	39.1379	40.1531	0.8250	3.3000	(65 ksi) A572-65
L39	15.5000- 10.5000	5.0000	0.00	12	40.1531	41.1682	0.8250	3.3000	(65 ksi) A572-65
L40	10.5000- 5.5000	5.0000	0.00	12	41.1682	42.1833	0.8000	3.2000	(65 ksi) A572-65
L41	5.5000-3.0000	2.5000	0.00	12	42.1833	42.6909	0.8000	3.2000	(65 ksi) A572-65
L42	3.0000-2.7500	0.2500	0.00	12	42.6909	42.7417	0.9500	3.8000	(65 ksi) A572-65
L43	2.7500-1.7500	1.0000	0.00	12	42.7417	42.9447	0.9500	3.8000	(65 ksi) A572-65
L44	1.7500-1.5000	0.2500	0.00	12	42.9447	42.9955	1.1250	4.5000	(65 ksi) A572-65
L45	1.5000-0.0000	1.5000		12	42.9955	43.3000	1.1000	4.4000	(65 ksi) A572-65

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	16.4762	12.6788	401.4426	5.6385	8.2880	48.4366	813.4316	6.2401	3.6180	14.472
	17.5272	13.4959	484.1767	6.0019	8.8138	54.9336	981.0732	6.6423	3.8901	15.56
L2	17.5272	13.4959	484.1767	6.0019	8.8138	54.9336	981.0732	6.6423	3.8901	15.56
	18.5781	14.3131	577.5618	6.3653	9.3397	61.8395	1170.2967	7.0445	4.1621	16.648
L3	18.5781	14.3131	577.5618	6.3653	9.3397	61.8395	1170.2967	7.0445	4.1621	16.648
	19.6291	15.1303	682.2430	6.7288	9.8655	69.1542	1382.4094	7.4467	4.4342	17.737
L4	19.6291	15.1303	682.2430	6.7288	9.8655	69.1542	1382.4094	7.4467	4.4342	17.737
	20.6801	15.9475	798.8654	7.0922	10.3914	76.8777	1618.7178	7.8489	4.7062	18.825
L5	20.6801	15.9475	798.8654	7.0922	10.3914	76.8777	1618.7178	7.8489	4.7062	18.825
	21.7310	16.7647	928.0736	7.4556	10.9172	85.0100	1880.5287	8.2511	4.9783	19.913
L6	21.7310	16.7647	928.0736	7.4556	10.9172	85.0100	1880.5287	8.2511	4.9783	19.913
	22.7820	17.5819	1070.5128	7.8190	11.4431	93.5512	2169.1492	8.6533	5.2504	21.001
L7	22.7820	17.5819	1070.5128	7.8190	11.4431	93.5512	2169.1492	8.6533	5.2504	21.001
	23.8329	18.3991	1226.8278	8.1825	11.9689	102.5011	2485.8857	9.0555	5.5224	22.09
L8	23.8329	18.3991	1226.8278	8.1825	11.9689	102.5011	2485.8857	9.0555	5.5224	22.09
	24.0431	18.5625	1259.8128	8.2551	12.0741	104.3402	2552.7222	9.1359	5.5768	22.307
L9	23.9682	34.0242	2266.8114	8.1791	12.0741	187.7418	4593.1744	16.7457	5.0073	10.827
	24.0207	34.0998	2281.9531	8.1972	12.1004	188.5853	4623.8557	16.7829	5.0209	10.856
L10	24.0251	33.1963	2223.9170	8.2017	12.1004	183.7890	4506.2587	16.3382	5.0544	11.232
	25.0761	34.6673	2532.8385	8.5651	12.6262	200.6014	5132.2176	17.0622	5.3265	11.837
L11	25.0761	34.6673	2532.8385	8.5651	12.6262	200.6014	5132.2176	17.0622	5.3265	11.837
	25.1286	34.7408	2548.9934	8.5833	12.6525	201.4614	5164.9517	17.0984	5.3401	11.867
L12	25.0316	55.3293	3967.0150	8.4849	12.6525	313.5356	8038.2479	27.2314	4.6031	6.349
	25.0841	55.4478	3992.5567	8.5030	12.6788	314.9000	8090.0023	27.2897	4.6167	6.368
L13	25.0841	55.4478	3992.5567	8.5030	12.6788	314.9000	8090.0023	27.2897	4.6167	6.368
	25.3469	56.0403	4121.9113	8.5939	12.8103	321.7661	8352.1097	27.5813	4.6847	6.462
L14	25.4219	39.9653	2991.8318	8.6700	12.8103	233.5495	6062.2624	19.6697	5.2542	10.252
	25.4744	40.0491	3010.6830	8.6881	12.8366	234.5396	6100.4600	19.7110	5.2678	10.279
L15	25.4788	39.0924	2941.7927	8.6926	12.8366	229.1729	5960.8696	19.2401	5.3013	10.603
	27.2129	41.7892	3593.5618	9.2922	13.7042	262.2232	7281.5305	20.5674	5.7502	11.5
L16	26.6733	44.7988	3498.0760	8.8546	13.1034	266.9592	7088.0504	22.0486	5.2719	9.372
	26.7427	46.1155	3815.6579	9.1149	13.4800	283.0616	7731.5574	22.6966	5.4667	9.719
L17	26.6721	62.0210	5051.4008	9.0433	13.4800	374.7342	10235.507	30.5249	4.9307	6.466
	26.7247	62.1457	5081.9155	9.0615	13.5063	376.2639	10297.338	30.5862	4.9443	6.484
							6			
L18	26.7335	60.1675	4929.8743	9.0704	13.5063	365.0068	9989.2618	29.6126	5.0113	6.795
	27.7845	62.5785	5546.5810	9.4339	14.0322	395.2764	11238.876	30.7992	5.2834	7.164
							8			
L19	27.7890	61.5470	5460.3342	9.4384	14.0322	389.1300	11064.117	30.2916	5.3169	7.334
	28.8400	63.9171	6115.7591	9.8018	14.5581	420.0942	12392.186	31.4581	5.5890	7.709
							4			

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L20	28.8444	62.8438	6018.5507	9.8063	14.5581	413.4169	12195.215	30.9298	5.6225	7.891
	29.8955	65.1731	6712.8832	10.1698	15.0840	445.0342	13602.121	32.0762	5.8946	8.273
L21	29.9043	62.9416	6494.4598	10.1787	15.0840	430.5537	13159.536	30.9780	5.9616	8.671
	30.9218	65.1173	7191.4619	10.5305	15.5930	461.1966	14571.851	32.0487	6.2249	9.054
L22	30.8777	76.6297	8391.1096	10.4858	15.5930	538.1314	17002.662	37.7148	5.8899	7.249
	30.9302	76.7625	8434.8145	10.5040	15.6193	540.0236	17091.221	37.7802	5.9036	7.266
L23	30.9391	74.4640	8196.1971	10.5129	15.6193	524.7465	16607.717	36.6489	5.9706	7.582
	31.9901	77.0385	9076.0308	10.8764	16.1453	562.1486	18390.499	37.9160	6.2426	7.927
L24	31.9990	74.6542	8809.6150	10.8853	16.1453	545.6474	17850.668	36.7425	6.3096	8.275
	33.0500	77.1469	9721.8764	11.2488	16.6712	583.1554	19699.157	37.9694	6.5817	8.632
L25	33.0544	75.9124	9573.9184	11.2533	16.6712	574.2803	19399.354	37.3618	6.6152	8.82
	34.1055	78.3643	10531.874	11.6167	17.1971	612.4228	21340.432	38.5685	6.8873	9.183
L26	34.1055	78.3643	10531.874	11.6167	17.1971	612.4228	21340.432	38.5685	6.8873	9.183
	35.2785	81.1005	11674.082	12.0224	17.7840	656.4383	23654.856	39.9152	7.1910	9.588
L27	34.6137	82.5454	10818.649	11.4718	17.0132	635.8972	21921.516	40.6263	6.6582	8.323
	34.7714	85.1604	11879.758	11.8352	17.5390	677.3319	24071.611	41.9134	6.9303	8.663
L28	34.7714	85.1604	11879.758	11.8352	17.5390	677.3319	24071.611	41.9134	6.9303	8.663
	35.8223	87.7754	13008.076	12.1986	18.0649	720.0749	26357.890	43.2004	7.2023	9.003
L29	35.8312	85.0948	12629.331	12.2076	18.0649	699.1091	25590.450	41.8811	7.2693	9.38
	36.6194	86.9948	13494.311	12.4801	18.4593	731.0314	27343.132	42.8162	7.4734	9.643
L30	36.6106	89.7367	13899.664	12.4712	18.4593	752.9907	28164.488	44.1657	7.4064	9.258
	36.6631	89.8674	13960.510	12.4893	18.4856	755.2113	28287.778	44.2300	7.4200	9.275
L31	36.6719	87.1215	13553.339	12.4983	18.4856	733.1849	27462.740	42.8785	7.4870	9.661
	37.7229	89.6548	14770.350	12.8617	19.0114	776.9202	29928.733	44.1253	7.7590	10.012
L32	37.7052	95.3061	15657.719	12.8438	19.0114	823.5958	31726.785	46.9068	7.6250	9.242
	37.7578	95.4409	15724.269	12.8620	19.0377	825.9541	31861.634	46.9731	7.6386	9.259
L33	37.7622	94.0276	15502.193	12.8665	19.0377	814.2889	31411.645	46.2775	7.6721	9.443
	38.8131	96.6834	16853.253	13.2299	19.5635	861.4620	34149.260	47.5846	7.9442	9.777
L34	38.8176	95.2282	16610.817	13.2344	19.5635	849.0697	33658.018	46.8684	7.9777	9.972
	39.6058	97.1895	17658.415	13.5069	19.9579	884.7818	35780.736	47.8337	8.1817	10.227
L35	39.5705	109.0483	19708.173	13.4711	19.9579	987.4857	39934.102	53.6703	7.9137	8.793
	39.6230	109.1954	19788.034	13.4893	19.9842	990.1827	40095.923	53.7427	7.9273	8.808
L36	39.6230	109.1954	19788.034	13.4893	19.9842	990.1827	40095.923	53.7427	7.9273	8.808
	40.1485	110.6664	20598.532	13.6710	20.2471	1017.3548	41738.211	54.4666	8.0634	8.959
L37	40.1662	104.6551	19530.685	13.6889	20.2471	964.6142	39574.464	51.5081	8.1974	9.644

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
	40.2187	104.7940	19608.5659	13.7071	20.2734	967.2047	39732.2707	51.5764	8.2110	9.66
L38	40.2275	101.7783	19069.1488	13.7160	20.2734	940.5976	38639.2636	50.0922	8.2780	10.034
	41.2785	104.4750	20625.4391	14.0794	20.7993	991.6418	41792.7329	51.4194	8.5500	10.364
L39	41.2785	104.4750	20625.4394	14.0794	20.7993	991.6418	41792.7320	51.4194	8.5500	10.364
	42.3294	107.1717	22264.1832	14.4429	21.3251	1044.0352	45113.2714	52.7467	8.8221	10.693
L40	42.3382	103.9885	21629.6719	14.4518	21.3251	1014.2810	43827.5793	51.1800	8.8891	11.111
	43.3892	106.6035	23302.8222	14.8152	21.8510	1066.4433	47217.8354	52.4670	9.1611	11.451
L41	43.3892	106.6035	23302.8222	14.8152	21.8510	1066.4433	47217.8354	52.4670	9.1611	11.451
	43.9147	107.9110	24170.8163	14.9969	22.1139	1093.0150	48976.6268	53.1105	9.2972	11.621
L42	43.8618	127.6855	28395.6158	14.9432	22.1139	1284.0622	57537.2160	62.8429	8.8952	9.363
	43.9143	127.8407	28499.3291	14.9614	22.1402	1287.2218	57747.3673	62.9193	8.9088	9.378
L43	43.9143	127.8407	28499.3291	14.9614	22.1402	1287.2218	57747.3673	62.9193	8.9088	9.378
	44.1245	128.4618	28916.7098	15.0341	22.2454	1299.8988	58593.0938	63.2250	8.9632	9.435
L44	44.0628	151.4919	33817.1562	14.9715	22.2454	1520.1896	68522.7267	74.5597	8.4942	7.55
	44.1153	151.6757	33940.4384	14.9896	22.2716	1523.9303	68772.5299	74.6502	8.5078	7.562
L45	44.1241	148.3937	33245.6864	14.9986	22.2716	1492.7359	67364.7739	73.0349	8.5748	7.795
	44.4394	149.4724	33975.9696	15.1076	22.4294	1514.7962	68844.5258	73.5658	8.6564	7.869

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
L1 140.0000- 135.0000				1	1	1			
L2 135.0000- 130.0000				1	1	1			
L3 130.0000- 125.0000				1	1	1			
L4 125.0000- 120.0000				1	1	1			
L5 120.0000- 115.0000				1	1	1			
L6 115.0000- 110.0000				1	1	1			
L7 110.0000- 105.0000				1	1	1			
L8 105.0000- 104.0000				1	1	1			
L9 104.0000- 103.7500				1	1	0.942021			
L10 103.7500- 98.7500				1	1	0.950174			
L11 98.7500- 98.5000				1	1	0.949339			
L12 98.5000- 98.2500				1	1	0.901676			
L13 98.2500- 97.0000				1	1	0.895789			
L14 97.0000-				1	1	0.916918			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	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
ft	ft <sup>2</sup>	in							
L15 96.7500-88.5000				1	1	0.921726			
L16 88.5000-88.1700				1	1	0.929093			
L17 88.1700-87.9200				1	1	0.980317			
L18 87.9200-82.9200				1	1	0.989862			
L19 82.9200-77.9200				1	1	0.985114			
L20 77.9200-72.9200				1	1	0.981806			
L21 72.9200-68.0800				1	1	0.997834			
L22 68.0800-67.8300				1	1	0.957491			
L23 67.8300-62.8300				1	1	0.967322			
L24 62.8300-57.8300				1	1	0.979205			
L25 57.8300-52.8300				1	1	0.97703			
L26 52.8300-47.2500				1	1	0.972405			
L27 47.2500-46.5000				1	1	0.985251			
L28 46.5000-41.5000				1	1	0.969863			
L29 41.5000-37.7500				1	1	0.989134			
L30 37.7500-37.5000				1	1	0.978813			
L31 37.5000-32.5000				1	1	0.994807			
L32 32.5000-32.2500				1	1	1.00203			
L33 32.2500-27.2500				1	1	1.00183			
L34 27.2500-23.5000				1	1	1.00607			
L35 23.5000-23.2500				1	1	1.05137			
L36 23.2500-20.7500				1	1	1.04294			
L37 20.7500-20.5000				1	1	1.00335			
L38 20.5000-15.5000				1	1	1.01814			
L39 15.5000-10.5000				1	1	1.00396			
L40 10.5000-5.5000				1	1	1.02081			
L41 5.5000-3.0000				1	1	1.01412			
L42 3.0000-2.7500				1	1	0.878537			
L43 2.7500-1.7500				1	1	0.876198			
L44 1.7500-1.5000				1	1	0.802715			
L45 1.5000-0.0000				1	1	0.817007			

### 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
WR-VG86ST-BRD(3/4)	C	No	Surface Ar (CaAa)	121.0000 - 0.0000	2	2	-0.317 -0.283	0.7950		0.00
FB-L98B-002-75000(3/8)	C	No	Surface Ar (CaAa)	121.0000 - 0.0000	1	1	-0.325 -0.325	0.3937		0.00
HCS 6X12 6AWG(1-3/8)	B	No	Surface Ar (CaAa)	115.0000 - 0.0000	2	2	-0.125 -0.083	1.3800		0.00
HJ7-50A(1-5/8)	B	No	Surface Ar (CaAa)	115.0000 - 0.0000	5	5	-0.033 0.158	1.9800		0.00
***										
CR 50 1873(1-5/8)	C	No	Surface Ar (CaAa)	95.0000 - 0.0000	6	6	0.117 0.333	1.9800		0.00
MP3-08 (L)	A	No	Surface Af (CaAa)	41.7500 - 0.0000	1	1	-0.250 -0.250	7.9300	21.4600	0.00
MP3-08 (L)	B	No	Surface Af (CaAa)	41.7500 - 0.0000	1	1	-0.250 -0.250	7.9300	21.4600	0.00
MP3-08 (L)	C	No	Surface Af (CaAa)	41.7500 - 16.7500	1	1	-0.250 -0.250	7.9300	21.4600	0.00
MP3-06 (W)	C	No	Surface Af (CaAa)	26.7500 - 0.0000	1	1	0.000 0.000	6.8900	19.0000	0.00
MP3-06 (L)	C	No	Surface Af (CaAa)	26.7500 - 0.0000	1	1	-0.500 -0.500	6.8900	19.0000	0.00
MP3-06 (L)	A	No	Surface Af (CaAa)	71.7500 - 41.7500	1	1	-0.250 -0.250	6.8900	19.0000	0.00
MP3-06 (L)	C	No	Surface Af (CaAa)	71.7500 - 41.7500	1	1	-0.250 -0.250	6.8900	19.0000	0.00
MP3-06 (L)	B	No	Surface Af (CaAa)	71.7500 - 41.7500	1	1	-0.250 -0.250	6.8900	19.0000	0.00
MP3-05 (L)	A	No	Surface Af (CaAa)	100.7500 - 71.7500	1	1	-0.250 -0.250	5.3300	14.8400	0.00
MP3-05 (L)	C	No	Surface Af (CaAa)	100.7500 - 71.7500	1	1	-0.250 -0.250	5.3300	14.8400	0.00
MP3-05 (L)	B	No	Surface Af (CaAa)	100.7500 - 71.7500	1	1	-0.250 -0.250	5.3300	14.8400	0.00
CCI-065125 (L)	B	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	-0.500 -0.500	6.5000	15.5000	0.00
CCI-065125 (L)	C	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	0.250 0.250	6.5000	15.5000	0.00
CCI-065125 (L)	B	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	0.250 0.250	6.5000	15.5000	0.00
CCI-060100 (L)	B	No	Surface Af (CaAa)	90.6700 - 35.5000	1	1	-0.500 -0.500	6.0000	14.0000	0.00
CCI-060100 (L)	C	No	Surface Af (CaAa)	90.6700 - 35.5000	1	1	0.250 0.250	6.0000	14.0000	0.00
CCI-060100 (L)	B	No	Surface Af (CaAa)	90.6700 - 35.5000	1	1	0.250 0.250	6.0000	14.0000	0.00
CCI-045100 (L)	A	No	Surface Af (CaAa)	105.5000 - 95.5000	1	1	0.250 0.250	4.5000	11.0000	0.00
CCI-045100 (L)	C	No	Surface Af (CaAa)	105.5000 - 95.5000	1	1	0.250 0.250	4.5000	11.0000	0.00
CCI-045100 (L)	B	No	Surface Af (CaAa)	105.5000 - 95.5000	1	1	0.250 0.250	4.5000	11.0000	0.00

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA	Weight klf
LDF4-50A(1/2)	C	No	No	Inside Pole	140.0000 - 0.0000	1	0.0000	0.00
							No Ice	0.0000
							1/2" Ice	0.0000
							1" Ice	0.0000
							2" Ice	0.0000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>AA</sub> ft <sup>2</sup> /ft	Weight klf
LDF7-50A(1-5/8)	C	No	No	Inside Pole	140.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
HB114-1-0813U4-M5J(1-1/4)	C	No	No	Inside Pole	140.0000 - 0.0000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	121.0000 - 0.0000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	121.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
WR-VG122ST-BRDA(7/16)	C	No	No	Inside Pole	121.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
2 1/2" (Nominal) Conduit	C	No	No	Inside Pole	121.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.01 0.01 0.01 0.01
***									
LDF6-50A(1-1/4)	C	No	No	Inside Pole	115.0000 - 0.0000	11	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	104.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	104.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
***									
***									
LDF4-50A(1/2)	C	No	No	Inside Pole	80.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00
***									
***									

**Feed Line/Linear Appurtenances Section Areas**

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	140.0000-135.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L2	135.0000-130.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	130.0000-125.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L4	125.0000-120.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Sectio n	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
		C	0.000	0.000	0.198	0.000	0.05
L5	120.0000- 115.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.992	0.000	0.16
L6	115.0000- 110.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	6.330	0.000	0.04
		C	0.000	0.000	0.992	0.000	0.19
L7	110.0000- 105.0000	A	0.000	0.000	0.375	0.000	0.00
		B	0.000	0.000	6.705	0.000	0.04
		C	0.000	0.000	1.367	0.000	0.19
L8	105.0000- 104.0000	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	2.016	0.000	0.01
		C	0.000	0.000	0.948	0.000	0.04
L9	104.0000- 103.7500	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	0.504	0.000	0.00
		C	0.000	0.000	0.237	0.000	0.01
L10	103.7500- 98.7500	A	0.000	0.000	5.527	0.000	0.00
		B	0.000	0.000	11.857	0.000	0.04
		C	0.000	0.000	6.519	0.000	0.23
L11	98.7500-98.5000	A	0.000	0.000	0.410	0.000	0.00
		B	0.000	0.000	0.726	0.000	0.00
		C	0.000	0.000	0.459	0.000	0.01
L12	98.5000-98.2500	A	0.000	0.000	0.410	0.000	0.00
		B	0.000	0.000	0.726	0.000	0.00
		C	0.000	0.000	0.459	0.000	0.01
L13	98.2500-97.0000	A	0.000	0.000	2.048	0.000	0.00
		B	0.000	0.000	3.630	0.000	0.01
		C	0.000	0.000	2.296	0.000	0.06
L14	97.0000-96.7500	A	0.000	0.000	0.410	0.000	0.00
		B	0.000	0.000	0.726	0.000	0.00
		C	0.000	0.000	0.459	0.000	0.01
L15	96.7500-88.5000	A	0.000	0.000	8.266	0.000	0.00
		B	0.000	0.000	23.051	0.000	0.07
		C	0.000	0.000	19.795	0.000	0.41
L16	88.5000-88.1700	A	0.000	0.000	0.293	0.000	0.00
		B	0.000	0.000	1.371	0.000	0.00
		C	0.000	0.000	1.081	0.000	0.02
L17	88.1700-87.9200	A	0.000	0.000	0.222	0.000	0.00
		B	0.000	0.000	1.039	0.000	0.00
		C	0.000	0.000	0.819	0.000	0.01
L18	87.9200-82.9200	A	0.000	0.000	4.442	0.000	0.00
		B	0.000	0.000	20.772	0.000	0.04
		C	0.000	0.000	16.374	0.000	0.25
L19	82.9200-77.9200	A	0.000	0.000	4.442	0.000	0.00
		B	0.000	0.000	20.772	0.000	0.04
		C	0.000	0.000	16.374	0.000	0.25
L20	77.9200-72.9200	A	0.000	0.000	4.442	0.000	0.00
		B	0.000	0.000	20.772	0.000	0.04
		C	0.000	0.000	16.374	0.000	0.25
L21	72.9200-68.0800	A	0.000	0.000	5.254	0.000	0.00
		B	0.000	0.000	21.061	0.000	0.04
		C	0.000	0.000	16.804	0.000	0.25
L22	68.0800-67.8300	A	0.000	0.000	0.287	0.000	0.00
		B	0.000	0.000	1.104	0.000	0.00
		C	0.000	0.000	0.884	0.000	0.01
L23	67.8300-62.8300	A	0.000	0.000	5.742	0.000	0.00
		B	0.000	0.000	22.072	0.000	0.04
		C	0.000	0.000	17.674	0.000	0.25
L24	62.8300-57.8300	A	0.000	0.000	5.742	0.000	0.00
		B	0.000	0.000	22.072	0.000	0.04
		C	0.000	0.000	17.674	0.000	0.25
L25	57.8300-52.8300	A	0.000	0.000	5.742	0.000	0.00
		B	0.000	0.000	22.072	0.000	0.04
		C	0.000	0.000	17.674	0.000	0.25
L26	52.8300-47.2500	A	0.000	0.000	6.408	0.000	0.00
		B	0.000	0.000	24.632	0.000	0.05
		C	0.000	0.000	19.724	0.000	0.28
L27	47.2500-46.5000	A	0.000	0.000	0.861	0.000	0.00
		B	0.000	0.000	3.311	0.000	0.01

Tower Section n	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L28	46.5000-41.5000	C	0.000	0.000	2.651	0.000	0.04
		A	0.000	0.000	5.785	0.000	0.00
		B	0.000	0.000	22.115	0.000	0.04
L29	41.5000-37.7500	C	0.000	0.000	17.717	0.000	0.25
		A	0.000	0.000	4.956	0.000	0.00
		B	0.000	0.000	17.204	0.000	0.03
L30	37.7500-37.5000	C	0.000	0.000	13.905	0.000	0.19
		A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	1.147	0.000	0.00
L31	37.5000-32.5000	C	0.000	0.000	0.927	0.000	0.01
		A	0.000	0.000	6.608	0.000	0.00
		B	0.000	0.000	23.438	0.000	0.04
L32	32.5000-32.2500	C	0.000	0.000	18.790	0.000	0.25
		A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	1.189	0.000	0.00
L33	32.2500-27.2500	C	0.000	0.000	0.948	0.000	0.01
		A	0.000	0.000	6.608	0.000	0.00
		B	0.000	0.000	23.772	0.000	0.04
L34	27.2500-23.5000	C	0.000	0.000	18.957	0.000	0.25
		A	0.000	0.000	4.956	0.000	0.00
		B	0.000	0.000	17.829	0.000	0.03
L35	23.5000-23.2500	C	0.000	0.000	21.682	0.000	0.19
		A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	1.189	0.000	0.00
L36	23.2500-20.7500	C	0.000	0.000	1.522	0.000	0.01
		A	0.000	0.000	3.304	0.000	0.00
		B	0.000	0.000	11.886	0.000	0.02
L37	20.7500-20.5000	C	0.000	0.000	15.220	0.000	0.13
		A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	1.189	0.000	0.00
L38	20.5000-15.5000	C	0.000	0.000	1.522	0.000	0.01
		A	0.000	0.000	6.608	0.000	0.00
		B	0.000	0.000	23.772	0.000	0.04
L39	15.5000-10.5000	C	0.000	0.000	28.788	0.000	0.25
		A	0.000	0.000	6.608	0.000	0.00
		B	0.000	0.000	23.772	0.000	0.04
L40	10.5000-5.5000	C	0.000	0.000	23.832	0.000	0.25
		A	0.000	0.000	6.608	0.000	0.00
		B	0.000	0.000	23.772	0.000	0.04
L41	5.5000-3.0000	C	0.000	0.000	23.832	0.000	0.25
		A	0.000	0.000	3.304	0.000	0.00
		B	0.000	0.000	11.886	0.000	0.02
L42	3.0000-2.7500	C	0.000	0.000	11.916	0.000	0.13
		A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	1.189	0.000	0.00
L43	2.7500-1.7500	C	0.000	0.000	1.192	0.000	0.01
		A	0.000	0.000	1.322	0.000	0.00
		B	0.000	0.000	4.754	0.000	0.01
L44	1.7500-1.5000	C	0.000	0.000	4.766	0.000	0.05
		A	0.000	0.000	0.330	0.000	0.00
		B	0.000	0.000	1.189	0.000	0.00
L45	1.5000-0.0000	C	0.000	0.000	1.192	0.000	0.01
		A	0.000	0.000	1.983	0.000	0.00
		B	0.000	0.000	7.132	0.000	0.01
		C	0.000	0.000	7.150	0.000	0.08

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L1	140.0000-135.0000	A	1.471	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L2	135.0000-130.0000	A	1.465	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
		C		0.000	0.000	0.000	0.000	0.02
L3	130.0000-125.0000	A	1.459	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L4	125.0000-120.0000	A	1.454	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.892	0.000	0.06
L5	120.0000-115.0000	A	1.448	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	4.448	0.000	0.20
L6	115.0000-110.0000	A	1.441	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	11.516	0.000	0.16
		C		0.000	0.000	4.434	0.000	0.23
L7	110.0000-105.0000	A	1.435	0.000	0.000	0.456	0.000	0.00
		B		0.000	0.000	11.956	0.000	0.16
		C		0.000	0.000	4.875	0.000	0.24
L8	105.0000-104.0000	A	1.431	0.000	0.000	0.912	0.000	0.01
		B		0.000	0.000	3.210	0.000	0.04
		C		0.000	0.000	1.794	0.000	0.06
L9	104.0000-103.7500	A	1.430	0.000	0.000	0.228	0.000	0.00
		B		0.000	0.000	0.802	0.000	0.01
		C		0.000	0.000	0.448	0.000	0.02
L10	103.7500-98.7500	A	1.426	0.000	0.000	6.905	0.000	0.07
		B		0.000	0.000	18.384	0.000	0.22
		C		0.000	0.000	11.305	0.000	0.34
L11	98.7500-98.5000	A	1.423	0.000	0.000	0.521	0.000	0.01
		B		0.000	0.000	1.094	0.000	0.01
		C		0.000	0.000	0.741	0.000	0.02
L12	98.5000-98.2500	A	1.422	0.000	0.000	0.521	0.000	0.01
		B		0.000	0.000	1.094	0.000	0.01
		C		0.000	0.000	0.741	0.000	0.02
L13	98.2500-97.0000	A	1.421	0.000	0.000	2.605	0.000	0.03
		B		0.000	0.000	5.471	0.000	0.06
		C		0.000	0.000	3.702	0.000	0.09
L14	97.0000-96.7500	A	1.420	0.000	0.000	0.521	0.000	0.01
		B		0.000	0.000	1.094	0.000	0.01
		C		0.000	0.000	0.740	0.000	0.02
L15	96.7500-88.5000	A	1.414	0.000	0.000	10.799	0.000	0.10
		B		0.000	0.000	35.253	0.000	0.40
		C		0.000	0.000	32.744	0.000	0.72
L16	88.5000-88.1700	A	1.407	0.000	0.000	0.386	0.000	0.00
		B		0.000	0.000	1.988	0.000	0.02
		C		0.000	0.000	1.705	0.000	0.03
L17	88.1700-87.9200	A	1.406	0.000	0.000	0.292	0.000	0.00
		B		0.000	0.000	1.504	0.000	0.02
		C		0.000	0.000	1.290	0.000	0.02
L18	87.9200-82.9200	A	1.402	0.000	0.000	5.844	0.000	0.05
		B		0.000	0.000	30.066	0.000	0.31
		C		0.000	0.000	25.769	0.000	0.49
L19	82.9200-77.9200	A	1.394	0.000	0.000	5.835	0.000	0.05
		B		0.000	0.000	30.020	0.000	0.31
		C		0.000	0.000	25.723	0.000	0.49
L20	77.9200-72.9200	A	1.385	0.000	0.000	5.827	0.000	0.05
		B		0.000	0.000	29.971	0.000	0.31
		C		0.000	0.000	25.674	0.000	0.49
L21	72.9200-68.0800	A	1.376	0.000	0.000	6.585	0.000	0.06
		B		0.000	0.000	29.916	0.000	0.31
		C		0.000	0.000	25.757	0.000	0.48
L22	68.0800-67.8300	A	1.371	0.000	0.000	0.356	0.000	0.00
		B		0.000	0.000	1.560	0.000	0.02
		C		0.000	0.000	1.345	0.000	0.02
L23	67.8300-62.8300	A	1.365	0.000	0.000	7.107	0.000	0.06
		B		0.000	0.000	31.162	0.000	0.32
		C		0.000	0.000	26.865	0.000	0.49
L24	62.8300-57.8300	A	1.354	0.000	0.000	7.096	0.000	0.06
		B		0.000	0.000	31.103	0.000	0.31
		C		0.000	0.000	26.806	0.000	0.49
L25	57.8300-52.8300	A	1.343	0.000	0.000	7.084	0.000	0.06
		B		0.000	0.000	31.038	0.000	0.31

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>	Weight K
L26	52.8300-47.2500	C	1.329	0.000	0.000	26.742	0.000	0.49
		A		0.000	0.000	7.891	0.000	0.07
		B		0.000	0.000	34.556	0.000	0.34
L27	47.2500-46.5000	C	1.321	0.000	0.000	29.761	0.000	0.54
		A		0.000	0.000	1.061	0.000	0.01
		B		0.000	0.000	4.645	0.000	0.05
L28	46.5000-41.5000	C	1.312	0.000	0.000	4.000	0.000	0.07
		A		0.000	0.000	7.097	0.000	0.06
		B		0.000	0.000	30.914	0.000	0.30
L29	41.5000-37.7500	C	1.299	0.000	0.000	26.618	0.000	0.48
		A		0.000	0.000	5.930	0.000	0.05
		B		0.000	0.000	23.747	0.000	0.23
L30	37.7500-37.5000	C	1.292	0.000	0.000	20.524	0.000	0.36
		A		0.000	0.000	0.395	0.000	0.00
		B		0.000	0.000	1.581	0.000	0.02
L31	37.5000-32.5000	C	1.282	0.000	0.000	1.366	0.000	0.02
		A		0.000	0.000	7.891	0.000	0.07
		B		0.000	0.000	32.074	0.000	0.31
L32	32.5000-32.2500	C	1.273	0.000	0.000	27.528	0.000	0.49
		A		0.000	0.000	0.394	0.000	0.00
		B		0.000	0.000	1.618	0.000	0.02
L33	32.2500-27.2500	C	1.262	0.000	0.000	1.382	0.000	0.02
		A		0.000	0.000	7.870	0.000	0.06
		B		0.000	0.000	32.294	0.000	0.31
L34	27.2500-23.5000	C	1.242	0.000	0.000	27.581	0.000	0.48
		A		0.000	0.000	5.888	0.000	0.05
		B		0.000	0.000	24.138	0.000	0.23
L35	23.5000-23.2500	C	1.232	0.000	0.000	29.682	0.000	0.43
		A		0.000	0.000	0.392	0.000	0.00
		B		0.000	0.000	1.606	0.000	0.01
L36	23.2500-20.7500	C	1.224	0.000	0.000	2.068	0.000	0.03
		A		0.000	0.000	3.916	0.000	0.03
		B		0.000	0.000	16.044	0.000	0.15
L37	20.7500-20.5000	C	1.216	0.000	0.000	20.653	0.000	0.29
		A		0.000	0.000	0.391	0.000	0.00
		B		0.000	0.000	1.602	0.000	0.01
L38	20.5000-15.5000	C	1.200	0.000	0.000	2.062	0.000	0.03
		A		0.000	0.000	7.808	0.000	0.06
		B		0.000	0.000	31.954	0.000	0.29
L39	15.5000-10.5000	C	1.161	0.000	0.000	39.171	0.000	0.56
		A		0.000	0.000	7.770	0.000	0.06
		B		0.000	0.000	31.742	0.000	0.28
L40	10.5000-5.5000	C	1.106	0.000	0.000	33.065	0.000	0.51
		A		0.000	0.000	7.715	0.000	0.06
		B		0.000	0.000	31.439	0.000	0.27
L41	5.5000-3.0000	C	1.039	0.000	0.000	32.707	0.000	0.49
		A		0.000	0.000	3.823	0.000	0.03
		B		0.000	0.000	15.533	0.000	0.13
L42	3.0000-2.7500	C	0.999	0.000	0.000	16.133	0.000	0.24
		A		0.000	0.000	0.380	0.000	0.00
		B		0.000	0.000	1.542	0.000	0.01
L43	2.7500-1.7500	C	0.975	0.000	0.000	1.600	0.000	0.02
		A		0.000	0.000	1.517	0.000	0.01
		B		0.000	0.000	6.143	0.000	0.05
L44	1.7500-1.5000	C	0.944	0.000	0.000	6.370	0.000	0.09
		A		0.000	0.000	0.378	0.000	0.00
		B		0.000	0.000	1.527	0.000	0.01
L45	1.5000-0.0000	C	0.873	0.000	0.000	1.582	0.000	0.02
		A		0.000	0.000	2.244	0.000	0.01
		B		0.000	0.000	9.047	0.000	0.06
		C		0.000	0.000	9.357	0.000	0.13

### Feed Line Center of Pressure

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub> Ice	CP <sub>z</sub> Ice
	ft	in	in	in	in
L1	140.0000-135.0000	0.0000	0.0000	0.0000	0.0000
L2	135.0000-130.0000	0.0000	0.0000	0.0000	0.0000
L3	130.0000-125.0000	0.0000	0.0000	0.0000	0.0000
L4	125.0000-120.0000	0.1495	0.2013	0.4302	0.5688
L5	120.0000-115.0000	0.6701	0.9028	1.5128	2.0005
L6	115.0000-110.0000	4.4731	-1.4957	4.0125	-0.6586
L7	110.0000-105.0000	4.2606	-1.4235	3.9813	-0.6532
L8	105.0000-104.0000	2.7226	-0.9092	3.0696	-0.5035
L9	104.0000-103.7500	2.7349	-0.9133	3.0834	-0.5058
L10	103.7500-98.7500	2.1736	-0.7256	2.7389	-0.4493
L11	98.7500-98.5000	1.7891	-0.5970	2.3408	-0.3841
L12	98.5000-98.2500	1.7934	-0.5984	2.3460	-0.3849
L13	98.2500-97.0000	1.8009	-0.6009	2.3571	-0.3868
L14	97.0000-96.7500	1.8069	-0.6028	2.3670	-0.3884
L15	96.7500-88.5000	0.8842	0.7100	1.4369	0.8770
L16	88.5000-88.1700	-0.2023	0.9418	0.4361	1.0775
L17	88.1700-87.9200	-0.2030	0.9439	0.4354	1.0796
L18	87.9200-82.9200	-0.2076	0.9577	0.4404	1.0973
L19	82.9200-77.9200	-0.2164	0.9838	0.4496	1.1309
L20	77.9200-72.9200	-0.2250	1.0094	0.4584	1.1640
L21	72.9200-68.0800	-0.2212	0.9807	0.4508	1.1554
L22	68.0800-67.8300	-0.2217	0.9772	0.4501	1.1590
L23	67.8300-62.8300	-0.2258	0.9895	0.4541	1.1752
L24	62.8300-57.8300	-0.2336	1.0128	0.4613	1.2057
L25	57.8300-52.8300	-0.2412	1.0357	0.4681	1.2358
L26	52.8300-47.2500	-0.2492	1.0596	0.4747	1.2672
L27	47.2500-46.5000	-0.2494	1.0602	0.4749	1.2678
L28	46.5000-41.5000	-0.2531	1.0707	0.4749	1.2821
L29	41.5000-37.7500	-0.2494	1.0474	0.4662	1.2720
L30	37.7500-37.5000	-0.2522	1.0559	0.4679	1.2831
L31	37.5000-32.5000	-0.3110	1.0612	0.4262	1.2915
L32	32.5000-32.2500	-0.3512	1.0685	0.3986	1.3017
L33	32.2500-27.2500	-0.3559	1.0795	0.3989	1.3157
L34	27.2500-23.5000	1.3450	1.7947	1.7996	1.9221
L35	23.5000-23.2500	1.5744	1.8975	1.9970	2.0143
L36	23.2500-20.7500	1.5823	1.9070	2.0065	2.0250
L37	20.7500-20.5000	1.5900	1.9162	2.0157	2.0355
L38	20.5000-15.5000	1.2546	1.7085	1.7400	1.8636
L39	15.5000-10.5000	0.1111	0.9893	0.8012	1.2672
L40	10.5000-5.5000	0.1111	1.0056	0.7962	1.2845
L41	5.5000-3.0000	0.1111	1.0178	0.7821	1.2939
L42	3.0000-2.7500	0.1112	1.0225	0.7713	1.2955
L43	2.7500-1.7500	0.1112	1.0245	0.7639	1.2953
L44	1.7500-1.5000	0.1112	1.0269	0.7540	1.2945
L45	1.5000-0.0000	0.1112	1.0296	0.7290	1.2891

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 <sub>a</sub> No Ice	K <sub>a</sub> Ice
L4	13	WR-VG86ST-BRD(3/4)	120.00 - 121.00	1.0000	1.0000
L4	14	FB-L98B-002-75000(3/8)	120.00 - 121.00	1.0000	1.0000
L5	13	WR-VG86ST-BRD(3/4)	115.00 - 120.00	1.0000	1.0000
L5	14	FB-L98B-002-75000(3/8)	115.00 - 120.00	1.0000	1.0000
L6	13	WR-VG86ST-BRD(3/4)	110.00 - 115.00	1.0000	1.0000
L6	14	FB-L98B-002-75000(3/8)	110.00 - 115.00	1.0000	1.0000
L6	21	HCS 6X12 6AWG(1-3/8)	110.00 - 115.00	1.0000	1.0000
L6	22	HJ7-50A(1-5/8)	110.00 - 115.00	1.0000	1.0000
L7	13	WR-VG86ST-BRD(3/4)	105.00 - 110.00	1.0000	1.0000
L7	14	FB-L98B-002-75000(3/8)	105.00 - 110.00	1.0000	1.0000
L7	21	HCS 6X12 6AWG(1-3/8)	105.00 - 110.00	1.0000	1.0000
L7	22	HJ7-50A(1-5/8)	105.00 - 110.00	1.0000	1.0000
L7	59	CCI-045100 (L)	105.00 - 105.50	1.0000	1.0000
L7	60	CCI-045100 (L)	105.00 - 105.50	1.0000	1.0000
L7	61	CCI-045100 (L)	105.00 - 105.50	1.0000	1.0000
L8	13	WR-VG86ST-BRD(3/4)	104.00 - 105.00	1.0000	1.0000
L8	14	FB-L98B-002-75000(3/8)	104.00 - 105.00	1.0000	1.0000
L8	21	HCS 6X12 6AWG(1-3/8)	104.00 - 105.00	1.0000	1.0000
L8	22	HJ7-50A(1-5/8)	104.00 - 105.00	1.0000	1.0000
L8	59	CCI-045100 (L)	104.00 - 105.00	1.0000	1.0000
L8	60	CCI-045100 (L)	104.00 - 105.00	1.0000	1.0000
L8	61	CCI-045100 (L)	104.00 - 105.00	1.0000	1.0000
L9	13	WR-VG86ST-BRD(3/4)	103.75 - 104.00	1.0000	1.0000
L9	14	FB-L98B-002-75000(3/8)	103.75 - 104.00	1.0000	1.0000
L9	21	HCS 6X12 6AWG(1-3/8)	103.75 - 104.00	1.0000	1.0000
L9	22	HJ7-50A(1-5/8)	103.75 - 104.00	1.0000	1.0000
L9	59	CCI-045100 (L)	103.75 - 104.00	1.0000	1.0000
L9	60	CCI-045100 (L)	103.75 - 104.00	1.0000	1.0000
L9	61	CCI-045100 (L)	103.75 - 104.00	1.0000	1.0000
L10	13	WR-VG86ST-BRD(3/4)	98.75 - 103.75	1.0000	1.0000
L10	14	FB-L98B-002-75000(3/8)	98.75 - 103.75	1.0000	1.0000
L10	21	HCS 6X12 6AWG(1-3/8)	98.75 - 103.75	1.0000	1.0000
L10	22	HJ7-50A(1-5/8)	98.75 - 103.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L10	50	MP3-05 (L)	98.75 - 100.75	1.0000	1.0000
L10	51	MP3-05 (L)	98.75 - 100.75	1.0000	1.0000
L10	52	MP3-05 (L)	98.75 - 100.75	1.0000	1.0000
L10	59	CCI-045100 (L)	98.75 - 103.75	1.0000	1.0000
L10	60	CCI-045100 (L)	98.75 - 103.75	1.0000	1.0000
L10	61	CCI-045100 (L)	98.75 - 103.75	1.0000	1.0000
L11	13	WR-VG86ST-BRD(3/4)	98.50 - 98.75	1.0000	1.0000
L11	14	FB-L98B-002-75000(3/8)	98.50 - 98.75	1.0000	1.0000
L11	21	HCS 6X12 6AWG(1-3/8)	98.50 - 98.75	1.0000	1.0000
L11	22	HJ7-50A(1-5/8)	98.50 - 98.75	1.0000	1.0000
L11	50	MP3-05 (L)	98.50 - 98.75	1.0000	1.0000
L11	51	MP3-05 (L)	98.50 - 98.75	1.0000	1.0000
L11	52	MP3-05 (L)	98.50 - 98.75	1.0000	1.0000
L11	59	CCI-045100 (L)	98.50 - 98.75	1.0000	1.0000
L11	60	CCI-045100 (L)	98.50 - 98.75	1.0000	1.0000
L11	61	CCI-045100 (L)	98.50 - 98.75	1.0000	1.0000
L12	13	WR-VG86ST-BRD(3/4)	98.25 - 98.50	1.0000	1.0000
L12	14	FB-L98B-002-75000(3/8)	98.25 - 98.50	1.0000	1.0000
L12	21	HCS 6X12 6AWG(1-3/8)	98.25 - 98.50	1.0000	1.0000
L12	22	HJ7-50A(1-5/8)	98.25 - 98.50	1.0000	1.0000
L12	50	MP3-05 (L)	98.25 - 98.50	1.0000	1.0000
L12	51	MP3-05 (L)	98.25 - 98.50	1.0000	1.0000
L12	52	MP3-05 (L)	98.25 - 98.50	1.0000	1.0000
L12	59	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L12	60	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L12	61	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L13	13	WR-VG86ST-BRD(3/4)	97.00 - 98.25	1.0000	1.0000
L13	14	FB-L98B-002-75000(3/8)	97.00 - 98.25	1.0000	1.0000
L13	21	HCS 6X12 6AWG(1-3/8)	97.00 - 98.25	1.0000	1.0000
L13	22	HJ7-50A(1-5/8)	97.00 - 98.25	1.0000	1.0000
L13	50	MP3-05 (L)	97.00 - 98.25	1.0000	1.0000
L13	51	MP3-05 (L)	97.00 - 98.25	1.0000	1.0000
L13	52	MP3-05 (L)	97.00 - 98.25	1.0000	1.0000
L13	59	CCI-045100 (L)	97.00 - 98.25	1.0000	1.0000
L13	60	CCI-045100 (L)	97.00 - 98.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
			98.25		
L13	61	CCI-045100 (L)	97.00 -	1.0000	1.0000
			98.25		
L14	13	WR-VG86ST-BRD(3/4)	96.75 -	1.0000	1.0000
			97.00		
L14	14	FB-L98B-002-75000(3/8)	96.75 -	1.0000	1.0000
			97.00		
L14	21	HCS 6X12 6AWG(1-3/8)	96.75 -	1.0000	1.0000
			97.00		
L14	22	HJ7-50A(1-5/8)	96.75 -	1.0000	1.0000
			97.00		
L14	50	MP3-05 (L)	96.75 -	1.0000	1.0000
			97.00		
L14	51	MP3-05 (L)	96.75 -	1.0000	1.0000
			97.00		
L14	52	MP3-05 (L)	96.75 -	1.0000	1.0000
			97.00		
L14	59	CCI-045100 (L)	96.75 -	1.0000	1.0000
			97.00		
L14	60	CCI-045100 (L)	96.75 -	1.0000	1.0000
			97.00		
L14	61	CCI-045100 (L)	96.75 -	1.0000	1.0000
			97.00		
L15	13	WR-VG86ST-BRD(3/4)	88.50 -	1.0000	1.0000
			96.75		
L15	14	FB-L98B-002-75000(3/8)	88.50 -	1.0000	1.0000
			96.75		
L15	21	HCS 6X12 6AWG(1-3/8)	88.50 -	1.0000	1.0000
			96.75		
L15	22	HJ7-50A(1-5/8)	88.50 -	1.0000	1.0000
			96.75		
L15	31	CR 50 1873(1-5/8)	88.50 -	1.0000	1.0000
			95.00		
L15	50	MP3-05 (L)	88.50 -	1.0000	1.0000
			96.75		
L15	51	MP3-05 (L)	88.50 -	1.0000	1.0000
			96.75		
L15	52	MP3-05 (L)	88.50 -	1.0000	1.0000
			96.75		
L15	56	CCI-060100 (L)	88.50 -	1.0000	1.0000
			90.67		
L15	57	CCI-060100 (L)	88.50 -	1.0000	1.0000
			90.67		
L15	58	CCI-060100 (L)	88.50 -	1.0000	1.0000
			90.67		
L15	59	CCI-045100 (L)	95.50 -	1.0000	1.0000
			96.75		
L15	60	CCI-045100 (L)	95.50 -	1.0000	1.0000
			96.75		
L15	61	CCI-045100 (L)	95.50 -	1.0000	1.0000
			96.75		
L17	13	WR-VG86ST-BRD(3/4)	87.92 -	1.0000	1.0000
			88.17		
L17	14	FB-L98B-002-75000(3/8)	87.92 -	1.0000	1.0000
			88.17		
L17	21	HCS 6X12 6AWG(1-3/8)	87.92 -	1.0000	1.0000
			88.17		
L17	22	HJ7-50A(1-5/8)	87.92 -	1.0000	1.0000
			88.17		
L17	31	CR 50 1873(1-5/8)	87.92 -	1.0000	1.0000
			88.17		
L17	50	MP3-05 (L)	87.92 -	1.0000	1.0000
			88.17		
L17	51	MP3-05 (L)	87.92 -	1.0000	1.0000
			88.17		
L17	52	MP3-05 (L)	87.92 -	1.0000	1.0000
			88.17		
L17	56	CCI-060100 (L)	87.92 -	1.0000	1.0000
			88.17		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L17	57	CCI-060100 (L)	87.92 - 88.17	1.0000	1.0000
L17	58	CCI-060100 (L)	87.92 - 88.17	1.0000	1.0000
L18	13	WR-VG86ST-BRD(3/4)	82.92 - 87.92	1.0000	1.0000
L18	14	FB-L98B-002-75000(3/8)	82.92 - 87.92	1.0000	1.0000
L18	21	HCS 6X12 6AWG(1-3/8)	82.92 - 87.92	1.0000	1.0000
L18	22	HJ7-50A(1-5/8)	82.92 - 87.92	1.0000	1.0000
L18	31	CR 50 1873(1-5/8)	82.92 - 87.92	1.0000	1.0000
L18	50	MP3-05 (L)	82.92 - 87.92	1.0000	1.0000
L18	51	MP3-05 (L)	82.92 - 87.92	1.0000	1.0000
L18	52	MP3-05 (L)	82.92 - 87.92	1.0000	1.0000
L18	56	CCI-060100 (L)	82.92 - 87.92	1.0000	1.0000
L18	57	CCI-060100 (L)	82.92 - 87.92	1.0000	1.0000
L18	58	CCI-060100 (L)	82.92 - 87.92	1.0000	1.0000
L19	13	WR-VG86ST-BRD(3/4)	77.92 - 82.92	1.0000	1.0000
L19	14	FB-L98B-002-75000(3/8)	77.92 - 82.92	1.0000	1.0000
L19	21	HCS 6X12 6AWG(1-3/8)	77.92 - 82.92	1.0000	1.0000
L19	22	HJ7-50A(1-5/8)	77.92 - 82.92	1.0000	1.0000
L19	31	CR 50 1873(1-5/8)	77.92 - 82.92	1.0000	1.0000
L19	50	MP3-05 (L)	77.92 - 82.92	1.0000	1.0000
L19	51	MP3-05 (L)	77.92 - 82.92	1.0000	1.0000
L19	52	MP3-05 (L)	77.92 - 82.92	1.0000	1.0000
L19	56	CCI-060100 (L)	77.92 - 82.92	1.0000	1.0000
L19	57	CCI-060100 (L)	77.92 - 82.92	1.0000	1.0000
L19	58	CCI-060100 (L)	77.92 - 82.92	1.0000	1.0000
L20	13	WR-VG86ST-BRD(3/4)	72.92 - 77.92	1.0000	1.0000
L20	14	FB-L98B-002-75000(3/8)	72.92 - 77.92	1.0000	1.0000
L20	21	HCS 6X12 6AWG(1-3/8)	72.92 - 77.92	1.0000	1.0000
L20	22	HJ7-50A(1-5/8)	72.92 - 77.92	1.0000	1.0000
L20	31	CR 50 1873(1-5/8)	72.92 - 77.92	1.0000	1.0000
L20	50	MP3-05 (L)	72.92 - 77.92	1.0000	1.0000
L20	51	MP3-05 (L)	72.92 - 77.92	1.0000	1.0000
L20	52	MP3-05 (L)	72.92 - 77.92	1.0000	1.0000
L20	56	CCI-060100 (L)	72.92 - 77.92	1.0000	1.0000
L20	57	CCI-060100 (L)	72.92 - 77.92	1.0000	1.0000
L20	58	CCI-060100 (L)	72.92 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
			77.92		
L21	13	WR-VG86ST-BRD(3/4)	68.08 - 72.92	1.0000	1.0000
L21	14	FB-L98B-002-75000(3/8)	68.08 - 72.92	1.0000	1.0000
L21	21	HCS 6X12 6AWG(1-3/8)	68.08 - 72.92	1.0000	1.0000
L21	22	HJ7-50A(1-5/8)	68.08 - 72.92	1.0000	1.0000
L21	31	CR 50 1873(1-5/8)	68.08 - 72.92	1.0000	1.0000
L21	47	MP3-06 (L)	68.08 - 71.75	1.0000	1.0000
L21	48	MP3-06 (L)	68.08 - 71.75	1.0000	1.0000
L21	49	MP3-06 (L)	68.08 - 71.75	1.0000	1.0000
L21	50	MP3-05 (L)	71.75 - 72.92	1.0000	1.0000
L21	51	MP3-05 (L)	71.75 - 72.92	1.0000	1.0000
L21	52	MP3-05 (L)	71.75 - 72.92	1.0000	1.0000
L21	56	CCI-060100 (L)	68.08 - 72.92	1.0000	1.0000
L21	57	CCI-060100 (L)	68.08 - 72.92	1.0000	1.0000
L21	58	CCI-060100 (L)	68.08 - 72.92	1.0000	1.0000
L22	13	WR-VG86ST-BRD(3/4)	67.83 - 68.08	1.0000	1.0000
L22	14	FB-L98B-002-75000(3/8)	67.83 - 68.08	1.0000	1.0000
L22	21	HCS 6X12 6AWG(1-3/8)	67.83 - 68.08	1.0000	1.0000
L22	22	HJ7-50A(1-5/8)	67.83 - 68.08	1.0000	1.0000
L22	31	CR 50 1873(1-5/8)	67.83 - 68.08	1.0000	1.0000
L22	47	MP3-06 (L)	67.83 - 68.08	1.0000	1.0000
L22	48	MP3-06 (L)	67.83 - 68.08	1.0000	1.0000
L22	49	MP3-06 (L)	67.83 - 68.08	1.0000	1.0000
L22	56	CCI-060100 (L)	67.83 - 68.08	1.0000	1.0000
L22	57	CCI-060100 (L)	67.83 - 68.08	1.0000	1.0000
L22	58	CCI-060100 (L)	67.83 - 68.08	1.0000	1.0000
L23	13	WR-VG86ST-BRD(3/4)	62.83 - 67.83	1.0000	1.0000
L23	14	FB-L98B-002-75000(3/8)	62.83 - 67.83	1.0000	1.0000
L23	21	HCS 6X12 6AWG(1-3/8)	62.83 - 67.83	1.0000	1.0000
L23	22	HJ7-50A(1-5/8)	62.83 - 67.83	1.0000	1.0000
L23	31	CR 50 1873(1-5/8)	62.83 - 67.83	1.0000	1.0000
L23	47	MP3-06 (L)	62.83 - 67.83	1.0000	1.0000
L23	48	MP3-06 (L)	62.83 - 67.83	1.0000	1.0000
L23	49	MP3-06 (L)	62.83 - 67.83	1.0000	1.0000
L23	56	CCI-060100 (L)	62.83 - 67.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L23	57	CCI-060100 (L)	62.83 - 67.83	1.0000	1.0000
L23	58	CCI-060100 (L)	62.83 - 67.83	1.0000	1.0000
L24	13	WR-VG86ST-BRD(3/4)	57.83 - 62.83	1.0000	1.0000
L24	14	FB-L98B-002-75000(3/8)	57.83 - 62.83	1.0000	1.0000
L24	21	HCS 6X12 6AWG(1-3/8)	57.83 - 62.83	1.0000	1.0000
L24	22	HJ7-50A(1-5/8)	57.83 - 62.83	1.0000	1.0000
L24	31	CR 50 1873(1-5/8)	57.83 - 62.83	1.0000	1.0000
L24	47	MP3-06 (L)	57.83 - 62.83	1.0000	1.0000
L24	48	MP3-06 (L)	57.83 - 62.83	1.0000	1.0000
L24	49	MP3-06 (L)	57.83 - 62.83	1.0000	1.0000
L24	56	CCI-060100 (L)	57.83 - 62.83	1.0000	1.0000
L24	57	CCI-060100 (L)	57.83 - 62.83	1.0000	1.0000
L24	58	CCI-060100 (L)	57.83 - 62.83	1.0000	1.0000
L25	13	WR-VG86ST-BRD(3/4)	52.83 - 57.83	1.0000	1.0000
L25	14	FB-L98B-002-75000(3/8)	52.83 - 57.83	1.0000	1.0000
L25	21	HCS 6X12 6AWG(1-3/8)	52.83 - 57.83	1.0000	1.0000
L25	22	HJ7-50A(1-5/8)	52.83 - 57.83	1.0000	1.0000
L25	31	CR 50 1873(1-5/8)	52.83 - 57.83	1.0000	1.0000
L25	47	MP3-06 (L)	52.83 - 57.83	1.0000	1.0000
L25	48	MP3-06 (L)	52.83 - 57.83	1.0000	1.0000
L25	49	MP3-06 (L)	52.83 - 57.83	1.0000	1.0000
L25	56	CCI-060100 (L)	52.83 - 57.83	1.0000	1.0000
L25	57	CCI-060100 (L)	52.83 - 57.83	1.0000	1.0000
L25	58	CCI-060100 (L)	52.83 - 57.83	1.0000	1.0000
L26	13	WR-VG86ST-BRD(3/4)	47.25 - 52.83	1.0000	1.0000
L26	14	FB-L98B-002-75000(3/8)	47.25 - 52.83	1.0000	1.0000
L26	21	HCS 6X12 6AWG(1-3/8)	47.25 - 52.83	1.0000	1.0000
L26	22	HJ7-50A(1-5/8)	47.25 - 52.83	1.0000	1.0000
L26	31	CR 50 1873(1-5/8)	47.25 - 52.83	1.0000	1.0000
L26	47	MP3-06 (L)	47.25 - 52.83	1.0000	1.0000
L26	48	MP3-06 (L)	47.25 - 52.83	1.0000	1.0000
L26	49	MP3-06 (L)	47.25 - 52.83	1.0000	1.0000
L26	56	CCI-060100 (L)	47.25 - 52.83	1.0000	1.0000
L26	57	CCI-060100 (L)	47.25 - 52.83	1.0000	1.0000
L26	58	CCI-060100 (L)	47.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
			52.83		
L28	13	WR-VG86ST-BRD(3/4)	41.50 - 46.50	1.0000	1.0000
L28	14	FB-L98B-002-75000(3/8)	41.50 - 46.50	1.0000	1.0000
L28	21	HCS 6X12 6AWG(1-3/8)	41.50 - 46.50	1.0000	1.0000
L28	22	HJ7-50A(1-5/8)	41.50 - 46.50	1.0000	1.0000
L28	31	CR 50 1873(1-5/8)	41.50 - 46.50	1.0000	1.0000
L28	42	MP3-08 (L)	41.50 - 41.75	1.0000	1.0000
L28	43	MP3-08 (L)	41.50 - 41.75	1.0000	1.0000
L28	44	MP3-08 (L)	41.50 - 41.75	1.0000	1.0000
L28	47	MP3-06 (L)	41.75 - 46.50	1.0000	1.0000
L28	48	MP3-06 (L)	41.75 - 46.50	1.0000	1.0000
L28	49	MP3-06 (L)	41.75 - 46.50	1.0000	1.0000
L28	56	CCI-060100 (L)	41.50 - 46.50	1.0000	1.0000
L28	57	CCI-060100 (L)	41.50 - 46.50	1.0000	1.0000
L28	58	CCI-060100 (L)	41.50 - 46.50	1.0000	1.0000
L29	13	WR-VG86ST-BRD(3/4)	37.75 - 41.50	1.0000	1.0000
L29	14	FB-L98B-002-75000(3/8)	37.75 - 41.50	1.0000	1.0000
L29	21	HCS 6X12 6AWG(1-3/8)	37.75 - 41.50	1.0000	1.0000
L29	22	HJ7-50A(1-5/8)	37.75 - 41.50	1.0000	1.0000
L29	31	CR 50 1873(1-5/8)	37.75 - 41.50	1.0000	1.0000
L29	42	MP3-08 (L)	37.75 - 41.50	1.0000	1.0000
L29	43	MP3-08 (L)	37.75 - 41.50	1.0000	1.0000
L29	44	MP3-08 (L)	37.75 - 41.50	1.0000	1.0000
L29	56	CCI-060100 (L)	37.75 - 41.50	1.0000	1.0000
L29	57	CCI-060100 (L)	37.75 - 41.50	1.0000	1.0000
L29	58	CCI-060100 (L)	37.75 - 41.50	1.0000	1.0000
L30	13	WR-VG86ST-BRD(3/4)	37.50 - 37.75	1.0000	1.0000
L30	14	FB-L98B-002-75000(3/8)	37.50 - 37.75	1.0000	1.0000
L30	21	HCS 6X12 6AWG(1-3/8)	37.50 - 37.75	1.0000	1.0000
L30	22	HJ7-50A(1-5/8)	37.50 - 37.75	1.0000	1.0000
L30	31	CR 50 1873(1-5/8)	37.50 - 37.75	1.0000	1.0000
L30	42	MP3-08 (L)	37.50 - 37.75	1.0000	1.0000
L30	43	MP3-08 (L)	37.50 - 37.75	1.0000	1.0000
L30	44	MP3-08 (L)	37.50 - 37.75	1.0000	1.0000
L30	56	CCI-060100 (L)	37.50 - 37.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L30	57	CCI-060100 (L)	37.50 - 37.75	1.0000	1.0000
L30	58	CCI-060100 (L)	37.50 - 37.75	1.0000	1.0000
L31	13	WR-VG86ST-BRD(3/4)	32.50 - 37.50	1.0000	1.0000
L31	14	FB-L98B-002-75000(3/8)	32.50 - 37.50	1.0000	1.0000
L31	21	HCS 6X12 6AWG(1-3/8)	32.50 - 37.50	1.0000	1.0000
L31	22	HJ7-50A(1-5/8)	32.50 - 37.50	1.0000	1.0000
L31	31	CR 50 1873(1-5/8)	32.50 - 37.50	1.0000	1.0000
L31	42	MP3-08 (L)	32.50 - 37.50	1.0000	1.0000
L31	43	MP3-08 (L)	32.50 - 37.50	1.0000	1.0000
L31	44	MP3-08 (L)	32.50 - 37.50	1.0000	1.0000
L31	53	CCI-065125 (L)	32.50 - 35.50	1.0000	1.0000
L31	54	CCI-065125 (L)	32.50 - 35.50	1.0000	1.0000
L31	55	CCI-065125 (L)	32.50 - 35.50	1.0000	1.0000
L31	56	CCI-060100 (L)	35.50 - 37.50	1.0000	1.0000
L31	57	CCI-060100 (L)	35.50 - 37.50	1.0000	1.0000
L31	58	CCI-060100 (L)	35.50 - 37.50	1.0000	1.0000
L32	13	WR-VG86ST-BRD(3/4)	32.25 - 32.50	1.0000	1.0000
L32	14	FB-L98B-002-75000(3/8)	32.25 - 32.50	1.0000	1.0000
L32	21	HCS 6X12 6AWG(1-3/8)	32.25 - 32.50	1.0000	1.0000
L32	22	HJ7-50A(1-5/8)	32.25 - 32.50	1.0000	1.0000
L32	31	CR 50 1873(1-5/8)	32.25 - 32.50	1.0000	1.0000
L32	42	MP3-08 (L)	32.25 - 32.50	1.0000	1.0000
L32	43	MP3-08 (L)	32.25 - 32.50	1.0000	1.0000
L32	44	MP3-08 (L)	32.25 - 32.50	1.0000	1.0000
L32	53	CCI-065125 (L)	32.25 - 32.50	1.0000	1.0000
L32	54	CCI-065125 (L)	32.25 - 32.50	1.0000	1.0000
L32	55	CCI-065125 (L)	32.25 - 32.50	1.0000	1.0000
L33	13	WR-VG86ST-BRD(3/4)	27.25 - 32.25	1.0000	1.0000
L33	14	FB-L98B-002-75000(3/8)	27.25 - 32.25	1.0000	1.0000
L33	21	HCS 6X12 6AWG(1-3/8)	27.25 - 32.25	1.0000	1.0000
L33	22	HJ7-50A(1-5/8)	27.25 - 32.25	1.0000	1.0000
L33	31	CR 50 1873(1-5/8)	27.25 - 32.25	1.0000	1.0000
L33	42	MP3-08 (L)	27.25 - 32.25	1.0000	1.0000
L33	43	MP3-08 (L)	27.25 - 32.25	1.0000	1.0000
L33	44	MP3-08 (L)	27.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L33	53	CCI-065125 (L)	32.25 27.25 -	1.0000	1.0000
L33	54	CCI-065125 (L)	32.25 27.25 -	1.0000	1.0000
L33	55	CCI-065125 (L)	32.25 27.25 -	1.0000	1.0000
L34	13	WR-VG86ST-BRD(3/4)	32.25 23.50 -	1.0000	1.0000
L34	14	FB-L98B-002-75000(3/8)	27.25 23.50 -	1.0000	1.0000
L34	21	HCS 6X12 6AWG(1-3/8)	27.25 23.50 -	1.0000	1.0000
L34	22	HJ7-50A(1-5/8)	27.25 23.50 -	1.0000	1.0000
L34	31	CR 50 1873(1-5/8)	27.25 23.50 -	1.0000	1.0000
L34	42	MP3-08 (L)	27.25 23.50 -	1.0000	1.0000
L34	43	MP3-08 (L)	27.25 23.50 -	1.0000	1.0000
L34	44	MP3-08 (L)	27.25 23.50 -	1.0000	1.0000
L34	45	MP3-06 (W)	27.25 23.50 -	1.0000	1.0000
L34	46	MP3-06 (L)	26.75 23.50 -	1.0000	1.0000
L34	53	CCI-065125 (L)	26.75 23.50 -	1.0000	1.0000
L34	54	CCI-065125 (L)	27.25 23.50 -	1.0000	1.0000
L34	55	CCI-065125 (L)	27.25 23.50 -	1.0000	1.0000
L35	13	WR-VG86ST-BRD(3/4)	27.25 23.25 -	1.0000	1.0000
L35	14	FB-L98B-002-75000(3/8)	23.50 23.25 -	1.0000	1.0000
L35	21	HCS 6X12 6AWG(1-3/8)	23.50 23.25 -	1.0000	1.0000
L35	22	HJ7-50A(1-5/8)	23.50 23.25 -	1.0000	1.0000
L35	31	CR 50 1873(1-5/8)	23.50 23.25 -	1.0000	1.0000
L35	42	MP3-08 (L)	23.50 23.25 -	1.0000	1.0000
L35	43	MP3-08 (L)	23.50 23.25 -	1.0000	1.0000
L35	44	MP3-08 (L)	23.50 23.25 -	1.0000	1.0000
L35	45	MP3-06 (W)	23.50 23.25 -	1.0000	1.0000
L35	46	MP3-06 (L)	23.50 23.25 -	1.0000	1.0000
L35	53	CCI-065125 (L)	23.50 23.25 -	1.0000	1.0000
L35	54	CCI-065125 (L)	23.50 23.25 -	1.0000	1.0000
L35	55	CCI-065125 (L)	23.50 23.25 -	1.0000	1.0000
L36	13	WR-VG86ST-BRD(3/4)	23.50 20.75 -	1.0000	1.0000
L36	14	FB-L98B-002-75000(3/8)	23.25 20.75 -	1.0000	1.0000
L36	21	HCS 6X12 6AWG(1-3/8)	23.25 20.75 -	1.0000	1.0000
L36	22	HJ7-50A(1-5/8)	23.25 20.75 -	1.0000	1.0000
L36	31	CR 50 1873(1-5/8)	23.25 20.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L36	42	MP3-08 (L)	20.75 - 23.25	1.0000	1.0000
L36	43	MP3-08 (L)	20.75 - 23.25	1.0000	1.0000
L36	44	MP3-08 (L)	20.75 - 23.25	1.0000	1.0000
L36	45	MP3-06 (W)	20.75 - 23.25	1.0000	1.0000
L36	46	MP3-06 (L)	20.75 - 23.25	1.0000	1.0000
L36	53	CCI-065125 (L)	20.75 - 23.25	1.0000	1.0000
L36	54	CCI-065125 (L)	20.75 - 23.25	1.0000	1.0000
L36	55	CCI-065125 (L)	20.75 - 23.25	1.0000	1.0000
L37	13	WR-VG86ST-BRD(3/4)	20.50 - 20.75	1.0000	1.0000
L37	14	FB-L98B-002-75000(3/8)	20.50 - 20.75	1.0000	1.0000
L37	21	HCS 6X12 6AWG(1-3/8)	20.50 - 20.75	1.0000	1.0000
L37	22	HJ7-50A(1-5/8)	20.50 - 20.75	1.0000	1.0000
L37	31	CR 50 1873(1-5/8)	20.50 - 20.75	1.0000	1.0000
L37	42	MP3-08 (L)	20.50 - 20.75	1.0000	1.0000
L37	43	MP3-08 (L)	20.50 - 20.75	1.0000	1.0000
L37	44	MP3-08 (L)	20.50 - 20.75	1.0000	1.0000
L37	45	MP3-06 (W)	20.50 - 20.75	1.0000	1.0000
L37	46	MP3-06 (L)	20.50 - 20.75	1.0000	1.0000
L37	53	CCI-065125 (L)	20.50 - 20.75	1.0000	1.0000
L37	54	CCI-065125 (L)	20.50 - 20.75	1.0000	1.0000
L37	55	CCI-065125 (L)	20.50 - 20.75	1.0000	1.0000
L38	13	WR-VG86ST-BRD(3/4)	15.50 - 20.50	1.0000	1.0000
L38	14	FB-L98B-002-75000(3/8)	15.50 - 20.50	1.0000	1.0000
L38	21	HCS 6X12 6AWG(1-3/8)	15.50 - 20.50	1.0000	1.0000
L38	22	HJ7-50A(1-5/8)	15.50 - 20.50	1.0000	1.0000
L38	31	CR 50 1873(1-5/8)	15.50 - 20.50	1.0000	1.0000
L38	42	MP3-08 (L)	15.50 - 20.50	1.0000	1.0000
L38	43	MP3-08 (L)	15.50 - 20.50	1.0000	1.0000
L38	44	MP3-08 (L)	16.75 - 20.50	1.0000	1.0000
L38	45	MP3-06 (W)	15.50 - 20.50	1.0000	1.0000
L38	46	MP3-06 (L)	15.50 - 20.50	1.0000	1.0000
L38	53	CCI-065125 (L)	15.50 - 20.50	1.0000	1.0000
L38	54	CCI-065125 (L)	15.50 - 20.50	1.0000	1.0000
L38	55	CCI-065125 (L)	15.50 - 20.50	1.0000	1.0000
L39	13	WR-VG86ST-BRD(3/4)	10.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L39	14	FB-L98B-002-75000(3/8)	15.50 10.50 -	1.0000	1.0000
L39	21	HCS 6X12 6AWG(1-3/8)	15.50 10.50 -	1.0000	1.0000
L39	22	HJ7-50A(1-5/8)	15.50 10.50 -	1.0000	1.0000
L39	31	CR 50 1873(1-5/8)	15.50 10.50 -	1.0000	1.0000
L39	42	MP3-08 (L)	15.50 10.50 -	1.0000	1.0000
L39	43	MP3-08 (L)	15.50 10.50 -	1.0000	1.0000
L39	45	MP3-06 (W)	15.50 10.50 -	1.0000	1.0000
L39	46	MP3-06 (L)	15.50 10.50 -	1.0000	1.0000
L39	53	CCI-065125 (L)	15.50 10.50 -	1.0000	1.0000
L39	54	CCI-065125 (L)	15.50 10.50 -	1.0000	1.0000
L39	55	CCI-065125 (L)	15.50 10.50 -	1.0000	1.0000
L40	13	WR-VG86ST-BRD(3/4)	5.50 - 10.50	1.0000	1.0000
L40	14	FB-L98B-002-75000(3/8)	5.50 - 10.50	1.0000	1.0000
L40	21	HCS 6X12 6AWG(1-3/8)	5.50 - 10.50	1.0000	1.0000
L40	22	HJ7-50A(1-5/8)	5.50 - 10.50	1.0000	1.0000
L40	31	CR 50 1873(1-5/8)	5.50 - 10.50	1.0000	1.0000
L40	42	MP3-08 (L)	5.50 - 10.50	1.0000	1.0000
L40	43	MP3-08 (L)	5.50 - 10.50	1.0000	1.0000
L40	45	MP3-06 (W)	5.50 - 10.50	1.0000	1.0000
L40	46	MP3-06 (L)	5.50 - 10.50	1.0000	1.0000
L40	53	CCI-065125 (L)	5.50 - 10.50	1.0000	1.0000
L40	54	CCI-065125 (L)	5.50 - 10.50	1.0000	1.0000
L40	55	CCI-065125 (L)	5.50 - 10.50	1.0000	1.0000
L41	13	WR-VG86ST-BRD(3/4)	3.00 - 5.50	1.0000	1.0000
L41	14	FB-L98B-002-75000(3/8)	3.00 - 5.50	1.0000	1.0000
L41	21	HCS 6X12 6AWG(1-3/8)	3.00 - 5.50	1.0000	1.0000
L41	22	HJ7-50A(1-5/8)	3.00 - 5.50	1.0000	1.0000
L41	31	CR 50 1873(1-5/8)	3.00 - 5.50	1.0000	1.0000
L41	42	MP3-08 (L)	3.00 - 5.50	1.0000	1.0000
L41	43	MP3-08 (L)	3.00 - 5.50	1.0000	1.0000
L41	45	MP3-06 (W)	3.00 - 5.50	1.0000	1.0000
L41	46	MP3-06 (L)	3.00 - 5.50	1.0000	1.0000
L41	53	CCI-065125 (L)	3.00 - 5.50	1.0000	1.0000
L41	54	CCI-065125 (L)	3.00 - 5.50	1.0000	1.0000
L41	55	CCI-065125 (L)	3.00 - 5.50	1.0000	1.0000
L42	13	WR-VG86ST-BRD(3/4)	2.75 - 3.00	1.0000	1.0000
L42	14	FB-L98B-002-75000(3/8)	2.75 - 3.00	1.0000	1.0000
L42	21	HCS 6X12 6AWG(1-3/8)	2.75 - 3.00	1.0000	1.0000
L42	22	HJ7-50A(1-5/8)	2.75 - 3.00	1.0000	1.0000
L42	31	CR 50 1873(1-5/8)	2.75 - 3.00	1.0000	1.0000
L42	42	MP3-08 (L)	2.75 - 3.00	1.0000	1.0000
L42	43	MP3-08 (L)	2.75 - 3.00	1.0000	1.0000
L42	45	MP3-06 (W)	2.75 - 3.00	1.0000	1.0000
L42	46	MP3-06 (L)	2.75 - 3.00	1.0000	1.0000
L42	53	CCI-065125 (L)	2.75 - 3.00	1.0000	1.0000
L42	54	CCI-065125 (L)	2.75 - 3.00	1.0000	1.0000
L42	55	CCI-065125 (L)	2.75 - 3.00	1.0000	1.0000
L43	13	WR-VG86ST-BRD(3/4)	1.75 - 2.75	1.0000	1.0000
L43	14	FB-L98B-002-75000(3/8)	1.75 - 2.75	1.0000	1.0000
L43	21	HCS 6X12 6AWG(1-3/8)	1.75 - 2.75	1.0000	1.0000
L43	22	HJ7-50A(1-5/8)	1.75 - 2.75	1.0000	1.0000
L43	31	CR 50 1873(1-5/8)	1.75 - 2.75	1.0000	1.0000
L43	42	MP3-08 (L)	1.75 - 2.75	1.0000	1.0000
L43	43	MP3-08 (L)	1.75 - 2.75	1.0000	1.0000
L43	45	MP3-06 (W)	1.75 - 2.75	1.0000	1.0000
L43	46	MP3-06 (L)	1.75 - 2.75	1.0000	1.0000
L43	53	CCI-065125 (L)	1.75 - 2.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L43	54	CCI-065125 (L)	1.75 - 2.75	1.0000	1.0000
L43	55	CCI-065125 (L)	1.75 - 2.75	1.0000	1.0000
L44	13	WR-VG86ST-BRD(3/4)	1.50 - 1.75	1.0000	1.0000
L44	14	FB-L98B-002-75000(3/8)	1.50 - 1.75	1.0000	1.0000
L44	21	HCS 6X12 6AWG(1-3/8)	1.50 - 1.75	1.0000	1.0000
L44	22	HJ7-50A(1-5/8)	1.50 - 1.75	1.0000	1.0000
L44	31	CR 50 1873(1-5/8)	1.50 - 1.75	1.0000	1.0000
L44	42	MP3-08 (L)	1.50 - 1.75	1.0000	1.0000
L44	43	MP3-08 (L)	1.50 - 1.75	1.0000	1.0000
L44	45	MP3-06 (W)	1.50 - 1.75	1.0000	1.0000
L44	46	MP3-06 (L)	1.50 - 1.75	1.0000	1.0000
L44	53	CCI-065125 (L)	1.50 - 1.75	1.0000	1.0000
L44	54	CCI-065125 (L)	1.50 - 1.75	1.0000	1.0000
L44	55	CCI-065125 (L)	1.50 - 1.75	1.0000	1.0000
L45	13	WR-VG86ST-BRD(3/4)	0.00 - 1.50	1.0000	1.0000
L45	14	FB-L98B-002-75000(3/8)	0.00 - 1.50	1.0000	1.0000
L45	21	HCS 6X12 6AWG(1-3/8)	0.00 - 1.50	1.0000	1.0000
L45	22	HJ7-50A(1-5/8)	0.00 - 1.50	1.0000	1.0000
L45	31	CR 50 1873(1-5/8)	0.00 - 1.50	1.0000	1.0000
L45	42	MP3-08 (L)	0.00 - 1.50	1.0000	1.0000
L45	43	MP3-08 (L)	0.00 - 1.50	1.0000	1.0000
L45	45	MP3-06 (W)	0.00 - 1.50	1.0000	1.0000
L45	46	MP3-06 (L)	0.00 - 1.50	1.0000	1.0000
L45	53	CCI-065125 (L)	0.00 - 1.50	1.0000	1.0000
L45	54	CCI-065125 (L)	0.00 - 1.50	1.0000	1.0000
L45	55	CCI-065125 (L)	0.00 - 1.50	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 <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K
APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	140.0000	No Ice	4.6000	4.0100	0.10
						1/2" Ice	5.0500	4.4500	0.16
						Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.42
						2" Ice			
APXVSP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	140.0000	No Ice	4.6000	4.0100	0.10
						1/2" Ice	5.0500	4.4500	0.16
						Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.42
						2" Ice			
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	140.0000	No Ice	4.6000	4.0100	0.10
						1/2" Ice	5.0500	4.4500	0.16
						Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.42
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	140.0000	No Ice	4.0900	2.8600	0.08
						1/2" Ice	4.4800	3.2300	0.13
						Ice	4.8800	3.6100	0.19
						1" Ice	5.7100	4.4000	0.33
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	140.0000	No Ice	4.0900	2.8600	0.08
						1/2" Ice	4.4800	3.2300	0.13
						Ice	4.8800	3.6100	0.19
						1" Ice	5.7100	4.4000	0.33
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	140.0000	No Ice	4.0900	2.8600	0.08
						1/2" Ice	4.4800	3.2300	0.13
						Ice	4.8800	3.6100	0.19
						1" Ice	5.7100	4.4000	0.33
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
(3) ACU-A20-N	A	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	0.0667	0.1167	0.00
								1/2"	0.1037	0.1620	0.00
								Ice	0.1481	0.2148	0.00
(3) ACU-A20-N	B	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	0.0667	0.1167	0.00
								1/2"	0.1037	0.1620	0.00
								Ice	0.1481	0.2148	0.00
(3) ACU-A20-N	C	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	0.0667	0.1167	0.00
								1/2"	0.1037	0.1620	0.00
								Ice	0.1481	0.2148	0.00
TD-RRH8X20-25	A	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	4.0455	1.5345	0.07
								1/2"	4.2975	1.7142	0.10
								Ice	4.5570	1.9008	0.13
TD-RRH8X20-25	B	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	4.0455	1.5345	0.07
								1/2"	4.2975	1.7142	0.10
								Ice	4.5570	1.9008	0.13
TD-RRH8X20-25	C	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	4.0455	1.5345	0.07
								1/2"	4.2975	1.7142	0.10
								Ice	4.5570	1.9008	0.13
(2) 2.375" OD x 6' Mount Pipe	A	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	1.4250	1.4250	0.03
								1/2"	1.9250	1.9250	0.04
								Ice	2.2939	2.2939	0.05
(2) 2.375" OD x 6' Mount Pipe	B	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	1.4250	1.4250	0.03
								1/2"	1.9250	1.9250	0.04
								Ice	2.2939	2.2939	0.05
(2) 2.375" OD x 6' Mount Pipe	C	From Leg	4.0000	0.00	0.00	0.00	140.0000	2" Ice			
								No Ice	1.4250	1.4250	0.03
								1/2"	1.9250	1.9250	0.04
								Ice	2.2939	2.2939	0.05
Platform Mount [LP 1201-1]	C	None					140.0000	2" Ice			
								No Ice	18.3800	18.3800	2.10
								1/2"	22.1100	22.1100	2.65
								Ice	25.8700	25.8700	3.26
*** TME-1900MHz RRH (65MHz) w/ Mount Pipe	A	From Leg	2.0000	0.00	0.00	0.00	137.0000	2" Ice			
								No Ice	2.3125	2.3750	0.06
								1/2"	2.5168	2.5809	0.08
								Ice	2.7284	2.7943	0.11
TME-1900MHz RRH (65MHz) w/ Mount Pipe	B	From Leg	2.0000	0.00	0.00	0.00	137.0000	2" Ice			
								No Ice	2.3125	2.3750	0.06
								1/2"	2.5168	2.5809	0.08
								Ice	2.7284	2.7943	0.11
TME-1900MHz RRH (65MHz) w/ Mount Pipe	C	From Leg	2.0000	0.00	0.00	0.00	137.0000	2" Ice			
								No Ice	2.3125	2.3750	0.06
								1/2"	2.5168	2.5809	0.08
								Ice	2.7284	2.7943	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
TME-800MHZ RRH	A	From Leg	2.0000 0.00 0.00	0.00	137.0000	1" Ice	3.1740	3.2431	0.18
						2" Ice			
						No Ice	2.1342	1.7730	0.05
						1/2" Ice	2.3195	1.9461	0.07
TME-800MHZ RRH	B	From Leg	2.0000 0.00 0.00	0.00	137.0000	1" Ice	2.5123	2.1267	0.10
						2" Ice	2.9201	2.5100	0.16
						No Ice	2.1342	1.7730	0.05
						1/2" Ice	2.3195	1.9461	0.07
TME-800MHZ RRH	C	From Leg	2.0000 0.00 0.00	0.00	137.0000	Ice	2.5123	2.1267	0.10
						1" Ice	2.9201	2.5100	0.16
						2" Ice			
						No Ice	2.1342	1.7730	0.05
TME-800MHz 2x50W RRH W/FILTER w/ Mount Pipe	A	From Leg	2.0000 0.00 0.00	0.00	137.0000	1/2" Ice	2.3195	1.9461	0.07
						Ice	2.5123	2.1267	0.10
						1" Ice	2.9201	2.5100	0.16
						2" Ice			
TME-800MHz 2x50W RRH W/FILTER w/ Mount Pipe	B	From Leg	2.0000 0.00 0.00	0.00	137.0000	No Ice	3.1073	3.3567	0.09
						1/2" Ice	3.6568	4.0337	0.12
						Ice	4.1173	4.5871	0.17
						1" Ice	5.0809	5.7439	0.27
TME-800MHz 2x50W RRH W/FILTER w/ Mount Pipe	C	From Leg	2.0000 0.00 0.00	0.00	137.0000	2" Ice			
						No Ice	3.1073	3.3567	0.09
						1/2" Ice	3.6568	4.0337	0.12
						Ice	4.1173	4.5871	0.17
Side Arm Mount [SO 103-3]	C	None		0.00	137.0000	1" Ice	5.0809	5.7439	0.27
						2" Ice			
						No Ice	7.6400	7.6400	0.23
						1/2" Ice	8.8000	8.8000	0.36
*** 7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	Ice	10.1600	10.1600	0.52
						1" Ice	13.3600	13.3600	0.94
						2" Ice			
						No Ice	5.7460	4.2543	0.06
7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	1/2" Ice	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice	5.7460	4.2543	0.06
						1/2" Ice	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	2" Ice			
						No Ice	9.2200	6.2500	0.07
						1/2" Ice	9.9800	6.9600	0.14
						Ice	10.7600	7.7000	0.22
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	1" Ice	12.3600	9.2200	0.42
						2" Ice			
						No Ice	9.2200	6.2500	0.07
						1/2" Ice	9.9800	6.9600	0.14
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.0000 0.00	0.00	121.0000	Ice	10.7600	7.7000	0.22
						1" Ice	12.3600	9.2200	0.42
						2" Ice			
						No Ice	9.2200	6.2500	0.07
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.0000 0.00	0.00	121.0000	1/2" Ice	9.9800	6.9600	0.14
						No Ice	9.2200	6.2500	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			2.00			Ice 10.7600	7.7000	0.22
						1" Ice 12.3600	9.2200	0.42
						2" Ice		
QS66512-6 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 4.0400 1/2" 4.4200 Ice 4.8200 1" Ice 5.6300 2" Ice	4.1800 4.5700 4.9700 5.7900	0.14 0.21 0.29 0.48
QS66512-6 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 4.0400 1/2" 4.4200 Ice 4.8200 1" Ice 5.6300 2" Ice	4.1800 4.5700 4.9700 5.7900	0.14 0.21 0.29 0.48
QS66512-6 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 4.0400 1/2" 4.4200 Ice 4.8200 1" Ice 5.6300 2" Ice	4.1800 4.5700 4.9700 5.7900	0.14 0.21 0.29 0.48
(2) LGP21401	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1.1040 1/2" 1.2388 Ice 1.3810 1" Ice 1.6877 2" Ice	0.3471 0.4422 0.5444 0.7696	0.01 0.02 0.03 0.05
(2) LGP21401	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1.1040 1/2" 1.2388 Ice 1.3810 1" Ice 1.6877 2" Ice	0.3471 0.4422 0.5444 0.7696	0.01 0.02 0.03 0.05
(2) LGP21401	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1.1040 1/2" 1.2388 Ice 1.3810 1" Ice 1.6877 2" Ice	0.3471 0.4422 0.5444 0.7696	0.01 0.02 0.03 0.05
DC6-48-60-18-8F	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1.2117 1/2" 1.8924 Ice 2.1051 1" Ice 2.5703 2" Ice	1.2117 1.8924 2.1051 2.5703	0.03 0.05 0.08 0.14
RRUS12/RRUS A2	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 3.1435 1/2" 3.3632 Ice 3.5904 1" Ice 4.0669 2" Ice	1.8351 2.0121 2.1965 2.5875	0.07 0.10 0.13 0.20
RRUS12/RRUS A2	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 3.1435 1/2" 3.3632 Ice 3.5904 1" Ice 4.0669 2" Ice	1.8351 2.0121 2.1965 2.5875	0.07 0.10 0.13 0.20
RRUS12/RRUS A2	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 3.1435 1/2" 3.3632 Ice 3.5904 1" Ice 4.0669 2" Ice	1.8351 2.0121 2.1965 2.5875	0.07 0.10 0.13 0.20
RRUS 11	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 2.7908 1/2" 2.9984 Ice 3.2134 1" Ice 3.6656 2" Ice	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.10 0.15
RRUS 11	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 2.7908 1/2" 2.9984 Ice 3.2134 1" Ice 3.6656 2" Ice	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.10 0.15
RRUS 11	C	From Leg	4.0000 0.00	0.00	121.0000	No Ice 2.7908 1/2" 2.9984	1.1923 1.3395	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			2.00			Ice 3.2134	1.4957	0.10
						1" Ice 3.6656	1.8390	0.15
						2" Ice 2.8571	1.7766	0.06
RRUS 32	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 3.0830 Ice 3.3163 1" Ice 3.8052	1.9677 2.1658 2.5829	0.08 0.10 0.16
RRUS 32	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 3.0830 Ice 3.3163 1" Ice 3.8052	1.7766 1.9677 2.1658 2.5829	0.06 0.08 0.10 0.16
RRUS 32	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 3.0830 Ice 3.3163 1" Ice 3.8052	1.7766 1.9677 2.1658 2.5829	0.06 0.08 0.10 0.16
DBC0061F1V51-2	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 0.2793 Ice 0.3526 1" Ice 0.5215 2" Ice	0.4133 0.4959 0.5859 0.7881	0.01 0.02 0.02 0.04
DBC0061F1V51-2	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 0.2793 Ice 0.3526 1" Ice 0.5215 2" Ice	0.4133 0.4959 0.5859 0.7881	0.01 0.02 0.02 0.04
DBC0061F1V51-2	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 0.2793 Ice 0.3526 1" Ice 0.5215 2" Ice	0.4133 0.4959 0.5859 0.7881	0.01 0.02 0.02 0.04
DC6-48-60-18-8C	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 2.9630 Ice 3.1964 1" Ice 3.6842 2" Ice	2.7366 2.9630 3.1964 3.6842	0.03 0.05 0.08 0.15
WCS-IMFT-AMT-43	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 0.4651 Ice 0.5529 1" Ice 0.7507 2" Ice	0.2498 0.3190 0.3957 0.5712	0.01 0.01 0.02 0.03
WCS-IMFT-AMT-43	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice 1/2" 0.4651 Ice 0.5529 1" Ice 0.7507 2" Ice	0.2498 0.3190 0.3957 0.5712	0.01 0.01 0.02 0.03
Platform Mount [LP 1201-1_HR-1]	C	None		0.00	121.0000	No Ice 1/2" 31.4000 Ice 36.2000 1" Ice 45.4000 2" Ice	26.3900 31.4000 36.2000 45.4000	2.36 3.06 3.86 5.76
(4) L 4 x 4 x 1/4 x 5' Mount Angle (Horiz)	A	None		0.00	121.0000	No Ice 1/2" 3.1457 Ice 3.5210 1" Ice 4.2938 2" Ice	0.2217 0.7859 1.3624 2.3980	0.02 0.03 0.04 0.08
(4) L 4 x 4 x 1/4 x 5' Mount Angle (Horiz)	B	None		0.00	121.0000	No Ice 1/2" 3.1457 Ice 3.5210 1" Ice 4.2938 2" Ice	0.2217 0.7859 1.3624 2.3980	0.02 0.03 0.04 0.08
(4) L 4 x 4 x 1/4 x 5' Mount Angle (Horiz)	C	None		0.00	121.0000	No Ice 1/2" 3.1457	0.2217 0.7859	0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
						Ice	3.5210	1.3624	0.04
						1" Ice	4.2938	2.3980	0.08
						2" Ice			
3' x 2" Sch 40 Pipe Mount	A	None		0.00	121.0000	No Ice	0.5826	0.5826	0.01
						1/2"	0.7701	0.7701	0.02
						Ice	0.9669	0.9669	0.02
						1" Ice	1.3881	1.3881	0.05
						2" Ice			
3' x 2" Sch 40 Pipe Mount	B	None		0.00	121.0000	No Ice	0.5826	0.5826	0.01
						1/2"	0.7701	0.7701	0.02
						Ice	0.9669	0.9669	0.02
						1" Ice	1.3881	1.3881	0.05
						2" Ice			
3' x 2" Sch 40 Pipe Mount	C	None		0.00	121.0000	No Ice	0.5826	0.5826	0.01
						1/2"	0.7701	0.7701	0.02
						Ice	0.9669	0.9669	0.02
						1" Ice	1.3881	1.3881	0.05
						2" Ice			
2.375" OD x 10' Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice	2.3750	2.3750	0.03
						1/2"	3.4031	3.4031	0.04
						Ice	4.4479	4.4479	0.07
						1" Ice	5.9106	5.9106	0.14
						2" Ice			
2.375" OD x 10' Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice	2.3750	2.3750	0.03
						1/2"	3.4031	3.4031	0.04
						Ice	4.4479	4.4479	0.07
						1" Ice	5.9106	5.9106	0.14
						2" Ice			
2.375" OD x 10' Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice	2.3750	2.3750	0.03
						1/2"	3.4031	3.4031	0.04
						Ice	4.4479	4.4479	0.07
						1" Ice	5.9106	5.9106	0.14
						2" Ice			
*** ***									
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	115.0000	No Ice	6.7474	6.0700	0.15
						1/2"	7.2017	6.8671	0.21
						Ice	7.6475	7.5828	0.28
						1" Ice	8.5651	9.0629	0.44
						2" Ice			
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	115.0000	No Ice	6.7474	6.0700	0.15
						1/2"	7.2017	6.8671	0.21
						Ice	7.6475	7.5828	0.28
						1" Ice	8.5651	9.0629	0.44
						2" Ice			
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	115.0000	No Ice	6.7474	6.0700	0.15
						1/2"	7.2017	6.8671	0.21
						Ice	7.6475	7.5828	0.28
						1" Ice	8.5651	9.0629	0.44
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	115.0000	No Ice	14.6900	6.8700	0.19
						1/2"	15.4600	7.5500	0.31
						Ice	16.2300	8.2500	0.46
						1" Ice	17.8200	9.6700	0.79
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	115.0000	No Ice	14.6900	6.8700	0.19
						1/2"	15.4600	7.5500	0.31
						Ice	16.2300	8.2500	0.46
						1" Ice	17.8200	9.6700	0.79
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	115.0000	No Ice	14.6900	6.8700	0.19
						1/2"	15.4600	7.5500	0.31
						Ice	16.2300	8.2500	0.46
						1" Ice	17.8200	9.6700	0.79
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
(2) S20070A1	A	From Leg	4.0000	0.00	0.00	115.0000	No Ice 0.6560	0.3257	0.01
			0.00				1/2" 0.7636	0.4114	0.01
			1.00				Ice 0.8786	0.5041	0.02
							1" Ice 1.1308	0.7105	0.04
							2" Ice		
S20070A1	B	From Leg	4.0000	0.00	0.00	115.0000	No Ice 0.6560	0.3257	0.01
			0.00				1/2" 0.7636	0.4114	0.01
			1.00				Ice 0.8786	0.5041	0.02
							1" Ice 1.1308	0.7105	0.04
							2" Ice		
ETW200VS12UB	A	From Leg	4.0000	0.00	0.00	115.0000	No Ice 0.4043	0.1628	0.01
			0.00				1/2" 0.4857	0.2187	0.01
			1.00				Ice 0.5746	0.2820	0.02
							1" Ice 0.7746	0.4309	0.03
							2" Ice		
ETW200VS12UB	B	From Leg	4.0000	0.00	0.00	115.0000	No Ice 0.4043	0.1628	0.01
			0.00				1/2" 0.4857	0.2187	0.01
			1.00				Ice 0.5746	0.2820	0.02
							1" Ice 0.7746	0.4309	0.03
							2" Ice		
ETW200VS12UB	C	From Leg	4.0000	0.00	0.00	115.0000	No Ice 0.4043	0.1628	0.01
			0.00				1/2" 0.4857	0.2187	0.01
			1.00				Ice 0.5746	0.2820	0.02
							1" Ice 0.7746	0.4309	0.03
							2" Ice		
RADIO 4449 B12/B71	A	From Leg	4.0000	0.00	0.00	115.0000	No Ice 1.6500	1.1625	0.07
			0.00				1/2" 1.8104	1.3012	0.09
			1.00				Ice 1.9781	1.4473	0.11
							1" Ice 2.3359	1.7618	0.16
							2" Ice		
RADIO 4449 B12/B71	B	From Leg	4.0000	0.00	0.00	115.0000	No Ice 1.6500	1.1625	0.07
			0.00				1/2" 1.8104	1.3012	0.09
			1.00				Ice 1.9781	1.4473	0.11
							1" Ice 2.3359	1.7618	0.16
							2" Ice		
RADIO 4449 B12/B71	C	From Leg	4.0000	0.00	0.00	115.0000	No Ice 1.6500	1.1625	0.07
			0.00				1/2" 1.8104	1.3012	0.09
			1.00				Ice 1.9781	1.4473	0.11
							1" Ice 2.3359	1.7618	0.16
							2" Ice		
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None			0.00	115.0000	No Ice 37.6100	37.6100	2.63
							1/2" 45.6200	45.6200	3.48
							Ice 53.5900	53.5900	4.46
							1" Ice 69.6500	69.6500	6.85
							2" Ice		
2.375" OD x 9' Mount Pipe	A	From Leg	4.0000	0.00	0.00	115.0000	No Ice 2.1375	2.1375	0.03
			0.00				1/2" 3.0656	3.0656	0.04
			0.00				Ice 4.0104	4.0104	0.06
							1" Ice 5.1312	5.1312	0.13
							2" Ice		
2.375" OD x 9' Mount Pipe	B	From Leg	4.0000	0.00	0.00	115.0000	No Ice 2.1375	2.1375	0.03
			0.00				1/2" 3.0656	3.0656	0.04
			0.00				Ice 4.0104	4.0104	0.06
							1" Ice 5.1312	5.1312	0.13
							2" Ice		
2.375" OD x 9' Mount Pipe	C	From Leg	4.0000	0.00	0.00	115.0000	No Ice 2.1375	2.1375	0.03
			0.00				1/2" 3.0656	3.0656	0.04
			0.00				Ice 4.0104	4.0104	0.06
							1" Ice 5.1312	5.1312	0.13
							2" Ice		
***									
LNx-6514DS-VTM w/ Mount Pipe	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice 4.0900	3.3000	0.06
			0.00				1/2" 4.4900	3.6800	0.13
			0.00				Ice 4.8900	4.0600	0.20
							1" Ice 5.7100	4.8700	0.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K
LNX-6514DS-VTM w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.0900	3.3000	0.06
						1/2"	4.4900	3.6800	0.13
						Ice	4.8900	4.0600	0.20
						1" Ice	5.7100	4.8700	0.38
LNX-6514DS-VTM w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.0900	3.3000	0.06
						1/2"	4.4900	3.6800	0.13
						Ice	4.8900	4.0600	0.20
						1" Ice	5.7100	4.8700	0.38
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.0900	3.3000	0.07
						1/2"	4.4900	3.6800	0.13
						Ice	4.8900	4.0700	0.20
						1" Ice	5.7200	4.8700	0.39
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.0900	3.3000	0.07
						1/2"	4.4900	3.6800	0.13
						Ice	4.8900	4.0700	0.20
						1" Ice	5.7200	4.8700	0.39
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.0900	3.3000	0.07
						1/2"	4.4900	3.6800	0.13
						Ice	4.8900	4.0700	0.20
						1" Ice	5.7200	4.8700	0.39
DB-T1-6Z-8AB-0Z	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.8000	2.0000	0.04
						1/2"	5.0704	2.1926	0.08
						Ice	5.3481	2.3926	0.12
						1" Ice	5.9259	2.8148	0.21
DB-T1-6Z-8AB-0Z	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	4.8000	2.0000	0.04
						1/2"	5.0704	2.1926	0.08
						Ice	5.3481	2.3926	0.12
						1" Ice	5.9259	2.8148	0.21
CBC78T-DS-43-2X	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	0.3680	0.5120	0.02
						1/2"	0.4456	0.6046	0.03
						Ice	0.5306	0.7046	0.04
						1" Ice	0.7228	0.9268	0.06
CBC78T-DS-43-2X	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	0.3680	0.5120	0.02
						1/2"	0.4456	0.6046	0.03
						Ice	0.5306	0.7046	0.04
						1" Ice	0.7228	0.9268	0.06
CBC78T-DS-43-2X	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	0.3680	0.5120	0.02
						1/2"	0.4456	0.6046	0.03
						Ice	0.5306	0.7046	0.04
						1" Ice	0.7228	0.9268	0.06
CBRS w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	1.7135	1.1683	0.03
						1/2"	1.9342	1.4373	0.05
						Ice	2.1662	1.7226	0.07
						1" Ice	2.6643	2.3506	0.13
CBRS w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	1.7135	1.1683	0.03
						1/2"	1.9342	1.4373	0.05
						Ice	2.1662	1.7226	0.07
						1" Ice	2.6643	2.3506	0.13
CBRS w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice			
						No Ice	1.7135	1.1683	0.03
						1/2"	1.9342	1.4373	0.05
						Ice	2.1662	1.7226	0.07
						1" Ice	2.6643	2.3506	0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
20W CBRS	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	0.8571	0.4203	0.02
						No Ice	0.9752	0.5105	0.03
						1/2" Ice	1.1008	0.6082	0.03
						1" Ice	1.3741	0.8327	0.06
20W CBRS	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	0.8571	0.4203	0.02
						No Ice	0.9752	0.5105	0.03
						1/2" Ice	1.1008	0.6082	0.03
						1" Ice	1.3741	0.8327	0.06
20W CBRS	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	0.8571	0.4203	0.02
						No Ice	0.9752	0.5105	0.03
						1/2" Ice	1.1008	0.6082	0.03
						1" Ice	1.3741	0.8327	0.06
RFV01U-D2A	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.8750	1.0125	0.07
						No Ice	2.0454	1.1445	0.09
						1/2" Ice	2.2231	1.2840	0.11
						1" Ice	2.6009	1.5851	0.15
RFV01U-D2A	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.8750	1.0125	0.07
						No Ice	2.0454	1.1445	0.09
						1/2" Ice	2.2231	1.2840	0.11
						1" Ice	2.6009	1.5851	0.15
RFV01U-D2A	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.8750	1.0125	0.07
						No Ice	2.0454	1.1445	0.09
						1/2" Ice	2.2231	1.2840	0.11
						1" Ice	2.6009	1.5851	0.15
RFV01U-D1A	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.8750	1.2500	0.08
						No Ice	2.0454	1.3926	0.10
						1/2" Ice	2.2231	1.5426	0.12
						1" Ice	2.6009	1.8648	0.18
RFV01U-D1A	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.8750	1.2500	0.08
						No Ice	2.0454	1.3926	0.10
						1/2" Ice	2.2231	1.5426	0.12
						1" Ice	2.6009	1.8648	0.18
RFV01U-D1A	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.8750	1.2500	0.08
						No Ice	2.0454	1.3926	0.10
						1/2" Ice	2.2231	1.5426	0.12
						1" Ice	2.6009	1.8648	0.18
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.00	104.0000	2" Ice	37.6100	37.6100	2.63
						No Ice	45.6200	45.6200	3.48
						1/2" Ice	53.5900	53.5900	4.46
						1" Ice	69.6500	69.6500	6.85
2.375" OD x 6' Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.4250	1.4250	0.03
						No Ice	1.9250	1.9250	0.04
						1/2" Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.4250	1.4250	0.03
						No Ice	1.9250	1.9250	0.04
						1/2" Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	104.0000	2" Ice	1.4250	1.4250	0.03
						No Ice	1.9250	1.9250	0.04
						1/2" Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
						2" Ice			
*****									
Pipe Mount [PM 601-3]	C	None		0.00	95.0000	No Ice	3.1700	3.1700	0.20
						1/2" Ice	3.7900	3.7900	0.23
						Ice	4.4200	4.4200	0.28
						1" Ice	5.7600	5.7600	0.40
						2" Ice			
***									
2.375" OD x 6' Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	80.0000	No Ice	1.4250	1.4250	0.03
						1/2" Ice	1.9250	1.9250	0.04
						Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09
						2" Ice			
OG-860/1920/GPS-A	A	From Leg	4.0000 0.00 2.00	0.00	80.0000	No Ice	0.3077	0.3667	0.00
						1/2" Ice	0.3952	0.4572	0.01
						Ice	0.4897	0.5548	0.01
						1" Ice	0.6997	0.7708	0.02
						2" Ice			
Side Arm Mount [SO 901-1]	A	None		0.00	80.0000	No Ice	0.3300	0.6200	0.11
						1/2" Ice	0.4600	0.7800	0.11
						Ice	0.6200	0.9700	0.12
						1" Ice	1.0100	1.4300	0.15
						2" Ice			
*****									

**Tower Pressures - No Ice**

$G_H = 1.100$

Section Elevation ft	z ft	K <sub>Z</sub>	q <sub>z</sub> ksf	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>
L1 140.0000-135.0000	137.4744	1.353	0.05	7.084	A	0.000	7.084	7.084	100.00	0.000	0.000
					B	0.000	7.084		100.00	0.000	0.000
					C	0.000	7.084		100.00	0.000	0.000
L2 135.0000-130.0000	132.4759	1.343	0.05	7.522	A	0.000	7.522	7.522	100.00	0.000	0.000
					B	0.000	7.522		100.00	0.000	0.000
					C	0.000	7.522		100.00	0.000	0.000
L3 130.0000-125.0000	127.4772	1.332	0.05	7.960	A	0.000	7.960	7.960	100.00	0.000	0.000
					B	0.000	7.960		100.00	0.000	0.000
					C	0.000	7.960		100.00	0.000	0.000
L4 125.0000-120.0000	122.4784	1.321	0.05	8.398	A	0.000	8.398	8.398	100.00	0.000	0.000
					B	0.000	8.398		100.00	0.000	0.000
					C	0.000	8.398		100.00	0.198	0.000
L5 120.0000-115.0000	117.4794	1.309	0.05	8.836	A	0.000	8.836	8.836	100.00	0.000	0.000
					B	0.000	8.836		100.00	0.000	0.000
					C	0.000	8.836		100.00	0.992	0.000
L6 115.0000-110.0000	112.4804	1.297	0.05	9.274	A	0.000	9.274	9.274	100.00	0.000	0.000
					B	0.000	9.274		100.00	6.330	0.000
					C	0.000	9.274		100.00	0.992	0.000
L7 110.0000-105.0000	107.4813	1.285	0.05	9.711	A	0.000	9.711	9.711	100.00	0.375	0.000
					B	0.000	9.711		100.00	6.705	0.000
					C	0.000	9.711		100.00	1.367	0.000
L8 105.0000-104.0000	104.4993	1.277	0.05	1.995	A	0.000	1.995	1.995	100.00	0.750	0.000
					B	0.000	1.995		100.00	2.016	0.000
					C	0.000	1.995		100.00	0.948	0.000
L9 104.0000-103.7500	103.8750	1.276	0.05	0.500	A	0.000	0.500	0.500	100.00	0.188	0.000
					B	0.000	0.500		100.00	0.504	0.000
					C	0.000	0.500		100.00	0.237	0.000

Section Elevation	z	K <sub>Z</sub>	q <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
ft	ft		ksf	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>
L10	101.2323	1.269	0.05	10.229	A	0.000	10.229	10.229	100.00	5.527	0.000
103.7500-					B	0.000	10.229		100.00	11.857	0.000
98.7500					C	0.000	10.229		100.00	6.519	0.000
L11	98.6250	1.262	0.05	0.523	A	0.000	0.523	0.523	100.00	0.410	0.000
98.7500-					B	0.000	0.523		100.00	0.726	0.000
98.5000					C	0.000	0.523		100.00	0.459	0.000
L12	98.3750	1.261	0.05	0.522	A	0.000	0.522	0.522	100.00	0.410	0.000
98.5000-					B	0.000	0.522		100.00	0.726	0.000
98.2500					C	0.000	0.522		100.00	0.459	0.000
L13	97.6239	1.259	0.05	2.627	A	0.000	2.627	2.627	100.00	2.048	0.000
98.2500-					B	0.000	2.627		100.00	3.630	0.000
97.0000					C	0.000	2.627		100.00	2.296	0.000
L14	96.8750	1.257	0.05	0.530	A	0.000	0.530	0.530	100.00	0.410	0.000
97.0000-					B	0.000	0.530		100.00	0.726	0.000
96.7500					C	0.000	0.530		100.00	0.459	0.000
L15	92.5800	1.245	0.04	18.113	A	0.000	18.113	18.113	100.00	8.266	0.000
96.7500-					B	0.000	18.113		100.00	23.051	0.000
88.5000					C	0.000	18.113		100.00	19.795	0.000
L16	88.3349	1.233	0.04	0.734	A	0.000	0.734	0.734	100.00	0.293	0.000
88.5000-					B	0.000	0.734		100.00	1.371	0.000
88.1700					C	0.000	0.734		100.00	1.081	0.000
L17	88.0450	1.232	0.04	0.556	A	0.000	0.556	0.556	100.00	0.222	0.000
88.1700-					B	0.000	0.556		100.00	1.039	0.000
87.9200					C	0.000	0.556		100.00	0.819	0.000
L18	85.4041	1.224	0.04	11.358	A	0.000	11.358	11.358	100.00	4.442	0.000
87.9200-					B	0.000	11.358		100.00	20.772	0.000
82.9200					C	0.000	11.358		100.00	16.374	0.000
L19	80.4047	1.209	0.04	11.798	A	0.000	11.798	11.798	100.00	4.442	0.000
82.9200-					B	0.000	11.798		100.00	20.772	0.000
77.9200					C	0.000	11.798		100.00	16.374	0.000
L20	75.4052	1.193	0.04	12.237	A	0.000	12.237	12.237	100.00	4.442	0.000
77.9200-					B	0.000	12.237		100.00	20.772	0.000
72.9200					C	0.000	12.237		100.00	16.374	0.000
L21	70.4866	1.176	0.04	12.267	A	0.000	12.267	12.267	100.00	5.254	0.000
72.9200-					B	0.000	12.267		100.00	21.061	0.000
68.0800					C	0.000	12.267		100.00	16.804	0.000
L22	67.9550	1.167	0.04	0.644	A	0.000	0.644	0.644	100.00	0.287	0.000
68.0800-					B	0.000	0.644		100.00	1.104	0.000
67.8300					C	0.000	0.644		100.00	0.884	0.000
L23	65.3162	1.157	0.04	13.110	A	0.000	13.110	13.110	100.00	5.742	0.000
67.8300-					B	0.000	13.110		100.00	22.072	0.000
62.8300					C	0.000	13.110		100.00	17.674	0.000
L24	60.3166	1.138	0.04	13.552	A	0.000	13.552	13.552	100.00	5.742	0.000
62.8300-					B	0.000	13.552		100.00	22.072	0.000
57.8300					C	0.000	13.552		100.00	17.674	0.000
L25	55.3171	1.117	0.04	13.992	A	0.000	13.992	13.992	100.00	5.742	0.000
57.8300-					B	0.000	13.992		100.00	22.072	0.000
52.8300					C	0.000	13.992		100.00	17.674	0.000
L26	50.0244	1.094	0.04	16.132	A	0.000	16.132	16.132	100.00	6.408	0.000
52.8300-					B	0.000	16.132		100.00	24.632	0.000
47.2500					C	0.000	16.132		100.00	19.724	0.000
L27	46.8747	1.079	0.04	2.168	A	0.000	2.168	2.168	100.00	0.861	0.000
47.2500-					B	0.000	2.168		100.00	3.311	0.000
46.5000					C	0.000	2.168		100.00	2.651	0.000
L28	43.9877	1.065	0.04	14.707	A	0.000	14.707	14.707	100.00	5.785	0.000
46.5000-					B	0.000	14.707		100.00	22.115	0.000
41.5000					C	0.000	14.707		100.00	17.717	0.000
L29	39.6183	1.041	0.04	11.320	A	0.000	11.320	11.320	100.00	4.956	0.000
41.5000-					B	0.000	11.320		100.00	17.204	0.000
37.7500					C	0.000	11.320		100.00	13.905	0.000
L30	37.6250	1.03	0.04	0.763	A	0.000	0.763	0.763	100.00	0.330	0.000
37.7500-					B	0.000	0.763		100.00	1.147	0.000
37.5000					C	0.000	0.763		100.00	0.927	0.000
L31	34.9883	1.015	0.04	15.499	A	0.000	15.499	15.499	100.00	6.608	0.000
37.5000-					B	0.000	15.499		100.00	23.438	0.000
32.5000					C	0.000	15.499		100.00	18.790	0.000
L32	32.3750	0.998	0.04	0.786	A	0.000	0.786	0.786	100.00	0.330	0.000
32.5000-					B	0.000	0.786		100.00	1.189	0.000
32.2500											

Section Elevation ft	z ft	$K_z$	$q_z$ ksf	$A_G$ ft <sup>2</sup>	F a c e	$A_F$ ft <sup>2</sup>	$A_R$ ft <sup>2</sup>	$A_{leg}$ ft <sup>2</sup>	Leg %	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>
L33 32.2500- 27.2500	29.7386	0.98	0.04	15.953	C	0.000	0.786	15.953	100.00	0.948	0.000
					A	0.000	15.953		100.00	6.608	0.000
					B	0.000	15.953		100.00	23.772	0.000
L34 27.2500- 23.5000	25.3688	0.948	0.03	12.254	C	0.000	15.953	12.254	100.00	18.957	0.000
					A	0.000	12.254		100.00	4.956	0.000
					B	0.000	12.254		100.00	17.829	0.000
L35 23.5000- 23.2500	23.3750	0.932	0.03	0.825	C	0.000	0.825	0.825	100.00	21.682	0.000
					A	0.000	0.825		100.00	0.330	0.000
					B	0.000	0.825		100.00	1.189	0.000
L36 23.2500- 20.7500	21.9973	0.92	0.03	8.310	C	0.000	0.825	8.310	100.00	1.522	0.000
					A	0.000	8.310		100.00	3.304	0.000
					B	0.000	8.310		100.00	11.886	0.000
L37 20.7500- 20.5000	20.6250	0.908	0.03	0.837	C	0.000	8.310	0.837	100.00	15.220	0.000
					A	0.000	0.837		100.00	0.330	0.000
					B	0.000	0.837		100.00	1.189	0.000
L38 20.5000- 15.5000	17.9893	0.882	0.03	16.980	C	0.000	0.837	16.980	100.00	1.522	0.000
					A	0.000	16.980		100.00	6.608	0.000
					B	0.000	16.980		100.00	23.772	0.000
L39 15.5000- 10.5000	12.9896	0.85	0.03	17.418	C	0.000	16.980	17.418	100.00	28.788	0.000
					A	0.000	17.418		100.00	6.608	0.000
					B	0.000	17.418		100.00	23.772	0.000
L40 10.5000- 5.5000	7.9899	0.85	0.03	17.860	C	0.000	17.418	17.860	100.00	23.832	0.000
					A	0.000	17.860		100.00	6.608	0.000
					B	0.000	17.860		100.00	23.772	0.000
L41 5.5000- 3.0000	4.2475	0.85	0.03	9.094	C	0.000	17.860	9.094	100.00	23.832	0.000
					A	0.000	9.094		100.00	3.304	0.000
					B	0.000	9.094		100.00	11.886	0.000
L42 3.0000- 2.7500	2.8750	0.85	0.03	0.914	C	0.000	9.094	0.914	100.00	11.916	0.000
					A	0.000	0.914		100.00	0.330	0.000
					B	0.000	0.914		100.00	1.189	0.000
L43 2.7500- 1.7500	2.2496	0.85	0.03	3.668	C	0.000	0.914	3.668	100.00	1.192	0.000
					A	0.000	3.668		100.00	1.322	0.000
					B	0.000	3.668		100.00	4.754	0.000
L44 1.7500- 1.5000	1.6250	0.85	0.03	0.919	C	0.000	3.668	0.919	100.00	4.766	0.000
					A	0.000	0.919		100.00	0.330	0.000
					B	0.000	0.919		100.00	1.189	0.000
L45 1.5000- 0.0000	0.7491	0.85	0.03	5.535	C	0.000	0.919	5.535	100.00	1.192	0.000
					A	0.000	5.535		100.00	1.983	0.000
					B	0.000	5.535		100.00	7.132	0.000
					C	0.000	5.535		100.00	7.150	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 <sup>2</sup>	F a c e	$A_F$ ft <sup>2</sup>	$A_R$ ft <sup>2</sup>	$A_{leg}$ ft <sup>2</sup>	Leg %	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>
L1 140.0000- 135.0000	137.4744	1.353	0.01	1.4706	8.310	A	0.000	8.310	8.310	100.00	0.000	0.000
						B	0.000	8.310		100.00	0.000	0.000
						C	0.000	8.310		100.00	0.000	0.000
L2 135.0000- 130.0000	132.4759	1.343	0.01	1.4651	8.743	A	0.000	8.743	8.743	100.00	0.000	0.000
						B	0.000	8.743		100.00	0.000	0.000
						C	0.000	8.743		100.00	0.000	0.000
L3 130.0000- 125.0000	127.4772	1.332	0.01	1.4595	9.176	A	0.000	9.176	9.176	100.00	0.000	0.000
						B	0.000	9.176		100.00	0.000	0.000
						C	0.000	9.176		100.00	0.000	0.000
L4 125.0000- 120.0000	122.4784	1.321	0.01	1.4537	9.609	A	0.000	9.609	9.609	100.00	0.000	0.000
						B	0.000	9.609		100.00	0.000	0.000
						C	0.000	9.609		100.00	0.892	0.000
L5 120.0000- 115.0000	117.4794	1.309	0.01	1.4476	10.042	A	0.000	10.042	10.042	100.00	0.000	0.000
						B	0.000	10.042		100.00	0.000	0.000
						C	0.000	10.042		100.00	4.448	0.000
L6 115.0000-	112.4804	1.297	0.01	1.4413	10.475	A	0.000	10.475	10.475	100.00	0.000	0.000

Section Elevation	z	K <sub>z</sub>	q <sub>z</sub>	t <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
ft	ft		ksf	in	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>
110.0000						B	0.000	10.475		100.00	11.516	0.000
						C	0.000	10.475		100.00	4.434	0.000
L7	110.0000- 105.0000	1.285	0.01	1.4348	10.907	A	0.000	10.907	10.907	100.00	0.456	0.000
						B	0.000	10.907		100.00	11.956	0.000
						C	0.000	10.907		100.00	4.875	0.000
L8	105.0000- 104.0000	1.277	0.01	1.4308	2.233	A	0.000	2.233	2.233	100.00	0.912	0.000
						B	0.000	2.233		100.00	3.210	0.000
						C	0.000	2.233		100.00	1.794	0.000
L9	104.0000- 103.7500	1.276	0.01	1.4299	0.559	A	0.000	0.559	0.559	100.00	0.228	0.000
						B	0.000	0.559		100.00	0.802	0.000
						C	0.000	0.559		100.00	0.448	0.000
L10	103.7500- 98.7500	1.269	0.01	1.4262	11.418	A	0.000	11.418	11.418	100.00	6.905	0.000
						B	0.000	11.418		100.00	18.384	0.000
						C	0.000	11.418		100.00	11.305	0.000
L11	98.7500- 98.5000	1.262	0.01	1.4225	0.582	A	0.000	0.582	0.582	100.00	0.521	0.000
						B	0.000	0.582		100.00	1.094	0.000
						C	0.000	0.582		100.00	0.741	0.000
L12	98.5000- 98.2500	1.261	0.01	1.4222	0.581	A	0.000	0.581	0.581	100.00	0.521	0.000
						B	0.000	0.581		100.00	1.094	0.000
						C	0.000	0.581		100.00	0.741	0.000
L13	98.2500- 97.0000	1.259	0.01	1.4211	2.923	A	0.000	2.923	2.923	100.00	2.605	0.000
						B	0.000	2.923		100.00	5.471	0.000
						C	0.000	2.923		100.00	3.702	0.000
L14	97.0000- 96.7500	1.257	0.01	1.4200	0.589	A	0.000	0.589	0.589	100.00	0.521	0.000
						B	0.000	0.589		100.00	1.094	0.000
						C	0.000	0.589		100.00	0.740	0.000
L15	96.7500- 88.5000	1.245	0.01	1.4135	20.056	A	0.000	20.056	20.056	100.00	10.799	0.000
						B	0.000	20.056		100.00	35.253	0.000
						C	0.000	20.056		100.00	32.744	0.000
L16	88.5000- 88.1700	1.233	0.01	1.4069	0.812	A	0.000	0.812	0.812	100.00	0.386	0.000
						B	0.000	0.812		100.00	1.988	0.000
						C	0.000	0.812		100.00	1.705	0.000
L17	88.1700- 87.9200	1.232	0.01	1.4065	0.615	A	0.000	0.615	0.615	100.00	0.292	0.000
						B	0.000	0.615		100.00	1.504	0.000
						C	0.000	0.615		100.00	1.290	0.000
L18	87.9200- 82.9200	1.224	0.01	1.4022	12.526	A	0.000	12.526	12.526	100.00	5.844	0.000
						B	0.000	12.526		100.00	30.066	0.000
						C	0.000	12.526		100.00	25.769	0.000
L19	82.9200- 77.9200	1.209	0.01	1.3938	12.959	A	0.000	12.959	12.959	100.00	5.835	0.000
						B	0.000	12.959		100.00	30.020	0.000
						C	0.000	12.959		100.00	25.723	0.000
L20	77.9200- 72.9200	1.193	0.01	1.3848	13.392	A	0.000	13.392	13.392	100.00	5.827	0.000
						B	0.000	13.392		100.00	29.971	0.000
						C	0.000	13.392		100.00	25.674	0.000
L21	72.9200- 68.0800	1.176	0.01	1.3755	13.376	A	0.000	13.376	13.376	100.00	6.585	0.000
						B	0.000	13.376		100.00	29.916	0.000
						C	0.000	13.376		100.00	25.757	0.000
L22	68.0800- 67.8300	1.167	0.01	1.3705	0.701	A	0.000	0.701	0.701	100.00	0.356	0.000
						B	0.000	0.701		100.00	1.560	0.000
						C	0.000	0.701		100.00	1.345	0.000
L23	67.8300- 62.8300	1.157	0.01	1.3651	14.248	A	0.000	14.248	14.248	100.00	7.107	0.000
						B	0.000	14.248		100.00	31.162	0.000
						C	0.000	14.248		100.00	26.865	0.000
L24	62.8300- 57.8300	1.138	0.01	1.3543	14.680	A	0.000	14.680	14.680	100.00	7.096	0.000
						B	0.000	14.680		100.00	31.103	0.000
						C	0.000	14.680		100.00	26.806	0.000
L25	57.8300- 52.8300	1.117	0.01	1.3426	15.110	A	0.000	15.110	15.110	100.00	7.084	0.000
						B	0.000	15.110		100.00	31.038	0.000
						C	0.000	15.110		100.00	26.742	0.000
L26	52.8300- 47.2500	1.094	0.01	1.3292	17.368	A	0.000	17.368	17.368	100.00	7.891	0.000
						B	0.000	17.368		100.00	34.556	0.000
						C	0.000	17.368		100.00	29.761	0.000
L27	47.2500- 46.5000	1.079	0.01	1.3205	2.334	A	0.000	2.334	2.334	100.00	1.061	0.000
						B	0.000	2.334		100.00	4.645	0.000
						C	0.000	2.334		100.00	4.000	0.000
L28	46.5000- 41.5000	1.065	0.01	1.3122	15.801	A	0.000	15.801	15.801	100.00	7.097	0.000
						B	0.000	15.801		100.00	30.914	0.000
						C	0.000	15.801		100.00	26.618	0.000

Section Elevation ft	z ft	K <sub>Z</sub>	q <sub>z</sub> ksf	t <sub>z</sub> in	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
L29 41.5000-37.7500	39.6183	1.041	0.01	1.2985	12.132	A	0.000	12.132	12.132	100.00	5.930	0.000
						B	0.000	12.132		100.00	23.747	0.000
						C	0.000	12.132		100.00	20.524	0.000
L30 37.7500-37.5000	37.6250	1.03	0.01	1.2918	0.817	A	0.000	0.817	0.817	100.00	0.395	0.000
						B	0.000	0.817		100.00	1.581	0.000
						C	0.000	0.817		100.00	1.366	0.000
L31 37.5000-32.5000	34.9883	1.015	0.01	1.2825	16.568	A	0.000	16.568	16.568	100.00	7.891	0.000
						B	0.000	16.568		100.00	32.074	0.000
						C	0.000	16.568		100.00	27.528	0.000
L32 32.5000-32.2500	32.3750	0.998	0.01	1.2726	0.839	A	0.000	0.839	0.839	100.00	0.394	0.000
						B	0.000	0.839		100.00	1.618	0.000
						C	0.000	0.839		100.00	1.382	0.000
L33 32.2500-27.2500	29.7386	0.98	0.01	1.2618	17.005	A	0.000	17.005	17.005	100.00	7.870	0.000
						B	0.000	17.005		100.00	32.294	0.000
						C	0.000	17.005		100.00	27.581	0.000
L34 27.2500-23.5000	25.3688	0.948	0.01	1.2419	13.030	A	0.000	13.030	13.030	100.00	5.888	0.000
						B	0.000	13.030		100.00	24.138	0.000
						C	0.000	13.030		100.00	29.682	0.000
L35 23.5000-23.2500	23.3750	0.932	0.01	1.2318	0.876	A	0.000	0.876	0.876	100.00	0.392	0.000
						B	0.000	0.876		100.00	1.606	0.000
						C	0.000	0.876		100.00	2.068	0.000
L36 23.2500-20.7500	21.9973	0.92	0.01	1.2243	8.820	A	0.000	8.820	8.820	100.00	3.916	0.000
						B	0.000	8.820		100.00	16.044	0.000
						C	0.000	8.820		100.00	20.653	0.000
L37 20.7500-20.5000	20.6250	0.908	0.01	1.2165	0.888	A	0.000	0.888	0.888	100.00	0.391	0.000
						B	0.000	0.888		100.00	1.602	0.000
						C	0.000	0.888		100.00	2.062	0.000
L38 20.5000-15.5000	17.9893	0.882	0.01	1.1999	17.980	A	0.000	17.980	17.980	100.00	7.808	0.000
						B	0.000	17.980		100.00	31.954	0.000
						C	0.000	17.980		100.00	39.171	0.000
L39 15.5000-10.5000	12.9896	0.85	0.00	1.1615	18.386	A	0.000	18.386	18.386	100.00	7.770	0.000
						B	0.000	18.386		100.00	31.742	0.000
						C	0.000	18.386		100.00	33.065	0.000
L40 10.5000-5.5000	7.9899	0.85	0.00	1.1064	18.782	A	0.000	18.782	18.782	100.00	7.715	0.000
						B	0.000	18.782		100.00	31.439	0.000
						C	0.000	18.782		100.00	32.707	0.000
L41 5.5000-3.0000	4.2475	0.85	0.00	1.0387	9.527	A	0.000	9.527	9.527	100.00	3.823	0.000
						B	0.000	9.527		100.00	15.533	0.000
						C	0.000	9.527		100.00	16.133	0.000
L42 3.0000-2.7500	2.8750	0.85	0.00	0.9989	0.956	A	0.000	0.956	0.956	100.00	0.380	0.000
						B	0.000	0.956		100.00	1.542	0.000
						C	0.000	0.956		100.00	1.600	0.000
L43 2.7500-1.7500	2.2496	0.85	0.00	0.9747	3.831	A	0.000	3.831	3.831	100.00	1.517	0.000
						B	0.000	3.831		100.00	6.143	0.000
						C	0.000	3.831		100.00	6.370	0.000
L44 1.7500-1.5000	1.6250	0.85	0.00	0.9435	0.958	A	0.000	0.958	0.958	100.00	0.378	0.000
						B	0.000	0.958		100.00	1.527	0.000
						C	0.000	0.958		100.00	1.582	0.000
L45 1.5000-0.0000	0.7491	0.85	0.00	0.8732	5.754	A	0.000	5.754	5.754	100.00	2.244	0.000
						B	0.000	5.754		100.00	9.047	0.000
						C	0.000	5.754		100.00	9.357	0.000

**Tower Pressure - Service**

$G_H = 1.100$

Section Elevation ft	z ft	K <sub>Z</sub>	q <sub>z</sub> ksf	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
L1 140.0000-135.0000	137.4744	1.353	0.01	7.084	A	0.000	7.084	7.084	100.00	0.000	0.000
					B	0.000	7.084		100.00	0.000	0.000
					C	0.000	7.084		100.00	0.000	0.000

Section Elevation ft	z ft	K <sub>Z</sub>	q <sub>z</sub> ksf	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
L2 135.0000- 130.0000	132.4759	1.343	0.01	7.522	A	0.000	7.522	7.522	100.00	0.000	0.000
					B	0.000	7.522		100.00	0.000	0.000
					C	0.000	7.522		100.00	0.000	0.000
L3 130.0000- 125.0000	127.4772	1.332	0.01	7.960	A	0.000	7.960	7.960	100.00	0.000	0.000
					B	0.000	7.960		100.00	0.000	0.000
					C	0.000	7.960		100.00	0.000	0.000
L4 125.0000- 120.0000	122.4784	1.321	0.01	8.398	A	0.000	8.398	8.398	100.00	0.000	0.000
					B	0.000	8.398		100.00	0.000	0.000
					C	0.000	8.398		100.00	0.198	0.000
L5 120.0000- 115.0000	117.4794	1.309	0.01	8.836	A	0.000	8.836	8.836	100.00	0.000	0.000
					B	0.000	8.836		100.00	0.000	0.000
					C	0.000	8.836		100.00	0.992	0.000
L6 115.0000- 110.0000	112.4804	1.297	0.01	9.274	A	0.000	9.274	9.274	100.00	0.000	0.000
					B	0.000	9.274		100.00	6.330	0.000
					C	0.000	9.274		100.00	0.992	0.000
L7 110.0000- 105.0000	107.4813	1.285	0.01	9.711	A	0.000	9.711	9.711	100.00	0.375	0.000
					B	0.000	9.711		100.00	6.705	0.000
					C	0.000	9.711		100.00	1.367	0.000
L8 105.0000- 104.0000	104.4993	1.277	0.01	1.995	A	0.000	1.995	1.995	100.00	0.750	0.000
					B	0.000	1.995		100.00	2.016	0.000
					C	0.000	1.995		100.00	0.948	0.000
L9 104.0000- 103.7500	103.8750	1.276	0.01	0.500	A	0.000	0.500	0.500	100.00	0.188	0.000
					B	0.000	0.500		100.00	0.504	0.000
					C	0.000	0.500		100.00	0.237	0.000
L10 103.7500- 98.7500	101.2323	1.269	0.01	10.229	A	0.000	10.229	10.229	100.00	5.527	0.000
					B	0.000	10.229		100.00	11.857	0.000
					C	0.000	10.229		100.00	6.519	0.000
L11 98.7500- 98.5000	98.6250	1.262	0.01	0.523	A	0.000	0.523	0.523	100.00	0.410	0.000
					B	0.000	0.523		100.00	0.726	0.000
					C	0.000	0.523		100.00	0.459	0.000
L12 98.5000- 98.2500	98.3750	1.261	0.01	0.522	A	0.000	0.522	0.522	100.00	0.410	0.000
					B	0.000	0.522		100.00	0.726	0.000
					C	0.000	0.522		100.00	0.459	0.000
L13 98.2500- 97.0000	97.6239	1.259	0.01	2.627	A	0.000	2.627	2.627	100.00	2.048	0.000
					B	0.000	2.627		100.00	3.630	0.000
					C	0.000	2.627		100.00	2.296	0.000
L14 97.0000- 96.7500	96.8750	1.257	0.01	0.530	A	0.000	0.530	0.530	100.00	0.410	0.000
					B	0.000	0.530		100.00	0.726	0.000
					C	0.000	0.530		100.00	0.459	0.000
L15 96.7500- 88.5000	92.5800	1.245	0.01	18.113	A	0.000	18.113	18.113	100.00	8.266	0.000
					B	0.000	18.113		100.00	23.051	0.000
					C	0.000	18.113		100.00	19.795	0.000
L16 88.5000- 88.1700	88.3349	1.233	0.01	0.734	A	0.000	0.734	0.734	100.00	0.293	0.000
					B	0.000	0.734		100.00	1.371	0.000
					C	0.000	0.734		100.00	1.081	0.000
L17 88.1700- 87.9200	88.0450	1.232	0.01	0.556	A	0.000	0.556	0.556	100.00	0.222	0.000
					B	0.000	0.556		100.00	1.039	0.000
					C	0.000	0.556		100.00	0.819	0.000
L18 87.9200- 82.9200	85.4041	1.224	0.01	11.358	A	0.000	11.358	11.358	100.00	4.442	0.000
					B	0.000	11.358		100.00	20.772	0.000
					C	0.000	11.358		100.00	16.374	0.000
L19 82.9200- 77.9200	80.4047	1.209	0.01	11.798	A	0.000	11.798	11.798	100.00	4.442	0.000
					B	0.000	11.798		100.00	20.772	0.000
					C	0.000	11.798		100.00	16.374	0.000
L20 77.9200- 72.9200	75.4052	1.193	0.01	12.237	A	0.000	12.237	12.237	100.00	4.442	0.000
					B	0.000	12.237		100.00	20.772	0.000
					C	0.000	12.237		100.00	16.374	0.000
L21 72.9200- 68.0800	70.4866	1.176	0.01	12.267	A	0.000	12.267	12.267	100.00	5.254	0.000
					B	0.000	12.267		100.00	21.061	0.000
					C	0.000	12.267		100.00	16.804	0.000
L22 68.0800- 67.8300	67.9550	1.167	0.01	0.644	A	0.000	0.644	0.644	100.00	0.287	0.000
					B	0.000	0.644		100.00	1.104	0.000
					C	0.000	0.644		100.00	0.884	0.000
L23 67.8300- 62.8300	65.3162	1.157	0.01	13.110	A	0.000	13.110	13.110	100.00	5.742	0.000
					B	0.000	13.110		100.00	22.072	0.000
					C	0.000	13.110		100.00	17.674	0.000
L24 62.8300- 57.8300	60.3166	1.138	0.01	13.552	A	0.000	13.552	13.552	100.00	5.742	0.000
					B	0.000	13.552		100.00	22.072	0.000

Section Elevation ft	z ft	K <sub>Z</sub>	q <sub>z</sub> ksf	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
L25 57.8300- 52.8300	55.3171	1.117	0.01	13.992	C	0.000	13.552	13.992	100.00	17.674	0.000
					A	0.000	13.992		100.00	5.742	0.000
					B	0.000	13.992		100.00	22.072	0.000
L26 52.8300- 47.2500	50.0244	1.094	0.01	16.132	C	0.000	13.992	16.132	100.00	17.674	0.000
					A	0.000	16.132		100.00	6.408	0.000
					B	0.000	16.132		100.00	24.632	0.000
L27 47.2500- 46.5000	46.8747	1.079	0.01	2.168	C	0.000	16.132	2.168	100.00	19.724	0.000
					A	0.000	2.168		100.00	0.861	0.000
					B	0.000	2.168		100.00	3.311	0.000
L28 46.5000- 41.5000	43.9877	1.065	0.01	14.707	C	0.000	2.168	14.707	100.00	2.651	0.000
					A	0.000	14.707		100.00	5.785	0.000
					B	0.000	14.707		100.00	22.115	0.000
L29 41.5000- 37.7500	39.6183	1.041	0.01	11.320	C	0.000	14.707	11.320	100.00	17.717	0.000
					A	0.000	11.320		100.00	4.956	0.000
					B	0.000	11.320		100.00	17.204	0.000
L30 37.7500- 37.5000	37.6250	1.03	0.01	0.763	C	0.000	11.320	0.763	100.00	13.905	0.000
					A	0.000	0.763		100.00	0.330	0.000
					B	0.000	0.763		100.00	1.147	0.000
L31 37.5000- 32.5000	34.9883	1.015	0.01	15.499	C	0.000	0.763	15.499	100.00	0.927	0.000
					A	0.000	15.499		100.00	6.608	0.000
					B	0.000	15.499		100.00	23.438	0.000
L32 32.5000- 32.2500	32.3750	0.998	0.01	0.786	C	0.000	15.499	0.786	100.00	18.790	0.000
					A	0.000	0.786		100.00	0.330	0.000
					B	0.000	0.786		100.00	1.189	0.000
L33 32.2500- 27.2500	29.7386	0.98	0.01	15.953	C	0.000	0.786	15.953	100.00	0.948	0.000
					A	0.000	15.953		100.00	6.608	0.000
					B	0.000	15.953		100.00	23.772	0.000
L34 27.2500- 23.5000	25.3688	0.948	0.01	12.254	C	0.000	15.953	12.254	100.00	18.957	0.000
					A	0.000	12.254		100.00	4.956	0.000
					B	0.000	12.254		100.00	17.829	0.000
L35 23.5000- 23.2500	23.3750	0.932	0.01	0.825	C	0.000	12.254	0.825	100.00	21.682	0.000
					A	0.000	0.825		100.00	0.330	0.000
					B	0.000	0.825		100.00	1.189	0.000
L36 23.2500- 20.7500	21.9973	0.92	0.01	8.310	C	0.000	0.825	8.310	100.00	1.522	0.000
					A	0.000	8.310		100.00	3.304	0.000
					B	0.000	8.310		100.00	11.886	0.000
L37 20.7500- 20.5000	20.6250	0.908	0.01	0.837	C	0.000	8.310	0.837	100.00	15.220	0.000
					A	0.000	0.837		100.00	0.330	0.000
					B	0.000	0.837		100.00	1.189	0.000
L38 20.5000- 15.5000	17.9893	0.882	0.01	16.980	C	0.000	0.837	16.980	100.00	1.522	0.000
					A	0.000	16.980		100.00	6.608	0.000
					B	0.000	16.980		100.00	23.772	0.000
L39 15.5000- 10.5000	12.9896	0.85	0.01	17.418	C	0.000	16.980	17.418	100.00	28.788	0.000
					A	0.000	17.418		100.00	6.608	0.000
					B	0.000	17.418		100.00	23.772	0.000
L40 10.5000- 5.5000	7.9899	0.85	0.01	17.860	C	0.000	17.418	17.860	100.00	23.832	0.000
					A	0.000	17.860		100.00	6.608	0.000
					B	0.000	17.860		100.00	23.772	0.000
L41 5.5000- 3.0000	4.2475	0.85	0.01	9.094	C	0.000	17.860	9.094	100.00	23.832	0.000
					A	0.000	9.094		100.00	3.304	0.000
					B	0.000	9.094		100.00	11.886	0.000
L42 3.0000- 2.7500	2.8750	0.85	0.01	0.914	C	0.000	9.094	0.914	100.00	11.916	0.000
					A	0.000	0.914		100.00	0.330	0.000
					B	0.000	0.914		100.00	1.189	0.000
L43 2.7500- 1.7500	2.2496	0.85	0.01	3.668	C	0.000	0.914	3.668	100.00	1.192	0.000
					A	0.000	3.668		100.00	1.322	0.000
					B	0.000	3.668		100.00	4.754	0.000
L44 1.7500- 1.5000	1.6250	0.85	0.01	0.919	C	0.000	3.668	0.919	100.00	4.766	0.000
					A	0.000	0.919		100.00	0.330	0.000
					B	0.000	0.919		100.00	1.189	0.000
L45 1.5000- 0.0000	0.7491	0.85	0.01	5.535	C	0.000	0.919	5.535	100.00	1.192	0.000
					A	0.000	5.535		100.00	1.983	0.000
					B	0.000	5.535		100.00	7.132	0.000
					C	0.000	5.535		100.00	7.150	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
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	140 - 135	Pole	Max Tension	48	0.00	-0.00	0.00
			Max. Compression	26	-10.03	-0.00	-0.00
			Max. Mx	20	-4.34	20.82	-0.00
			Max. My	2	-4.34	-0.00	20.82
			Max. Vy	20	-5.25	20.82	-0.00
			Max. Vx	2	-5.25	-0.00	20.82
			Max. Torque	12			
L2	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	130 - 125	Pole	Max. Compression	26	-10.52	-0.00	-0.00
			Max. Mx	20	-4.62	48.08	-0.01
			Max. My	2	-4.62	-0.00	48.07
			Max. Vy	20	-5.66	48.08	-0.01
			Max. Vx	2	-5.66	-0.00	48.07
			Max. Torque	12			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.03	-0.00	-0.00
			Max. Mx	20	-4.91	77.41	-0.01
			Max. My	2	-4.91	-0.00	77.40
L4	125 - 120	Pole	Max. Vy	20	-6.08	77.41	-0.01
			Max. Vx	2	-6.08	-0.00	77.40
			Max. Torque	12			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.85	0.14	-0.51
			Max. Mx	20	-9.56	123.19	-0.13
			Max. My	14	-9.57	0.04	-123.29
			Max. Vy	20	-14.00	123.19	-0.13
			Max. Vx	2	-14.00	-0.00	122.99
			Max. Torque	22			0.49
L5	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.62	0.14	-0.55
			Max. Mx	20	-10.10	194.25	-0.15
			Max. My	14	-10.10	0.06	-194.36
			Max. Vy	20	-14.44	194.25	-0.15
			Max. Vx	2	-14.44	-0.01	194.05
			Max. Torque	22			0.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.62	-0.12	-0.30
			Max. Mx	8	-15.09	-295.52	-0.03
L6	115 - 110	Pole	Max. My	14	-15.08	-0.03	-295.72
			Max. Vy	20	-20.01	295.49	-0.07
			Max. Vx	2	-20.03	-0.07	295.57
			Max. Torque	22			0.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.65	-0.27	-0.27
			Max. Mx	8	-15.84	-396.56	-0.02
			Max. My	14	-15.83	-0.08	-396.81
			Max. Vy	20	-20.42	396.45	-0.04
			Max. Vx	2	-20.44	-0.10	396.70
L7	110 - 105	Pole	Max. Torque	10			-0.37
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.89	-0.30	-0.26
			Max. Mx	8	-15.99	-417.03	-0.02
			Max. My	14	-15.99	-0.09	-417.28
			Max. Vy	8	20.53	-417.03	-0.02
			Max. Vx	2	-20.53	-0.11	417.17
			Max. Torque	10			-0.37
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.69	0.42	0.16
L8	105 - 104	Pole	Max. Mx	20	-20.52	423.41	0.06
			Max. My	2	-20.52	0.06	423.62
			Max. Vy	8	25.31	-423.15	0.10
			Max. Vx	2	-25.35	0.06	423.62
			Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.26	0.27	0.20
			Max. Mx	8	-21.56	-551.27	0.36
			Max. My	2	-21.56	-0.23	551.85
			Max. Vy	8	25.95	-551.27	0.36
L9	104 - 103.75	Pole	Max. Vx	2	-25.96	-0.23	551.85
			Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.34	0.26	0.20
			Max. Mx	8	-21.63	-557.76	0.37
			Max. My	2	-21.63	-0.24	558.35
			Max. Vy	8	25.98	-557.76	0.37
			Max. Vx	2	-25.99	-0.24	558.35
			Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
L10	103.75 - 98.75	Pole	Max. Compression	26	-48.26	0.27	0.20
			Max. Mx	8	-21.56	-551.27	0.36
			Max. My	2	-21.56	-0.23	551.85
			Max. Vy	8	25.95	-551.27	0.36
			Max. Vx	2	-25.96	-0.23	551.85
			Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.34	0.26	0.20
			Max. Mx	8	-21.63	-557.76	0.37
			Max. My	2	-21.63	-0.24	558.35
L11	98.75 - 98.5	Pole	Max. Vy	8	25.98	-557.76	0.37
			Max. Vx	2	-25.99	-0.24	558.35
			Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.34	0.26	0.20
			Max. Mx	8	-21.63	-557.76	0.37
			Max. My	2	-21.63	-0.24	558.35
			Max. Vy	8	25.98	-557.76	0.37
			Max. Vx	2	-25.99	-0.24	558.35
			Max. Torque	2			0.62

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L12	98.5 - 98.25	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.44	0.25	0.21
			Max. Mx	8	-21.70	-564.26	0.39
			Max. My	2	-21.70	-0.26	564.85
			Max. Vy	8	26.02	-564.26	0.39
			Max. Vx	2	-26.02	-0.26	564.85
L13	98.25 - 97	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.95	0.21	0.22
			Max. Mx	8	-22.03	-596.90	0.45
			Max. My	2	-22.03	-0.33	597.47
			Max. Vy	8	26.20	-596.90	0.45
			Max. Vx	2	-26.20	-0.33	597.47
L14	97 - 96.75	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.04	0.21	0.22
			Max. Mx	8	-22.10	-603.45	0.47
			Max. My	2	-22.10	-0.34	604.02
			Max. Vy	8	26.24	-603.45	0.47
			Max. Vx	2	-26.23	-0.34	604.02
L15	96.75 - 88.5	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.20	0.03	0.16
			Max. Mx	8	-23.49	-736.75	0.70
			Max. My	2	-23.49	-0.63	737.23
			Max. Vy	8	27.04	-736.75	0.70
			Max. Vx	2	-27.03	-0.63	737.23
L16	88.5 - 88.17	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.23	-0.10	0.11
			Max. Mx	8	-24.89	-834.52	0.87
			Max. My	2	-24.89	-0.84	834.91
			Max. Vy	20	-27.59	833.96	-0.66
			Max. Vx	2	-27.56	-0.84	834.91
L17	88.17 - 87.92	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.35	-0.11	0.11
			Max. Mx	8	-24.98	-841.42	0.88
			Max. My	2	-24.98	-0.85	841.80
			Max. Vy	20	-27.64	840.86	-0.68
			Max. Vx	2	-27.60	-0.85	841.80
L18	87.92 - 82.92	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.76	-0.34	0.03
			Max. Mx	8	-26.63	-981.24	1.11
			Max. My	2	-26.63	-1.15	981.48
			Max. Vy	20	-28.37	980.74	-0.93
			Max. Vx	2	-28.31	-1.15	981.48
L19	82.92 - 77.92	Pole	Max. Torque	2			0.62
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.43	-0.57	0.42
			Max. Mx	8	-28.48	-1124.85	1.51
			Max. My	2	-28.48	-1.44	1125.13
			Max. Vy	20	-29.23	1124.60	-1.01
			Max. Vx	2	-29.12	-1.44	1125.13
L20	77.92 - 72.92	Pole	Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.88	-0.82	0.34
			Max. Mx	20	-30.20	1272.46	-1.26
			Max. My	2	-30.21	-1.74	1272.38
			Max. Vy	20	-29.97	1272.46	-1.26
			Max. Vx	2	-29.82	-1.74	1272.38
L21	72.92 -	Pole	Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	68.08		Max. Compression	26	-63.31	-1.05	0.26
			Max. Mx	20	-31.90	1419.11	-1.51
			Max. My	2	-31.91	-2.03	1418.23
			Max. Vy	20	-30.69	1419.11	-1.51
			Max. Vx	2	-30.49	-2.03	1418.23
			Max. Torque	4			0.69
L22	68.08 - 67.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.44	-1.07	0.25
			Max. Mx	20	-32.01	1426.78	-1.52
			Max. My	2	-32.03	-2.04	1425.85
			Max. Vy	20	-30.74	1426.78	-1.52
			Max. Vx	2	-30.53	-2.04	1425.85
			Max. Torque	4			0.69
L23	67.83 - 62.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.15	-1.32	0.17
			Max. Mx	20	-33.94	1582.20	-1.77
			Max. My	2	-33.96	-2.34	1580.19
			Max. Vy	20	-31.50	1582.20	-1.77
			Max. Vx	2	-31.25	-2.34	1580.19
			Max. Torque	4			0.69
L24	62.83 - 57.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.87	-1.58	0.08
			Max. Mx	20	-35.91	1741.45	-2.03
			Max. My	2	-35.93	-2.65	1738.12
			Max. Vy	20	-32.26	1741.45	-2.03
			Max. Vx	2	-31.96	-2.65	1738.12
			Max. Torque	4			0.69
L25	57.83 - 52.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.62	-1.85	-0.00
			Max. Mx	20	-37.91	1904.47	-2.28
			Max. My	2	-37.94	-2.95	1899.58
			Max. Vy	20	-33.01	1904.47	-2.28
			Max. Vx	2	-32.66	-2.95	1899.58
			Max. Torque	4			0.69
L26	52.83 - 47.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.36	-1.92	-0.03
			Max. Mx	20	-38.45	1948.46	-2.35
			Max. My	2	-38.47	-3.03	1943.11
			Max. Vy	20	-33.21	1948.46	-2.35
			Max. Vx	2	-32.85	-3.03	1943.11
			Max. Torque	4			0.69
L27	47.25 - 46.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.85	-2.19	-0.12
			Max. Mx	20	-41.90	2116.56	-2.60
			Max. My	2	-41.93	-3.34	2109.36
			Max. Vy	20	-34.07	2116.56	-2.60
			Max. Vx	2	-33.67	-3.34	2109.36
			Max. Torque	4			0.69
L28	46.5 - 41.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.76	-2.46	-0.21
			Max. Mx	20	-44.09	2288.56	-2.86
			Max. My	2	-44.11	-3.64	2279.26
			Max. Vy	20	-34.79	2288.56	-2.86
			Max. Vx	2	-34.34	-3.64	2279.26
			Max. Torque	4			0.69
L29	41.5 - 37.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.98	-2.67	-0.27
			Max. Mx	20	-45.75	2419.88	-3.05
			Max. My	2	-45.77	-3.88	2408.86
			Max. Vy	20	-35.33	2419.88	-3.05
			Max. Vx	2	-34.84	-3.88	2408.86
			Max. Torque	4			0.69
L30	37.75 - 37.5	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L31	37.5 - 32.5	Pole	Max. Compression	26	-82.13	-2.69	-0.28
			Max. Mx	20	-45.88	2428.71	-3.06
			Max. My	2	-45.90	-3.89	2417.57
			Max. Vy	20	-35.37	2428.71	-3.06
			Max. Vx	2	-34.86	-3.89	2417.57
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.14	-2.97	-0.37
			Max. Mx	20	-48.15	2607.04	-3.32
			Max. My	2	-48.17	-4.20	2593.37
L32	32.5 - 32.25	Pole	Max. Vy	20	-36.05	2607.04	-3.32
			Max. Vx	2	-35.51	-4.20	2593.37
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.30	-2.98	-0.37
			Max. Mx	20	-48.29	2616.05	-3.33
			Max. My	2	-48.31	-4.21	2602.24
			Max. Vy	20	-36.10	2616.05	-3.33
			Max. Vx	2	-35.54	-4.21	2602.24
			Max. Torque	4			0.69
L33	32.25 - 27.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.47	-3.28	-0.46
			Max. Mx	20	-50.71	2797.97	-3.58
			Max. My	2	-50.73	-4.52	2781.39
			Max. Vy	20	-36.76	2797.97	-3.58
			Max. Vx	2	-36.17	-4.52	2781.39
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.93	-3.56	-0.66
			Max. Mx	20	-52.56	2936.66	-3.77
L34	27.25 - 23.5	Pole	Max. My	2	-52.58	-4.76	2917.89
			Max. Vy	20	-37.28	2936.66	-3.77
			Max. Vx	2	-36.69	-4.76	2917.89
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-91.11	-3.58	-0.67
			Max. Mx	20	-52.72	2945.98	-3.78
			Max. My	2	-52.73	-4.77	2927.06
			Max. Vy	20	-37.32	2945.98	-3.78
			Max. Vx	2	-36.71	-4.77	2927.06
L35	23.5 - 23.25	Pole	Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.94	-3.77	-0.82
			Max. Mx	20	-54.11	3039.60	-3.91
			Max. My	2	-54.13	-4.93	3019.21
			Max. Vy	20	-37.67	3039.60	-3.91
			Max. Vx	2	-37.06	-4.93	3019.21
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.11	-3.79	-0.83
L36	23.25 - 20.75	Pole	Max. Mx	20	-54.26	3049.01	-3.92
			Max. My	2	-54.27	-4.94	3028.47
			Max. Vy	20	-37.70	3049.01	-3.92
			Max. Vx	2	-37.09	-4.94	3028.47
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.54	-4.16	-1.09
			Max. Mx	20	-56.89	3238.88	-4.18
			Max. My	2	-56.90	-5.25	3215.38
			Max. Vy	20	-38.33	3238.88	-4.18
L37	20.75 - 20.5	Pole	Max. Vx	2	-37.72	-5.25	3215.38
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.92	-4.50	-1.26
			Max. Mx	20	-59.55	3431.76	-4.43
			Max. My	2	-59.56	-5.57	3405.27
			Max. Vy	20	-38.90	3431.76	-4.43
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.92	-4.50	-1.26
L38	20.5 - 15.5	Pole	Max. Mx	20	-59.55	3431.76	-4.43
			Max. My	2	-59.56	-5.57	3405.27
			Max. Vy	20	-38.90	3431.76	-4.43
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.92	-4.50	-1.26
			Max. Mx	20	-59.55	3431.76	-4.43
			Max. My	2	-59.56	-5.57	3405.27
			Max. Vy	20	-38.90	3431.76	-4.43
			Max. Torque	4			0.69
L39	15.5 - 10.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.92	-4.50	-1.26
			Max. Mx	20	-59.55	3431.76	-4.43
			Max. My	2	-59.56	-5.57	3405.27
			Max. Vy	20	-38.90	3431.76	-4.43
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-99.92	-4.50	-1.26
			Max. Mx	20	-59.55	3431.76	-4.43
			Max. My	2	-59.56	-5.57	3405.27
Max. Vy	20	-38.90	3431.76	-4.43			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L40	10.5 - 5.5	Pole	Max. Vx	2	-38.29	-5.57	3405.27
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-103.28	-4.83	-1.43
			Max. Mx	20	-62.25	3627.48	-4.68
			Max. My	2	-62.25	-5.88	3597.99
			Max. Vy	20	-39.47	3627.48	-4.68
L41	5.5 - 3	Pole	Max. Vx	2	-38.85	-5.88	3597.99
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.95	-4.99	-1.52
			Max. Mx	20	-63.61	3726.40	-4.81
			Max. My	2	-63.61	-6.03	3695.41
			Max. Vy	20	-39.76	3726.40	-4.81
L42	3 - 2.75	Pole	Max. Vx	2	-39.14	-6.03	3695.41
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.12	-5.00	-1.52
			Max. Mx	20	-63.77	3736.33	-4.82
			Max. My	2	-63.77	-6.05	3705.19
			Max. Vy	20	-39.77	3736.33	-4.82
L43	2.75 - 1.75	Pole	Max. Vx	2	-39.15	-6.05	3705.19
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.80	-5.06	-1.56
			Max. Mx	20	-64.31	3776.13	-4.87
			Max. My	2	-64.31	-6.11	3744.39
			Max. Vy	20	-39.90	3776.13	-4.87
L44	1.75 - 1.5	Pole	Max. Vx	2	-39.28	-6.11	3744.39
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.97	-5.08	-1.56
			Max. Mx	20	-64.47	3786.10	-4.88
			Max. My	2	-64.47	-6.13	3754.20
			Max. Vy	20	-39.92	3786.10	-4.88
L45	1.5 - 0	Pole	Max. Vx	2	-39.30	-6.13	3754.20
			Max. Torque	4			0.69
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-107.02	-5.16	-1.60
			Max. Mx	20	-65.34	3846.08	-4.96
			Max. My	2	-65.34	-6.22	3813.28
			Max. Vy	20	-40.13	3846.08	-4.96
			Max. Vx	2	-39.51	-6.22	3813.28
			Max. Torque	4			0.69

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	107.02	-0.00	-0.00
	Max. H <sub>x</sub>	21	49.02	40.10	-0.05
	Max. H <sub>z</sub>	3	49.02	-0.05	39.48
	Max. M <sub>x</sub>	2	3813.28	-0.05	39.48
	Max. M <sub>z</sub>	8	3811.43	-39.24	0.05
	Max. Torsion	4	0.69	-20.09	34.82
	Min. Vert	21	49.02	40.10	-0.05
	Min. H <sub>x</sub>	8	65.36	-39.24	0.05
	Min. H <sub>z</sub>	15	49.02	0.05	-39.22
	Min. M <sub>x</sub>	14	-3809.01	0.05	-39.22
	Min. M <sub>z</sub>	20	-3846.08	40.10	-0.05
	Min. Torsion	16	-0.68	20.02	-34.70

## Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	54.46	0.00	-0.00	0.02	-1.03	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	65.36	0.05	-39.48	-3813.28	-6.22	-0.62
0.9 Dead+1.0 Wind 0 deg - No Ice	49.02	0.05	-39.48	-3765.62	-5.83	-0.61
1.2 Dead+1.0 Wind 30 deg - No Ice	65.36	20.09	-34.82	-3342.26	-1929.40	-0.69
0.9 Dead+1.0 Wind 30 deg - No Ice	49.02	20.09	-34.82	-3300.61	-1905.04	-0.68
1.2 Dead+1.0 Wind 60 deg - No Ice	65.36	34.09	-19.75	-1910.00	-3296.99	-0.57
0.9 Dead+1.0 Wind 60 deg - No Ice	49.02	34.09	-19.75	-1886.10	-3255.40	-0.57
1.2 Dead+1.0 Wind 90 deg - No Ice	65.36	39.24	-0.05	-4.92	-3811.43	-0.30
0.9 Dead+1.0 Wind 90 deg - No Ice	49.02	39.24	-0.05	-4.86	-3763.32	-0.30
1.2 Dead+1.0 Wind 120 deg - No Ice	65.36	34.84	20.13	1942.34	-3362.80	0.17
0.9 Dead+1.0 Wind 120 deg - No Ice	49.02	34.84	20.13	1918.17	-3320.66	0.17
1.2 Dead+1.0 Wind 150 deg - No Ice	65.36	20.04	34.82	3346.93	-1926.38	0.38
0.9 Dead+1.0 Wind 150 deg - No Ice	49.02	20.04	34.82	3305.20	-1902.05	0.38
1.2 Dead+1.0 Wind 180 deg - No Ice	65.36	-0.05	39.22	3809.01	3.65	0.61
0.9 Dead+1.0 Wind 180 deg - No Ice	49.02	-0.05	39.22	3761.36	3.92	0.61
1.2 Dead+1.0 Wind 210 deg - No Ice	65.36	-20.02	34.70	3340.83	1925.98	0.68
0.9 Dead+1.0 Wind 210 deg - No Ice	49.02	-20.02	34.70	3299.15	1902.27	0.68
1.2 Dead+1.0 Wind 240 deg - No Ice	65.36	-34.72	20.11	1927.90	3325.35	0.57
0.9 Dead+1.0 Wind 240 deg - No Ice	49.02	-34.72	20.11	1903.86	3284.20	0.57
1.2 Dead+1.0 Wind 270 deg - No Ice	65.36	-40.10	0.05	4.96	3846.08	0.31
0.9 Dead+1.0 Wind 270 deg - No Ice	49.02	-40.10	0.05	4.89	3798.59	0.30
1.2 Dead+1.0 Wind 300 deg - No Ice	65.36	-35.07	-20.26	-1944.46	3363.97	-0.17
0.9 Dead+1.0 Wind 300 deg - No Ice	49.02	-35.07	-20.26	-1920.30	3322.48	-0.16
1.2 Dead+1.0 Wind 330 deg - No Ice	65.36	-20.12	-34.97	-3349.50	1925.31	-0.38
0.9 Dead+1.0 Wind 330 deg - No Ice	49.02	-20.12	-34.97	-3307.76	1901.63	-0.38
1.2 Dead+1.0 Ice+1.0 Temp	107.02	0.00	0.00	1.60	-5.16	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	107.02	0.01	-8.28	-886.25	-6.44	-0.12
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	107.02	4.20	-7.28	-774.52	-453.37	-0.15
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	107.02	7.15	-4.14	-442.93	-773.29	-0.14
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	107.02	8.23	-0.01	0.78	-892.37	-0.10
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	107.02	7.44	4.30	459.07	-797.25	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	107.02	4.18	7.26	776.73	-451.70	0.05
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	107.02	-0.01	8.23	888.84	-4.67	0.12
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	107.02	-4.18	7.25	777.08	441.82	0.15

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	107.02	-7.26	4.20	449.45	767.72	0.14
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	107.02	-8.38	0.01	2.55	888.54	0.10
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	107.02	-7.47	-4.32	-456.10	786.77	-0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	107.02	-4.19	-7.28	-773.49	440.65	-0.05
Dead+Wind 0 deg - Service	54.46	0.01	-8.57	-821.58	-2.12	-0.13
Dead+Wind 30 deg - Service	54.46	4.36	-7.56	-720.19	-416.54	-0.15
Dead+Wind 60 deg - Service	54.46	7.40	-4.29	-411.54	-711.20	-0.12
Dead+Wind 90 deg - Service	54.46	8.51	-0.01	-1.05	-821.97	-0.07
Dead+Wind 120 deg - Service	54.46	7.56	4.37	418.56	-725.43	0.04
Dead+Wind 150 deg - Service	54.46	4.35	7.55	721.22	-415.89	0.08
Dead+Wind 180 deg - Service	54.46	-0.03	8.51	820.68	0.02	0.13
Dead+Wind 210 deg - Service	54.46	-4.34	7.53	719.90	414.23	0.15
Dead+Wind 240 deg - Service	54.46	-7.53	4.36	415.44	715.76	0.12
Dead+Wind 270 deg - Service	54.46	-8.70	0.01	1.08	827.95	0.07
Dead+Wind 300 deg - Service	54.46	-7.61	-4.40	-419.00	724.11	-0.04
Dead+Wind 330 deg - Service	54.46	-4.37	-7.59	-721.75	414.09	-0.08

## 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	0.00	-54.46	0.00	-0.00	54.46	0.00	0.000%
2	0.05	-65.36	-39.48	-0.05	65.36	39.48	0.002%
3	0.05	-49.02	-39.48	-0.05	49.02	39.48	0.001%
4	20.09	-65.36	-34.82	-20.09	65.36	34.82	0.000%
5	20.09	-49.02	-34.82	-20.09	49.02	34.82	0.000%
6	34.09	-65.36	-19.75	-34.09	65.36	19.75	0.000%
7	34.09	-49.02	-19.75	-34.09	49.02	19.75	0.000%
8	39.24	-65.36	-0.05	-39.24	65.36	0.05	0.002%
9	39.24	-49.02	-0.05	-39.24	49.02	0.05	0.003%
10	34.84	-65.36	20.13	-34.84	65.36	-20.13	0.000%
11	34.84	-49.02	20.13	-34.84	49.02	-20.13	0.000%
12	20.04	-65.36	34.82	-20.04	65.36	-34.82	0.000%
13	20.04	-49.02	34.82	-20.04	49.02	-34.82	0.000%
14	-0.05	-65.36	39.22	0.05	65.36	-39.22	0.002%
15	-0.05	-49.02	39.22	0.05	49.02	-39.22	0.001%
16	-20.02	-65.36	34.70	20.02	65.36	-34.70	0.000%
17	-20.02	-49.02	34.70	20.02	49.02	-34.70	0.000%
18	-34.72	-65.36	20.11	34.72	65.36	-20.11	0.000%
19	-34.72	-49.02	20.11	34.72	49.02	-20.11	0.000%
20	-40.10	-65.36	0.05	40.10	65.36	-0.05	0.004%
21	-40.10	-49.02	0.05	40.10	49.02	-0.05	0.003%
22	-35.07	-65.36	-20.26	35.07	65.36	20.26	0.000%
23	-35.07	-49.02	-20.26	35.07	49.02	20.26	0.000%
24	-20.12	-65.36	-34.97	20.12	65.36	34.97	0.000%
25	-20.12	-49.02	-34.97	20.12	49.02	34.97	0.000%
26	0.00	-107.02	0.00	-0.00	107.02	-0.00	0.000%
27	0.01	-107.02	-8.28	-0.01	107.02	8.28	0.000%
28	4.20	-107.02	-7.28	-4.20	107.02	7.28	0.000%
29	7.15	-107.02	-4.14	-7.15	107.02	4.14	0.000%
30	8.23	-107.02	-0.01	-8.23	107.02	0.01	0.000%
31	7.44	-107.02	4.30	-7.44	107.02	-4.30	0.000%
32	4.18	-107.02	7.26	-4.18	107.02	-7.26	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
33	-0.01	-107.02	8.23	0.01	107.02	-8.23	0.000%
34	-4.18	-107.02	7.25	4.18	107.02	-7.25	0.000%
35	-7.26	-107.02	4.20	7.26	107.02	-4.20	0.000%
36	-8.38	-107.02	0.01	8.38	107.02	-0.01	0.000%
37	-7.47	-107.02	-4.32	7.47	107.02	4.32	0.000%
38	-4.19	-107.02	-7.28	4.19	107.02	7.28	0.000%
39	0.01	-54.46	-8.57	-0.01	54.46	8.57	0.002%
40	4.36	-54.46	-7.56	-4.36	54.46	7.56	0.000%
41	7.40	-54.46	-4.29	-7.40	54.46	4.29	0.000%
42	8.51	-54.46	-0.01	-8.51	54.46	0.01	0.002%
43	7.56	-54.46	4.37	-7.56	54.46	-4.37	0.000%
44	4.35	-54.46	7.56	-4.35	54.46	-7.55	0.000%
45	-0.01	-54.46	8.51	0.03	54.46	-8.51	0.036%
46	-4.34	-54.46	7.53	4.34	54.46	-7.53	0.000%
47	-7.53	-54.46	4.36	7.53	54.46	-4.36	0.000%
48	-8.70	-54.46	0.01	8.70	54.46	-0.01	0.002%
49	-7.61	-54.46	-4.40	7.61	54.46	4.40	0.000%
50	-4.37	-54.46	-7.59	4.37	54.46	7.59	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	0.00002485	0.00010820
3	Yes	17	0.00000001	0.00007797
4	Yes	23	0.00000001	0.00007283
5	Yes	22	0.00000001	0.00011025
6	Yes	23	0.00000001	0.00007284
7	Yes	22	0.00000001	0.00011054
8	Yes	17	0.00002485	0.00009004
9	Yes	16	0.00003488	0.00012595
10	Yes	23	0.00000001	0.00007413
11	Yes	22	0.00000001	0.00011218
12	Yes	23	0.00000001	0.00007309
13	Yes	22	0.00000001	0.00011066
14	Yes	17	0.00002485	0.00014705
15	Yes	17	0.00000001	0.00010951
16	Yes	23	0.00000001	0.00007399
17	Yes	22	0.00000001	0.00011211
18	Yes	23	0.00000001	0.00007254
19	Yes	22	0.00000001	0.00010991
20	Yes	16	0.00005359	0.00014161
21	Yes	16	0.00003486	0.00008641
22	Yes	23	0.00000001	0.00007369
23	Yes	22	0.00000001	0.00011147
24	Yes	23	0.00000001	0.00007389
25	Yes	22	0.00000001	0.00011192
26	Yes	6	0.00000001	0.00000001
27	Yes	20	0.00000001	0.00010585
28	Yes	20	0.00000001	0.00013003
29	Yes	20	0.00000001	0.00012941
30	Yes	20	0.00000001	0.00010629
31	Yes	20	0.00000001	0.00013254
32	Yes	20	0.00000001	0.00012993
33	Yes	20	0.00000001	0.00010597
34	Yes	20	0.00000001	0.00012939
35	Yes	20	0.00000001	0.00012875
36	Yes	20	0.00000001	0.00010579
37	Yes	20	0.00000001	0.00013124
38	Yes	20	0.00000001	0.00012884
39	Yes	15	0.00009274	0.00006659
40	Yes	17	0.00000001	0.00010245
41	Yes	17	0.00000001	0.00010558
42	Yes	15	0.00009274	0.00006289
43	Yes	17	0.00000001	0.00010715

44	Yes	17	0.00000001	0.00010332
45	Yes	15	0.00009275	0.00012592
46	Yes	17	0.00000001	0.00010792
47	Yes	17	0.00000001	0.00010201
48	Yes	15	0.00009270	0.00006271
49	Yes	17	0.00000001	0.00010490
50	Yes	17	0.00000001	0.00010725

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	21.28	43	1.42	0.00
L2	135 - 130	19.79	43	1.42	0.00
L3	130 - 125	18.32	43	1.40	0.00
L4	125 - 120	16.87	43	1.37	0.00
L5	120 - 115	15.46	43	1.33	0.00
L6	115 - 110	14.10	43	1.27	0.00
L7	110 - 105	12.80	43	1.20	0.00
L8	105 - 104	11.60	43	1.10	0.00
L9	104 - 103.75	11.37	43	1.08	0.00
L10	103.75 - 98.75	11.31	43	1.08	0.00
L11	98.75 - 98.5	10.21	43	1.02	0.00
L12	98.5 - 98.25	10.16	43	1.02	0.00
L13	98.25 - 97	10.11	43	1.01	0.00
L14	97 - 96.75	9.84	43	1.00	0.00
L15	96.75 - 88.5	9.79	43	1.00	0.00
L16	91.75 - 88.17	8.78	43	0.93	0.00
L17	88.17 - 87.92	8.09	43	0.91	0.00
L18	87.92 - 82.92	8.04	43	0.91	0.00
L19	82.92 - 77.92	7.12	43	0.85	0.00
L20	77.92 - 72.92	6.26	43	0.80	0.00
L21	72.92 - 68.08	5.45	43	0.74	0.00
L22	68.08 - 67.83	4.73	43	0.68	0.00
L23	67.83 - 62.83	4.70	43	0.68	0.00
L24	62.83 - 57.83	4.02	43	0.62	0.00
L25	57.83 - 52.83	3.39	43	0.57	0.00
L26	52.83 - 47.25	2.82	43	0.51	0.00
L27	51.5 - 46.5	2.68	43	0.50	0.00
L28	46.5 - 41.5	2.17	43	0.47	0.00
L29	41.5 - 37.75	1.71	43	0.41	0.00
L30	37.75 - 37.5	1.41	43	0.37	0.00
L31	37.5 - 32.5	1.39	43	0.37	0.00
L32	32.5 - 32.25	1.03	43	0.31	0.00
L33	32.25 - 27.25	1.01	43	0.31	0.00
L34	27.25 - 23.5	0.72	43	0.26	0.00
L35	23.5 - 23.25	0.53	43	0.22	0.00
L36	23.25 - 20.75	0.52	43	0.22	0.00
L37	20.75 - 20.5	0.41	43	0.19	0.00
L38	20.5 - 15.5	0.40	43	0.19	0.00
L39	15.5 - 10.5	0.22	43	0.14	0.00
L40	10.5 - 5.5	0.10	43	0.09	0.00
L41	5.5 - 3	0.02	43	0.05	0.00
L42	3 - 2.75	0.01	43	0.02	0.00
L43	2.75 - 1.75	0.01	43	0.02	0.00
L44	1.75 - 1.5	0.00	43	0.01	0.00
L45	1.5 - 0	0.00	43	0.01	0.00

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.0000	APXVSP18-C-A20 w/ Mount Pipe	43	21.28	1.42	0.00	22178

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
137.0000	TME-1900MHz RRH (65MHz) w/ Mount Pipe	43	20.38	1.42	0.00	22178
121.0000	7770.00 w/ Mount Pipe	43	15.74	1.34	0.00	6501
115.0000	AIR 32 B2A/B66AA w/ Mount Pipe	43	14.10	1.27	0.00	4385
104.0000	LNx-6514DS-VTM w/ Mount Pipe	43	11.37	1.08	0.00	3643
95.0000	Pipe Mount [PM 601-3]	43	9.43	0.98	0.00	4862
80.0000	2.375" OD x 6' Mount Pipe	43	6.61	0.82	0.00	5123

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	98.70	10	6.61	0.00
L2	135 - 130	91.81	10	6.59	0.00
L3	130 - 125	84.98	10	6.49	0.00
L4	125 - 120	78.28	10	6.35	0.00
L5	120 - 115	71.74	10	6.17	0.00
L6	115 - 110	65.43	10	5.91	0.00
L7	110 - 105	59.43	10	5.56	0.00
L8	105 - 104	53.84	10	5.13	0.00
L9	104 - 103.75	52.78	10	5.04	0.00
L10	103.75 - 98.75	52.52	10	5.03	0.00
L11	98.75 - 98.5	47.41	10	4.74	0.00
L12	98.5 - 98.25	47.16	10	4.72	0.00
L13	98.25 - 97	46.92	10	4.71	0.00
L14	97 - 96.75	45.69	10	4.66	0.00
L15	96.75 - 88.5	45.45	10	4.65	0.00
L16	91.75 - 88.17	40.75	10	4.34	0.00
L17	88.17 - 87.92	37.54	10	4.22	0.00
L18	87.92 - 82.92	37.32	10	4.21	0.00
L19	82.92 - 77.92	33.05	10	3.96	0.00
L20	77.92 - 72.92	29.04	10	3.70	0.00
L21	72.92 - 68.08	25.31	10	3.43	0.00
L22	68.08 - 67.83	21.97	10	3.16	0.00
L23	67.83 - 62.83	21.80	10	3.15	0.00
L24	62.83 - 57.83	18.64	10	2.90	0.00
L25	57.83 - 52.83	15.73	10	2.65	0.00
L26	52.83 - 47.25	13.10	10	2.39	0.00
L27	51.5 - 46.5	12.45	10	2.32	0.00
L28	46.5 - 41.5	10.09	10	2.17	0.00
L29	41.5 - 37.75	7.95	10	1.92	0.00
L30	37.75 - 37.5	6.52	10	1.72	0.00
L31	37.5 - 32.5	6.43	10	1.71	0.00
L32	32.5 - 32.25	4.78	22	1.45	0.00
L33	32.25 - 27.25	4.70	22	1.44	0.00
L34	27.25 - 23.5	3.32	22	1.20	0.00
L35	23.5 - 23.25	2.45	22	1.02	0.00
L36	23.25 - 20.75	2.40	22	1.01	0.00
L37	20.75 - 20.5	1.90	22	0.90	0.00
L38	20.5 - 15.5	1.85	22	0.89	0.00
L39	15.5 - 10.5	1.03	22	0.66	0.00
L40	10.5 - 5.5	0.46	22	0.44	0.00
L41	5.5 - 3	0.11	22	0.21	0.00
L42	3 - 2.75	0.03	22	0.10	0.00
L43	2.75 - 1.75	0.03	22	0.09	0.00
L44	1.75 - 1.5	0.01	22	0.06	0.00
L45	1.5 - 0	0.01	22	0.05	0.00

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.0000	APXVSPP18-C-A20 w/ Mount Pipe	10	98.70	6.61	0.00	4864
137.0000	TME-1900MHz RRH (65MHz) w/ Mount Pipe	10	94.56	6.60	0.00	4864
121.0000	7770.00 w/ Mount Pipe	10	73.03	6.21	0.00	1428
115.0000	AIR 32 B2A/B66AA w/ Mount Pipe	10	65.43	5.91	0.00	962
104.0000	LNx-6514DS-VTM w/ Mount Pipe	10	52.78	5.04	0.00	795
95.0000	Pipe Mount [PM 601-3]	10	43.77	4.53	0.00	1060
80.0000	2.375" OD x 6' Mount Pipe	10	30.68	3.81	0.00	1112

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K
L1	140 - 135 (1)	TP17.0151x16x0.25	5.0000	0.0000	0.0	13.4959	-4.34
L2	135 - 130 (2)	TP18.0303x17.0151x0.25	5.0000	0.0000	0.0	14.3131	-4.61
L3	130 - 125 (3)	TP19.0454x18.0303x0.25	5.0000	0.0000	0.0	15.1303	-4.91
L4	125 - 120 (4)	TP20.0606x19.0454x0.25	5.0000	0.0000	0.0	15.9475	-9.56
L5	120 - 115 (5)	TP21.0757x20.0606x0.25	5.0000	0.0000	0.0	16.7647	-10.10
L6	115 - 110 (6)	TP22.0909x21.0757x0.25	5.0000	0.0000	0.0	17.5819	-15.07
L7	110 - 105 (7)	TP23.106x22.0909x0.25	5.0000	0.0000	0.0	18.3991	-15.81
L8	105 - 104 (8)	TP23.309x23.106x0.25	1.0000	0.0000	0.0	18.5625	-15.97
L9	104 - 103.75 (9)	TP23.3598x23.309x0.4625	0.2500	0.0000	0.0	34.0998	-20.49
L10	103.75 - 98.75 (10)	TP24.375x23.3598x0.45	5.0000	0.0000	0.0	34.6673	-21.54
L11	98.75 - 98.5 (11)	TP24.4257x24.375x0.45	0.2500	0.0000	0.0	34.7408	-21.60
L12	98.5 - 98.25 (12)	TP24.4765x24.4257x0.725	0.2500	0.0000	0.0	55.4478	-21.67
L13	98.25 - 97 (13)	TP24.7303x24.4765x0.725	1.2500	0.0000	0.0	56.0403	-22.01
L14	97 - 96.75 (14)	TP24.781x24.7303x0.5125	0.2500	0.0000	0.0	40.0491	-22.07
L15	96.75 - 88.5 (15)	TP26.456x24.781x0.5	8.2500	0.0000	0.0	40.7268	-23.47
L16	88.5 - 88.17 (16)	TP26.0231x25.2962x0.5625	3.5800	0.0000	0.0	46.1155	-24.87
L17	88.17 - 87.92 (17)	TP26.0738x26.0231x0.7625	0.2500	0.0000	0.0	62.1457	-24.95
L18	87.92 - 82.92 (18)	TP27.0891x26.0738x0.7375	5.0000	0.0000	0.0	62.5785	-26.60
L19	82.92 - 77.92 (19)	TP28.1044x27.0891x0.725	5.0000	0.0000	0.0	63.9171	-28.45
L20	77.92 - 72.92 (20)	TP29.1196x28.1044x0.7125	5.0000	0.0000	0.0	65.1731	-30.18
L21	72.92 - 68.08 (21)	TP30.1024x29.1196x0.6875	4.8400	0.0000	0.0	65.1173	-31.88

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$KI/r$	A $in^2$	$P_u$ K
L22	68.08 - 67.83 (22)	TP30.1532x30.1024x0.81 25	0.2500	0.0000	0.0	76.762 5	-31.99
L23	67.83 - 62.83 (23)	TP31.1684x30.1532x0.78 75	5.0000	0.0000	0.0	77.038 5	-33.92
L24	62.83 - 57.83 (24)	TP32.1837x31.1684x0.76 25	5.0000	0.0000	0.0	77.146 9	-35.86
L25	57.83 - 52.83 (25)	TP33.199x32.1837x0.75	5.0000	0.0000	0.0	78.364 3	-37.87
L26	52.83 - 47.25 (26)	TP34.332x33.199x0.75	5.5800	0.0000	0.0	79.016 4	-38.41
L27	47.25 - 46.5 (27)	TP33.8592x32.844x0.8	5.0000	0.0000	0.0	85.160 4	-41.87
L28	46.5 - 41.5 (28)	TP34.8743x33.8592x0.8	5.0000	0.0000	0.0	87.775 4	-44.06
L29	41.5 - 37.75 (29)	TP35.6357x34.8743x0.77 5	3.7500	0.0000	0.0	86.994 8	-45.72
L30	37.75 - 37.5 (30)	TP35.6864x35.6357x0.8	0.2500	0.0000	0.0	89.867 4	-45.85
L31	37.5 - 32.5 (31)	TP36.7016x35.6864x0.77 5	5.0000	0.0000	0.0	89.654 8	-48.13
L32	32.5 - 32.25 (32)	TP36.7523x36.7016x0.82 5	0.2500	0.0000	0.0	95.440 9	-48.27
L33	32.25 - 27.25 (33)	TP37.7675x36.7523x0.81 25	5.0000	0.0000	0.0	96.683 4	-50.70
L34	27.25 - 23.5 (34)	TP38.5288x37.7675x0.8	3.7500	0.0000	0.0	97.189 5	-52.55
L35	23.5 - 23.25 (35)	TP38.5796x38.5288x0.9	0.2500	0.0000	0.0	109.19 50	-52.70
L36	23.25 - 20.75 (36)	TP39.0872x38.5796x0.9	2.5000	0.0000	0.0	110.66 60	-54.10
L37	20.75 - 20.5 (37)	TP39.1379x39.0872x0.85	0.2500	0.0000	0.0	104.79 40	-54.25
L38	20.5 - 15.5 (38)	TP40.1531x39.1379x0.82 5	5.0000	0.0000	0.0	104.47 50	-56.88
L39	15.5 - 10.5 (39)	TP41.1682x40.1531x0.82 5	5.0000	0.0000	0.0	107.17 20	-59.55
L40	10.5 - 5.5 (40)	TP42.1833x41.1682x0.8	5.0000	0.0000	0.0	106.60 30	-62.25
L41	5.5 - 3 (41)	TP42.6909x42.1833x0.8	2.5000	0.0000	0.0	107.91 10	-63.61
L42	3 - 2.75 (42)	TP42.7417x42.6909x0.95	0.2500	0.0000	0.0	127.84 10	-63.76
L43	2.75 - 1.75 (43)	TP42.9447x42.7417x0.95	1.0000	0.0000	0.0	128.46 20	-64.31
L44	1.75 - 1.5 (44)	TP42.9955x42.9447x1.12 5	0.2500	0.0000	0.0	151.67 60	-64.47
L45	1.5 - 0 (45)	TP43.3x42.9955x1.1	1.5000	0.0000	0.0	149.47 20	-65.34

### Pole Bending Design Data

Section No.	Elevation ft	Size	$M_{ux}$ kip-ft	$M_{uy}$ kip-ft
L1	140 - 135 (1)	TP17.0151x16x0.25	20.83	0.00
L2	135 - 130 (2)	TP18.0303x17.0151x0.25	48.11	0.00
L3	130 - 125 (3)	TP19.0454x18.0303x0.25	77.45	0.00
L4	125 - 120 (4)	TP20.0606x19.0454x0.25	123.35	0.00
L5	120 - 115 (5)	TP21.0757x20.0606x0.25	194.46	0.00
L6	115 - 110 (6)	TP22.0909x21.0757x0.25	295.98	0.00
L7	110 - 105 (7)	TP23.106x22.0909x0.25	397.51	0.00
L8	105 - 104 (8)	TP23.309x23.106x0.25	418.09	0.00
L9	104 - 103.75 (9)	TP23.3598x23.309x0.462 5	424.49	0.00
L10	103.75 -	TP24.375x23.3598x0.45	553.23	0.00

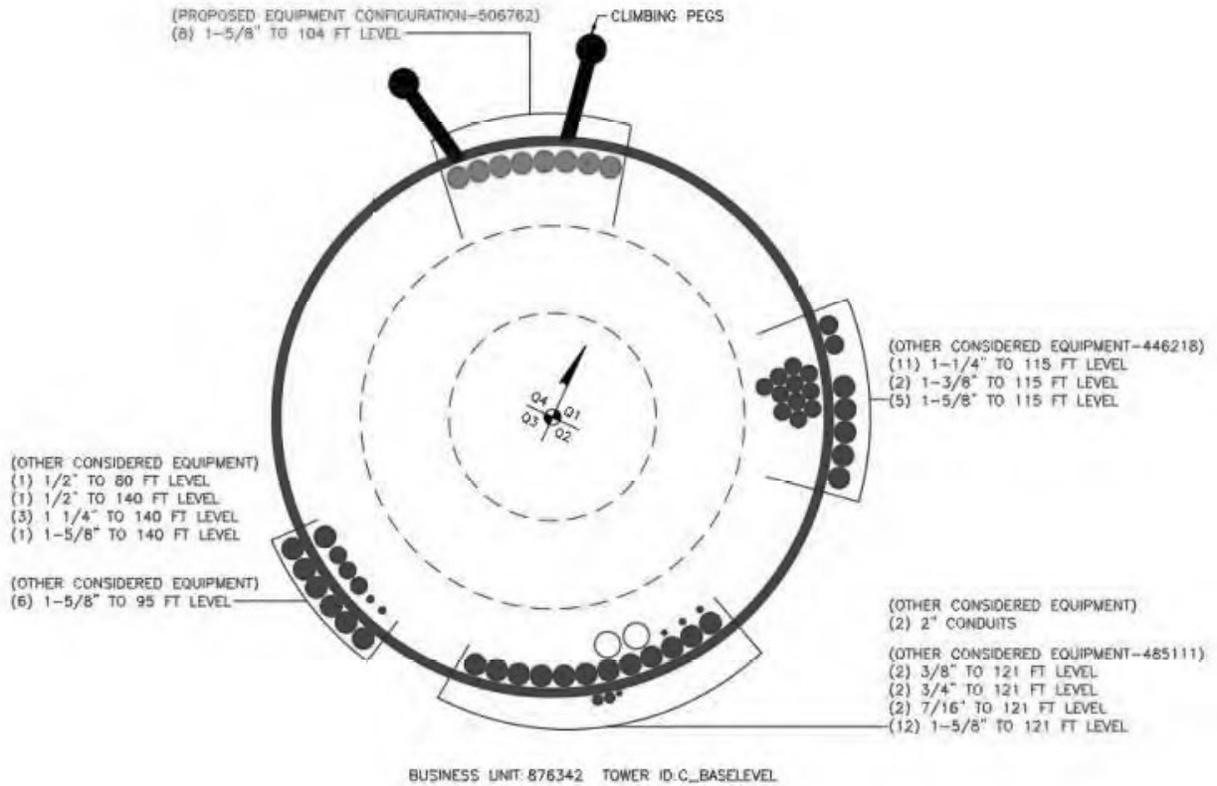
Section No.	Elevation ft	Size	$M_{ux}$ kip-ft	$M_{uy}$ kip-ft
L11	98.75 (10) 98.75 - 98.5	TP24.4257x24.375x0.45	559.75	0.00
L12	(11) 98.5 - 98.25	TP24.4765x24.4257x0.72	566.28	0.00
L13	(12) 98.25 - 97	TP24.7303x24.4765x0.72	599.07	0.00
L14	(13) 97 - 96.75	TP24.781x24.7303x0.512	605.65	0.00
L15	(14) 96.75 - 88.5	TP26.456x24.781x0.5	739.57	0.00
L16	(15) 88.5 - 88.17	TP26.0231x25.2962x0.56	837.83	0.00
L17	(16) 88.17 - 87.92	TP26.0738x26.0231x0.76	844.76	0.00
L18	(17) 87.92 - 82.92	TP27.0891x26.0738x0.73	985.41	0.00
L19	(18) 82.92 - 77.92	TP28.1044x27.0891x0.72	1130.23	0.00
L20	(19) 77.92 - 72.92	TP29.1196x28.1044x0.71	1278.90	0.00
L21	(20) 72.92 - 68.08	TP30.1024x29.1196x0.68	1426.33	0.00
L22	(21) 68.08 - 67.83	TP30.1532x30.1024x0.81	1434.04	0.00
L23	(22) 67.83 - 62.83	TP31.1684x30.1532x0.78	1590.25	0.00
L24	(23) 62.83 - 57.83	TP32.1837x31.1684x0.76	1751.53	0.00
L25	(24) 57.83 - 52.83	TP33.199x32.1837x0.75	1918.28	0.00
L26	(25) 52.83 - 47.25	TP34.332x33.199x0.75	1963.23	0.00
L27	(26) 47.25 - 46.5	TP33.8592x32.844x0.8	2134.78	0.00
L28	(27) 46.5 - 41.5	TP34.8743x33.8592x0.8	2309.99	0.00
L29	(28) 41.5 - 37.75	TP35.6357x34.8743x0.77	2443.57	0.00
L30	(29) 37.75 - 37.5	TP35.6864x35.6357x0.8	2452.54	0.00
L31	(30) 37.5 - 32.5	TP36.7016x35.6864x0.77	2633.63	0.00
L32	(31) 32.5 - 32.25	TP36.7523x36.7016x0.82	2642.78	0.00
L33	(32) 32.25 - 27.25	TP37.7675x36.7523x0.81	2827.21	0.00
L34	(33) 27.25 - 23.5	TP38.5288x37.7675x0.8	2967.57	0.00
L35	(34) 23.5 - 23.25	TP38.5796x38.5288x0.9	2976.99	0.00
L36	(35) 23.25 - 20.75	TP39.0872x38.5796x0.9	3071.59	0.00
L37	(36) 20.75 - 20.5	TP39.1379x39.0872x0.85	3081.09	0.00
L38	(37) 20.5 - 15.5	TP40.1531x39.1379x0.82	3272.61	0.00
L39	(38) 15.5 - 10.5	TP41.1682x40.1531x0.82	3466.88	0.00
L40	(39) 10.5 - 5.5 (40)	TP42.1833x41.1682x0.8	3664.68	0.00
L41	5.5 - 3 (41)	TP42.6909x42.1833x0.8	3764.63	0.00
L42	3 - 2.75 (42)	TP42.7417x42.6909x0.95	3774.66	0.00
L43	2.75 - 1.75 (43)	TP42.9447x42.7417x0.95	3814.86	0.00
L44	1.75 - 1.5 (44)	TP42.9955x42.9447x1.12	3824.93	0.00
L45	1.5 - 0 (45)	TP43.3x42.9955x1.1	3885.52	0.00

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual $V_u$ K	Actual $T_u$ kip-ft
L1	140 - 135 (1)	TP17.0151x16x0.25	5.25	0.00
L2	135 - 130 (2)	TP18.0303x17.0151x0.25	5.66	0.00
L3	130 - 125 (3)	TP19.0454x18.0303x0.25	6.08	0.00
L4	125 - 120 (4)	TP20.0606x19.0454x0.25	14.00	0.08
L5	120 - 115 (5)	TP21.0757x20.0606x0.25	14.45	0.08
L6	115 - 110 (6)	TP22.0909x21.0757x0.25	20.09	0.36
L7	110 - 105 (7)	TP23.106x22.0909x0.25	20.55	0.36
L8	105 - 104 (8)	TP23.309x23.106x0.25	20.64	0.36
L9	104 - 103.75 (9)	TP23.3598x23.309x0.462 5	25.44	0.57
L10	103.75 - 98.75 (10)	TP24.375x23.3598x0.45	26.08	0.57
L11	98.75 - 98.5 (11)	TP24.4257x24.375x0.45	26.12	0.57
L12	98.5 - 98.25 (12)	TP24.4765x24.4257x0.72 5	26.16	0.57
L13	98.25 - 97 (13)	TP24.7303x24.4765x0.72 5	26.33	0.57
L14	97 - 96.75 (14)	TP24.781x24.7303x0.512 5	26.37	0.57
L15	96.75 - 88.5 (15)	TP26.456x24.781x0.5	27.19	0.57
L16	88.5 - 88.17 (16)	TP26.0231x25.2962x0.56 25	27.73	0.57
L17	88.17 - 87.92 (17)	TP26.0738x26.0231x0.76 25	27.78	0.57
L18	87.92 - 82.92 (18)	TP27.0891x26.0738x0.73 75	28.53	0.57
L19	82.92 - 77.92 (19)	TP28.1044x27.0891x0.72 5	29.39	0.38
L20	77.92 - 72.92 (20)	TP29.1196x28.1044x0.71 25	30.13	0.38
L21	72.92 - 68.08 (21)	TP30.1024x29.1196x0.68 75	30.85	0.38
L22	68.08 - 67.83 (22)	TP30.1532x30.1024x0.81 25	30.88	0.38
L23	67.83 - 62.83 (23)	TP31.1684x30.1532x0.78 75	31.65	0.38
L24	62.83 - 57.83 (24)	TP32.1837x31.1684x0.76 25	33.01	0.17
L25	57.83 - 52.83 (25)	TP33.199x32.1837x0.75	33.71	0.17
L26	52.83 - 47.25 (26)	TP34.332x33.199x0.75	33.90	0.17
L27	47.25 - 46.5 (27)	TP33.8592x32.844x0.8	34.71	0.17
L28	46.5 - 41.5 (28)	TP34.8743x33.8592x0.8	35.38	0.17
L29	41.5 - 37.75 (29)	TP35.6357x34.8743x0.77 5	35.88	0.17
L30	37.75 - 37.5 (30)	TP35.6864x35.6357x0.8	35.89	0.17
L31	37.5 - 32.5 (31)	TP36.7016x35.6864x0.77 5	36.55	0.17
L32	32.5 - 32.25 (32)	TP36.7523x36.7016x0.82 5	36.56	0.17
L33	32.25 - 27.25 (33)	TP37.7675x36.7523x0.81 25	37.21	0.17
L34	27.25 - 23.5 (34)	TP38.5288x37.7675x0.8	37.67	0.17
L35	23.5 - 23.25 (35)	TP38.5796x38.5288x0.9	37.68	0.17
L36	23.25 - 20.75 (36)	TP39.0872x38.5796x0.9	38.00	0.17
L37	20.75 - 20.5 (37)	TP39.1379x39.0872x0.85	38.01	0.17

Section No.	Elevation ft	Size	Actual $V_u$ K	Actual $T_u$ kip-ft
L38	20.5 - 15.5 (38)	TP40.1531x39.1379x0.82 5	38.59	0.17
L39	15.5 - 10.5 (39)	TP41.1682x40.1531x0.82 5	39.32	0.17
L40	10.5 - 5.5 (40)	TP42.1833x41.1682x0.8	39.88	0.17
L41	5.5 - 3 (41)	TP42.6909x42.1833x0.8	40.16	0.17
L42	3 - 2.75 (42)	TP42.7417x42.6909x0.95	40.17	0.17
L43	2.75 - 1.75 (43)	TP42.9447x42.7417x0.95	40.30	0.17
L44	1.75 - 1.5 (44)	TP42.9955x42.9447x1.12 5	40.32	0.17
L45	1.5 - 0 (45)	TP43.3x42.9955x1.1	40.53	0.17

**APPENDIX B**  
**BASE LEVEL DRAWING**



**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

**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	1.40	51.5	3.25	12	16	26.456	0.25	Auto	A572-65
2	91.75	44.5	4.25	12	25.30	34.332	0.3125	Auto	A572-65
3	51.5	51.5	0	12	32.84	43.3	0.375	Auto	A572-65

**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	1.75	23.5	channel	MP3-06 (1.1875")	2													
2	1.75	37.75	channel	MP3-06 (1.1875")	2													
3	20.75	37.75	channel	MP3-08 (1.1875")	1													
4	37.75	68.08	channel	MP3-06 (1.1875")	3													
5	68.08	98.5	channel	MP3-05 (1.1875")	3													
6	3	32.5	plate	U065125_(1) (1.1875)	3													
7	32.5	68.08	plate	CCI-AFP-060100	3													
8	68.08	88.17	plate	CCI-AFP-060100	3													
9	97	104	plate	CCI-SFP-045100	3													
10	0	3	plate	FP 1.25 x 7.25_1	3													
11	0	1.75	plate	FP 1 x 6.75_1	2													
12	0	1.75	plate	FP 1 x 4.5_1	4													
13	0	1.75	plate	FP 1 x 5.75_1	2													
14																		

**Reinforcement Details**

	B (in)	H (in)	Gross Area (in <sup>2</sup> )	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L <sub>v</sub> (in)	Net Area (in <sup>2</sup> )	Bolt Hole Size (in)	Reinforcement Material
1	6.89	2.61	8.47	0.93	41.000	41.000	24.000	7.670	1.1875	A572-65
2	6.89	2.61	8.47	0.93	41.000	41.000	24.000	7.670	1.1875	A572-65
3	7.93	2.8	10.32	0.95	47.000	44.000	24.000	9.370	1.1875	A572-65
4	6.89	2.61	8.47	0.93	41.000	41.000	24.000	7.670	1.1875	A572-65
5	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
6	6.5	1.25	8.125	0.625	n/a	36.000	19.000	6.563	1.1875	A572-65
7	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
8	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
9	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
10	1.25	7.25	9.0625	3.625	n/a	n/a	0.000	9.063	0.0000	A572-65
11	1	6.75	6.75	3.375	n/a	n/a	0.000	6.750	0.0000	A572-65
12	1	4.5	4.5	2.25	n/a	n/a	0.000	4.500	0.0000	A572-65
13	1	5.75	5.75	2.875	n/a	n/a	0.000	5.750	0.0000	A572-65

# TNX Geometry Input

Increment (ft):

	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	140 - 135	5		12	16.000	17.015	0.25	A572-65	1.000
2	135 - 130	5		12	17.015	18.030	0.25	A572-65	1.000
3	130 - 125	5		12	18.030	19.045	0.25	A572-65	1.000
4	125 - 120	5		12	19.045	20.061	0.25	A572-65	1.000
5	120 - 115	5		12	20.061	21.076	0.25	A572-65	1.000
6	115 - 110	5		12	21.076	22.091	0.25	A572-65	1.000
7	110 - 105	5		12	22.091	23.106	0.25	A572-65	1.000
8	105 - 104	1		12	23.106	23.309	0.25	A572-65	1.000
9	104 - 103.75	0.25		12	23.309	23.360	0.4625	A572-65	0.942
10	103.75 - 98.75	5		12	23.360	24.375	0.45	A572-65	0.950
11	98.75 - 98.5	0.25		12	24.375	24.426	0.45	A572-65	0.949
12	98.5 - 98.25	0.25		12	24.426	24.476	0.725	A572-65	0.902
13	98.25 - 97	1.25		12	24.476	24.730	0.725	A572-65	0.896
14	97 - 96.75	0.25		12	24.730	24.781	0.5125	A572-65	0.917
15	96.75 - 91.75	8.25	3.25	12	24.781	26.456	0.5	A572-65	0.922
16	91.75 - 88.17	3.58		12	25.296	26.023	0.5625	A572-65	0.929
17	88.17 - 87.92	0.25		12	26.023	26.074	0.7625	A572-65	0.980
18	87.92 - 82.92	5		12	26.074	27.089	0.7375	A572-65	0.990
19	82.92 - 77.92	5		12	27.089	28.104	0.725	A572-65	0.985
20	77.92 - 72.92	5		12	28.104	29.120	0.7125	A572-65	0.982
21	72.92 - 68.08	4.84		12	29.120	30.102	0.6875	A572-65	0.998
22	68.08 - 67.83	0.25		12	30.102	30.153	0.8125	A572-65	0.957
23	67.83 - 62.83	5		12	30.153	31.168	0.7875	A572-65	0.967
24	62.83 - 57.83	5		12	31.168	32.184	0.7625	A572-65	0.979
25	57.83 - 52.83	5		12	32.184	33.199	0.75	A572-65	0.977
26	52.83 - 51.5	5.58	4.25	12	33.199	34.332	0.75	A572-65	0.972
27	51.5 - 46.5	5		12	32.844	33.859	0.8	A572-65	0.985
28	46.5 - 41.5	5		12	33.859	34.874	0.8	A572-65	0.970
29	41.5 - 37.75	3.75		12	34.874	35.636	0.775	A572-65	0.989
30	37.75 - 37.5	0.25		12	35.636	35.686	0.8	A572-65	0.979
31	37.5 - 32.5	5		12	35.686	36.702	0.775	A572-65	0.995
32	32.5 - 32.25	0.25		12	36.702	36.752	0.825	A572-65	1.002
33	32.25 - 27.25	5		12	36.752	37.767	0.8125	A572-65	1.002
34	27.25 - 23.5	3.75		12	37.767	38.529	0.8	A572-65	1.006
35	23.5 - 23.25	0.25		12	38.529	38.580	0.9	A572-65	1.051
36	23.25 - 20.75	2.5		12	38.580	39.087	0.9	A572-65	1.043
37	20.75 - 20.5	0.25		12	39.087	39.138	0.85	A572-65	1.003
38	20.5 - 15.5	5		12	39.138	40.153	0.825	A572-65	1.018
39	15.5 - 10.5	5		12	40.153	41.168	0.825	A572-65	1.004
40	10.5 - 5.5	5		12	41.168	42.183	0.8	A572-65	1.021
41	5.5 - 3	2.5		12	42.183	42.691	0.8	A572-65	1.014
42	3 - 2.75	0.25		12	42.691	42.742	0.95	A572-65	0.879
43	2.75 - 1.75	1		12	42.742	42.945	0.95	A572-65	0.876
44	1.75 - 1.5	0.25		12	42.945	42.995	1.125	A572-65	0.803
45	1.5 - 0	1.5		12	42.995	43.300	1.1	A572-65	0.817

## TNX Section Forces

Increment (ft):		TNX Output			
	5	Section Height (ft)	P <sub>u</sub> (K)	M <sub>ux</sub> (kip-ft)	V <sub>u</sub> (K)
1	140 - 135		4.34	20.83	5.25
2	135 - 130		4.61	48.11	5.66
3	130 - 125		4.91	77.45	6.08
4	125 - 120		9.56	123.35	14.00
5	120 - 115		10.10	194.46	14.45
6	115 - 110		15.07	295.97	20.09
7	110 - 105		15.81	397.51	20.55
8	105 - 104		15.97	418.09	20.64
9	104 - 103.75		20.49	424.49	25.44
10	103.75 - 98.75		21.54	553.23	26.08
11	98.75 - 98.5		21.60	559.75	26.12
12	98.5 - 98.25		21.67	566.28	26.16
13	98.25 - 97		22.01	599.07	26.33
14	97 - 96.75		22.07	605.65	26.37
15	96.75 - 91.75		23.47	739.57	27.19
16	91.75 - 88.17		24.87	837.83	27.73
17	88.17 - 87.92		24.95	844.76	27.78
18	87.92 - 82.92		26.60	985.41	28.53
19	82.92 - 77.92		28.45	1130.23	29.39
20	77.92 - 72.92		30.18	1278.90	30.13
21	72.92 - 68.08		31.88	1426.33	30.85
22	68.08 - 67.83		31.99	1434.04	30.88
23	67.83 - 62.83		33.92	1590.25	31.65
24	62.83 - 57.83		35.86	1751.52	33.01
25	57.83 - 52.83		37.87	1918.28	33.71
26	52.83 - 51.5		38.41	1963.23	33.90
27	51.5 - 46.5		41.87	2134.78	34.71
28	46.5 - 41.5		44.06	2309.99	35.38
29	41.5 - 37.75		45.72	2443.57	35.88
30	37.75 - 37.5		45.85	2452.54	35.89
31	37.5 - 32.5		48.13	2633.64	36.55
32	32.5 - 32.25		48.27	2642.77	36.56
33	32.25 - 27.25		50.70	2827.21	37.21
34	27.25 - 23.5		52.55	2967.57	37.67
35	23.5 - 23.25		52.70	2976.99	37.68
36	23.25 - 20.75		54.10	3071.59	38.00
37	20.75 - 20.5		54.25	3081.10	38.01
38	20.5 - 15.5		56.88	3272.61	38.59
39	15.5 - 10.5		59.55	3466.89	39.32
40	10.5 - 5.5		62.25	3664.68	39.88
41	5.5 - 3		63.61	3764.62	40.16
42	3 - 2.75		63.76	3774.65	40.17
43	2.75 - 1.75		64.31	3814.86	40.30
44	1.75 - 1.5		64.47	3824.93	40.32
45	1.5 - 0		65.34	3885.52	40.53

# Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP17.015x16x0.25	Pole	6.3%	Pass
135 - 130	Pole	TP18.03x17.015x0.25	Pole	12.5%	Pass
130 - 125	Pole	TP19.045x18.03x0.25	Pole	17.7%	Pass
125 - 120	Pole	TP20.061x19.045x0.25	Pole	25.6%	Pass
120 - 115	Pole	TP21.076x20.061x0.25	Pole	36.4%	Pass
115 - 110	Pole	TP22.091x21.076x0.25	Pole	51.1%	Pass
110 - 105	Pole	TP23.106x22.091x0.25	Pole	63.3%	Pass
105 - 104	Pole	TP23.309x23.106x0.25	Pole	65.5%	Pass
104 - 103.75	Pole + Reinf.	TP23.36x23.309x0.4625	Reinf. 9 Tension Rupture	60.8%	Pass
103.75 - 98.75	Pole + Reinf.	TP24.375x23.36x0.45	Reinf. 9 Tension Rupture	73.9%	Pass
98.75 - 98.5	Pole + Reinf.	TP24.426x24.375x0.45	Reinf. 9 Tension Rupture	74.5%	Pass
98.5 - 98.25	Pole + Reinf.	TP24.476x24.426x0.725	Reinf. 9 Tension Rupture	48.1%	Pass
98.25 - 97	Pole + Reinf.	TP24.73x24.476x0.725	Reinf. 9 Tension Rupture	50.1%	Pass
97 - 96.75	Pole + Reinf.	TP24.781x24.73x0.5125	Reinf. 5 Tension Rupture	59.6%	Pass
96.75 - 91.75	Pole + Reinf.	TP26.456x24.781x0.5	Reinf. 5 Tension Rupture	68.4%	Pass
91.75 - 88.17	Pole + Reinf.	TP26.023x25.296x0.5625	Reinf. 5 Tension Rupture	67.8%	Pass
88.17 - 87.92	Pole + Reinf.	TP26.074x26.023x0.7625	Reinf. 5 Tension Rupture	53.0%	Pass
87.92 - 82.92	Pole + Reinf.	TP27.089x26.074x0.7375	Reinf. 5 Tension Rupture	58.5%	Pass
82.92 - 77.92	Pole + Reinf.	TP28.104x27.089x0.725	Reinf. 5 Tension Rupture	63.5%	Pass
77.92 - 72.92	Pole + Reinf.	TP29.12x28.104x0.7125	Reinf. 5 Tension Rupture	68.2%	Pass
72.92 - 68.08	Pole + Reinf.	TP30.102x29.12x0.6875	Reinf. 5 Tension Rupture	72.3%	Pass
68.08 - 67.83	Pole + Reinf.	TP30.153x30.102x0.8125	Reinf. 7 Tension Rupture	61.8%	Pass
67.83 - 62.83	Pole + Reinf.	TP31.168x30.153x0.7875	Reinf. 7 Tension Rupture	65.5%	Pass
62.83 - 57.83	Pole + Reinf.	TP32.184x31.168x0.7625	Reinf. 7 Tension Rupture	69.0%	Pass
57.83 - 52.83	Pole + Reinf.	TP33.199x32.184x0.75	Reinf. 7 Tension Rupture	72.3%	Pass
52.83 - 51.5	Pole + Reinf.	TP34.332x33.199x0.75	Reinf. 7 Tension Rupture	73.2%	Pass
51.5 - 46.5	Pole + Reinf.	TP33.859x32.844x0.8	Reinf. 7 Tension Rupture	72.4%	Pass
46.5 - 41.5	Pole + Reinf.	TP34.874x33.859x0.8	Reinf. 7 Tension Rupture	75.0%	Pass
41.5 - 37.75	Pole + Reinf.	TP35.636x34.874x0.775	Reinf. 7 Tension Rupture	76.9%	Pass
37.75 - 37.5	Pole + Reinf.	TP35.686x35.636x0.8	Reinf. 2 Tension Rupture	75.3%	Pass
37.5 - 32.5	Pole + Reinf.	TP36.702x35.686x0.775	Reinf. 2 Tension Rupture	77.4%	Pass
32.5 - 32.25	Pole + Reinf.	TP36.752x36.702x0.825	Reinf. 2 Tension Rupture	73.5%	Pass
32.25 - 27.25	Pole + Reinf.	TP37.767x36.752x0.8125	Reinf. 2 Tension Rupture	75.5%	Pass
27.25 - 23.5	Pole + Reinf.	TP38.529x37.767x0.8	Reinf. 2 Tension Rupture	76.9%	Pass
23.5 - 23.25	Pole + Reinf.	TP38.58x38.529x0.9	Reinf. 2 Tension Rupture	72.3%	Pass
23.25 - 20.75	Pole + Reinf.	TP39.087x38.58x0.9	Reinf. 2 Tension Rupture	73.1%	Pass
20.75 - 20.5	Pole + Reinf.	TP39.138x39.087x0.85	Reinf. 2 Tension Rupture	74.1%	Pass
20.5 - 15.5	Pole + Reinf.	TP40.153x39.138x0.825	Reinf. 2 Tension Rupture	75.8%	Pass
15.5 - 10.5	Pole + Reinf.	TP41.168x40.153x0.825	Reinf. 2 Tension Rupture	77.3%	Pass
10.5 - 5.5	Pole + Reinf.	TP42.183x41.168x0.8	Reinf. 2 Tension Rupture	78.8%	Pass
5.5 - 3	Pole + Reinf.	TP42.691x42.183x0.8	Reinf. 2 Tension Rupture	79.5%	Pass
3 - 2.75	Pole + Reinf.	TP42.742x42.691x0.95	Reinf. 10 Connection	79.9%	Pass
2.75 - 1.75	Pole + Reinf.	TP42.945x42.742x0.95	Reinf. 10 Compression	80.2%	Pass
1.75 - 1.5	Pole + Reinf.	TP42.995x42.945x1.125	Reinf. 10 Compression	69.8%	Pass
1.5 - 0	Pole + Reinf.	TP43.3x42.995x1.1	Reinf. 10 Connection	70.2%	Pass
				Summary	
			Pole	65.5%	Pass
			Reinforcement	80.2%	Pass
			Overall	80.2%	Pass

# Additional Calculations

Section Elevation (ft)	Moment of Inertia (in <sup>4</sup> )			Area (in <sup>2</sup> )			% Capacity*													
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
140 - 135	485	n/a	485	13.48	n/a	13.48	6.3%													
135 - 130	578	n/a	578	14.29	n/a	14.29	12.5%													
130 - 125	683	n/a	683	15.11	n/a	15.11	17.7%													
125 - 120	800	n/a	800	15.92	n/a	15.92	25.6%													
120 - 115	929	n/a	929	16.74	n/a	16.74	36.4%													
115 - 110	1072	n/a	1072	17.56	n/a	17.56	51.1%													
110 - 105	1228	n/a	1228	18.37	n/a	18.37	63.3%													
105 - 104	1262	n/a	1262	18.54	n/a	18.54	65.5%													
104 - 103.75	1270	1013	2283	18.58	13.50	32.08	36.0%									60.8%				
103.75 - 98.75	1445	1099	2543	19.39	13.50	32.89	44.4%									73.9%				
98.75 - 98.5	1454	1103	2557	19.43	13.50	32.93	44.9%									74.5%				
98.5 - 98.25	1463	2557	4020	19.47	30.45	49.92	29.0%					41.2%				48.1%				
98.25 - 97	1509	2607	4116	19.68	30.45	50.13	30.3%					43.0%				50.1%				
97 - 96.75	1519	1483	3002	19.72	16.95	36.67	42.1%					59.6%								
96.75 - 91.75	1715	1599	3314	20.54	16.95	37.49	49.1%					68.4%								
91.75 - 88.17	2186	1625	3811	25.83	16.95	42.78	45.3%					67.8%								
88.17 - 87.92	2209	2860	5069	25.89	34.95	60.84	37.1%					53.0%			51.6%					
87.92 - 82.92	2481	3142	5622	26.91	34.95	61.86	40.5%					58.5%			57.0%					
82.92 - 77.92	2774	3367	6141	27.93	34.95	62.88	44.6%					63.5%			62.1%					
77.92 - 72.92	3088	3601	6689	28.95	34.95	63.90	48.5%					68.2%			66.7%					
72.92 - 68.08	3415	3835	7249	29.93	34.95	64.88	52.2%					72.3%			70.9%					
68.08 - 67.83	3429	4990	8419	29.98	43.41	73.39	45.1%				61.5%			61.8%						
67.83 - 62.83	3791	5311	9102	31.00	43.41	74.41	48.3%				65.1%			65.5%						
62.83 - 57.83	4177	5643	9819	32.02	43.41	75.43	51.5%				68.4%			69.0%						
57.83 - 52.83	4588	5984	10572	33.04	43.41	76.45	54.7%				71.7%			72.3%						
52.83 - 51.5	4702	6077	10779	33.32	43.41	76.73	55.5%				72.5%			73.2%						
51.5 - 46.5	5809	6214	12023	40.37	43.41	83.78	51.3%						71.2%	72.4%						
46.5 - 41.5	6353	6572	12925	41.60	43.41	85.01	53.7%						73.7%	75.0%						
41.5 - 37.75	6782	6848	13630	42.52	43.41	85.93	55.4%						75.4%	76.9%						
37.75 - 37.5	6825	7049	13874	42.58	45.26	87.84	55.3%		75.3%	70.8%				75.0%						
37.5 - 32.5	7430	7436	14865	43.80	45.26	89.06	57.6%		77.4%	69.3%				77.3%						
32.5 - 32.25	7473	8369	15842	43.86	51.64	95.50	54.7%		73.5%	65.2%			71.3%							
32.25 - 27.25	8115	8814	16929	45.09	51.64	96.72	56.8%		75.5%	67.1%			73.4%							
27.25 - 23.5	8620	9156	17776	46.00	51.64	97.64	58.4%		76.9%	68.4%			74.8%							
23.5 - 23.25	8862	11326	20188	46.07	68.58	114.64	54.9%	54.2%	72.3%	49.0%			66.9%							
23.25 - 20.75	9217	11613	20831	46.68	68.58	115.25	55.9%	54.9%	73.1%	49.7%			67.8%							
20.75 - 20.5	9096	10562	19658	46.74	58.26	104.99	57.9%	66.0%	74.1%				72.3%							
20.5 - 15.5	9826	11092	20918	47.96	58.26	106.22	59.8%	67.6%	75.8%				74.0%							
15.5 - 10.5	10595	11636	22231	49.19	58.26	107.44	61.8%	69.0%	77.3%				75.6%							
10.5 - 5.5	11403	12193	23595	50.41	58.26	108.67	63.7%	70.4%	78.8%				77.2%							
5.5 - 3	11821	12476	24297	51.02	58.26	109.28	64.6%	71.1%	79.5%				77.9%							
3 - 2.75	11809	16782	28591	51.08	61.07	112.15	54.6%	66.2%	74.5%							79.9%				
2.75 - 1.75	11979	16926	28905	51.33	61.07	112.40	54.9%	66.5%	74.7%							80.2%				
1.75 - 1.5	12073	21750	33823	51.39	70.19	121.58	47.9%									69.8%	58.0%	61.4%	66.9%	
1.5 - 0	12333	22020	34353	51.76	70.19	121.95	48.4%									70.2%	58.3%	61.7%	67.3%	

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

# Monopole Base Plate Connection

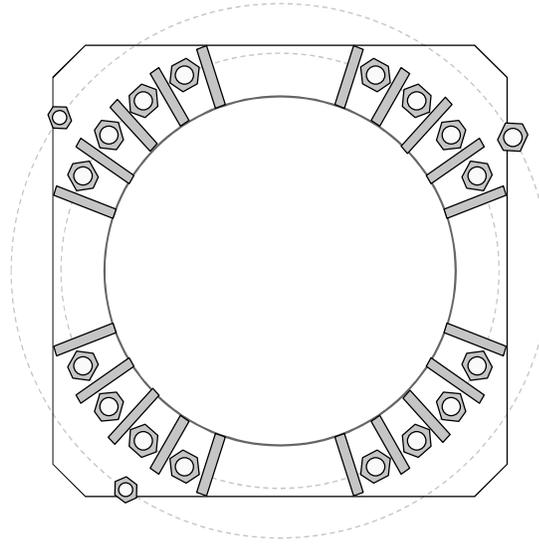


Site Info	
BU #	876342
Site Name	BIC DRIVE
Order #	508882 Rev 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
$l_{ar}$ (in)	2.25

Applied Loads	
Moment (kip-ft)	3885.52
Axial Force (kips)	65.34
Shear Force (kips)	40.53

\*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

**Anchor Rod Data**

GROUP 1: (16) 2-1/4"  $\phi$  bolts (A615-75 N;  $F_y=75$  ksi,  $F_u=100$  ksi) on 54" BC  
*Anchor Spacing: 6 in*

GROUP 2: (3) 2-1/4"  $\phi$  bolts (A193 Gr. B7 N;  $F_y=105$  ksi,  $F_u=125$  ksi) on 66.3" BC  
*pos. (deg): 30, 145, 235*

**Base Plate Data**

56" OD x 3" Plate (A572-50;  $F_y=50$  ksi,  $F_u=65$  ksi)

**Stiffener Data**

(20) 18"H x 7.75"W x 1.25"T, Notch: 0.75"  
 plate:  $F_y=65$  ksi ; weld:  $F_y=70$  ksi  
 horiz. weld: 0.49" groove, 45° dbl bevel, 0.5" fillet  
 vert. weld: 0.3125" fillet

**Pole Data**

43.3" x 0.375" 12-sided pole (A572-65;  $F_y=65$  ksi,  $F_u=80$  ksi)

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

GROUP 1:

$Pu\_c = 191.41$	$\phi Pn\_c = 243.75$	<b>Stress Rating</b>
$Vu = 2.53$	$\phi Vn = 73.13$	<b>74.9%</b>
$Mu = n/a$	$\phi Mn = n/a$	Pass

GROUP 2:

$Pu\_c = 211.89$	$\phi Pn\_c = 246.34$	<b>Stress Rating</b>
$Vu = 0$	$\phi Vn = 102.31$	<b>81.9%</b>
$Mu = 0$	$\phi Mn = 132.46$	Pass

**Base Plate Summary**

Max Stress (ksi):	4.12	(Shear)
Allowable Stress (ksi):	29.25	
Stress Rating:	<b>13.4%</b>	Pass

**Stiffener Summary**

Horizontal Weld:	<b>56.7%</b>	Pass
Vertical Weld:	<b>61.2%</b>	Pass
Plate Flexure+Shear:	<b>8.7%</b>	Pass
Plate Tension+Shear:	<b>25.4%</b>	Pass
Plate Compression:	<b>32.6%</b>	Pass

**Pole Summary**

Punching Shear:	<b>16.4%</b>	Pass
-----------------	--------------	------

# Pier and Pad Foundation



BU #: 876342  
 Site Name: BIC DRIVE  
 App. Number: 508882 Rev 0

TIA-222 Revision: H  
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	65.34	kips
Base Shear, $V_{u\_comp}$ :	40.53	kips
Moment, $M_u$ :	3885.52	ft-kips
Tower Height, $H$ :	140	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	7	ft
Ext. Above Grade, $E$ :	0.5	ft
Pier Rebar Size, $Sc$ :	11	
Pier Rebar Quantity, $mc$ :	32	
Pier Tie/Spiral Size, $St$ :	5	
Pier Tie/Spiral Quantity, $mt$ :		
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

Pad Properties		
Depth, $D$ :	10	ft
Pad Width, $W$ :	22.5	ft
Pad Thickness, $T$ :	4	ft
Pad Rebar Size (Bottom), $Sp$ :	11	
Pad Rebar Quantity (Bottom), $mp$ :	23	
Pad Clear Cover, $cc_{pad}$ :	3	in

Material Properties		
Rebar Grade, $F_y$ :	60	ksi
Concrete Compressive Strength, $F'_c$ :	3	ksi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	130	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	20.000	ksf
Cohesion, $C_u$ :		ksf
Friction Angle, $\phi$ :	32	degrees
SPT Blow Count, $N_{blows}$ :	22	
Base Friction, $\mu$ :		
Neglected Depth, $N$ :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	n/a	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	455.90	40.53	8.5%	Pass
<i>Bearing Pressure (ksf)</i>	15.00	3.40	22.7%	Pass
<i>Overtuning (kip*ft)</i>	8273.31	4321.22	52.2%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	7603.98	4148.97	52.0%	Pass
<i>Pier Compression (kip)</i>	23390.64	122.67	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	6671.79	1452.39	20.7%	Pass
<i>Pad Shear - 1-way (kips)</i>	951.31	214.83	21.5%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.026	15.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	11089.05	2489.38	21.4%	Pass

\*Rating per TIA-222-H Section 15.5

Soil Rating*:	52.2%
Structural Rating*:	52.0%

<--Toggle between Gross and Net

# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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

**Elevation:** 40.17 ft (NAVD 88)  
**Latitude:** 41.212794  
**Longitude:** -73.085306



## Wind

### Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	100 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:** Fri Dec 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.

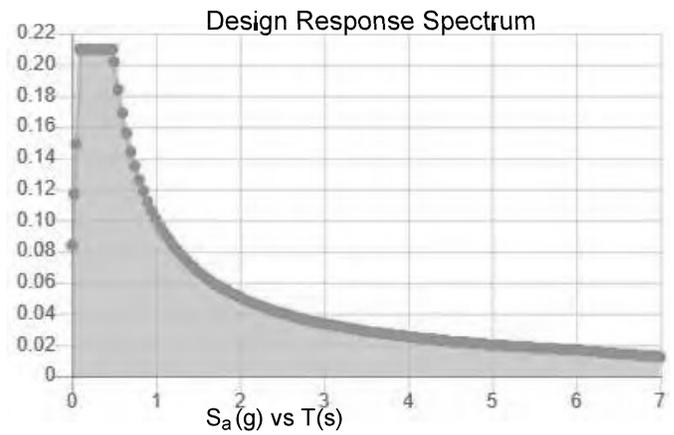
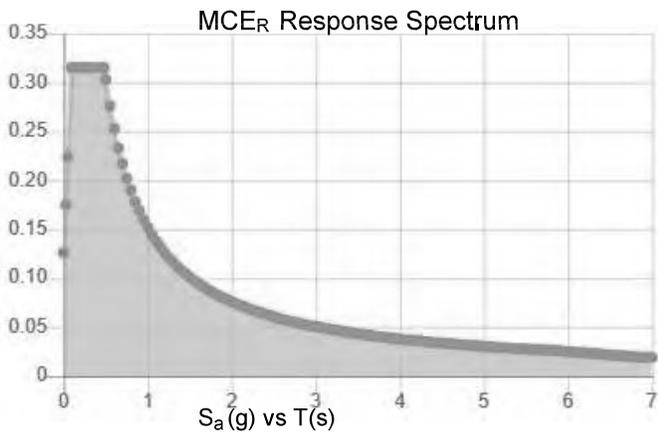
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.197	$S_{DS}$ :	0.21
$S_1$ :	0.063	$S_{D1}$ :	0.101
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.105
$S_{MS}$ :	0.315	PGA <sub>M</sub> :	0.167
$S_{M1}$ :	0.152	F <sub>PGA</sub> :	1.59
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Fri Dec 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:** Fri Dec 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.

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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**

Date: January 3, 2019

Darcy Tarr  
Crown Castle  
3530 Toringdon Way  
Charlotte, NC 28277

Paul J Ford and Company  
250 E. Broad Street, Suite 600  
Columbus, OH 43215  
614.221.6679

**Subject:** Mount Modification Report

**Carrier Designation:** Verizon Wireless Equipment Change-out  
**Carrier Site Number:** NG32385  
**Carrier Site Name:** MILFORD 2 CT

**Crown Castle Designation:** Crown Castle BU Number: 876342  
**Crown Castle Site Name:** Bic Drive (SSUSA)  
**Crown Castle JDE Job Number:** 595589  
**Crown Castle Purchase Order Number:** 1485343  
**Crown Castle Order Number:** 508882 Rev. 0

**Engineering Firm Designation:** Paul J Ford and Company Project Number: A37519-1158.004.7191

**Site Data:** 111 School House Road, A/K/A Bic Drive, Milford, New Haven County, CT 06460  
Latitude 41.212794°, Longitude -73.085306°

**Structure Information:** Tower Height & Type: 140 Foot Monopole  
Mount Elevation: 104 Foot  
Mount Type: 14 Foot Platform

Dear Darcy Tarr,

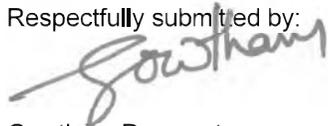
Paul J Ford and Company is pleased to submit this "Mount Modification Report" to determine the structural integrity of the Verizon Wireless antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

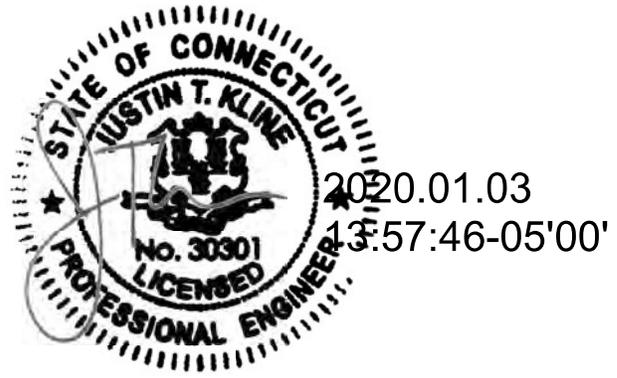
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

<b>14' Platform</b>	<b>60.2%</b>	<b>SUFFICIENT*</b>
*The mount has sufficient capacity once the modifications, as described in Section 4.1 Recommendations of this report, are completed.		

This analysis utilizes an ultimate 3-second gust wind speed of 125 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:

  
Gowtham Penumatsa  
Structural Designer



D.S.

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REVIEW

## 1) INTRODUCTION

The existing mount under consideration is a 14' Platform mount identified as a Valmont TMF 14' LP PLATFORM based on photos.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Ultimate Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor at Base:</b>	1.00
<b>Topographic Factor at Mount:</b>	1.00
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Live Loading Wind Speed:</b>	30 mph
<b>Maintenance Load at Mid/End-Points:</b>	250 lb
<b>Maintenance Load at Mount Pipes:</b>	500 lb

**Table 1 - Proposed Equipment Configuration**

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
104	104	3	ANDREW	LNx-6514DS-VTM	Click or tap here to enter text. 14' Platform
		6	COMMSCOPE	SBNHH-1D65B	
		3	COMMSCOPE	BSAMNT-SBS-1-2	
		3	SAMSUNG TELE.	CBRS	
		3	COMMSCOPE	CBC78T-DS-43-2X	
		3	SAMSUNG TELE.	20W CBRS	
		3	SAMSUNG TELE.	RFV01U-D1A	
		3	SAMSUNG TELE.	RFV01U-D2A	
		2	RFS CELWAVE	DB-T1-6Z-8AB-0Z	Tower Mounted

### 3) ANALYSIS PROCEDURE

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
Mount Manufacturer Drawings	TMF 14' LP PLATFORM Dated: 10/27/2009	-	Valmont
Photos	Dated: 8/5/2019	-	CCISites
Order	ID: 508882 Rev. 0 Dated: 11/25/2019	-	CCISites
Construction Drawings	Dated: 12/26/2019	-	Crown Castle
Radio Frequency Data Sheet	Dated: 11/4/2019	-	Crown Castle

#### 3.1) Analysis Method

RISA-3D (version 17.0.3), 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.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C). In addition, this analysis is in accordance with Verizon's NSTD-446 *Antenna Mount Analysis and Modification Process* (dated 03/29/19).

#### 3.2) Assumptions

- 1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
- 2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
- 3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
- 4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
- 5) *Steel grades are as follows, unless noted otherwise:*

a) Channel, Solid Round, Angle, Plate, Unistrut	ASTM A36 (GR 36)
b) Pipe	ASTM A53 (GR 35)
c) HSS (Rectangular)	ASTM 500 (GR B-46)
d) HSS (Round)	ASTM 500 (GR B-42)
e) Threaded Rods	ASTM F1554 (GR 36)
f) Connection Bolts	ASTM A325
g) U-Bolts	SAE J429 (GR 2)
- 6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
- 7) *Mount has been modeled based on the photographs and/or the TIA inspection referenced in Table 2, indicating a match to the Valmont TMF 14' LP PLATFORM. Member information and dimensions not provided have been assumed to match those specified in the manufacturer drawings referenced in Table 2. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.*

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 mount.

#### 4) ANALYSIS RESULTS

**Table 3- Mount Component Capacity**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Face Horizontals	104	50.6	Pass
1	Support Rails		50.5	Pass
1	Grating Support Members		30.7	Pass
1	Standoff Members		22.9	Pass
1	Kick-Brace		12.9	Pass
1	Corner Plates		60.2	Pass
1	Mount Pipes		33.3	Pass
1	Mount to Tower Connection		41.1	Pass

<b>Mount Rating (max from all components) =</b>	<b>60.2%</b>
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Software Analysis Output" for calculations supporting the % capacity consumed.

#### 4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

- Install SitePro1 HRK12 support rail kit or EOR approved equivalent as indicated in "Appendix D – Supplemental Modification Information" and in conformance with the attached manufacturer drawings.
- Install SitePro1 PRK-SFS-L Platform Reinforcement Kit or EOR approved equivalent to the new support rails as indicated in "Appendix D – Supplemental Modification Information" and in conformance with the attached manufacturer drawings.

Connection from the mount to the tower and local stresses on the tower are sufficient.

**VERIZON MOUNT RATING = M 650R(450)-5(6)**

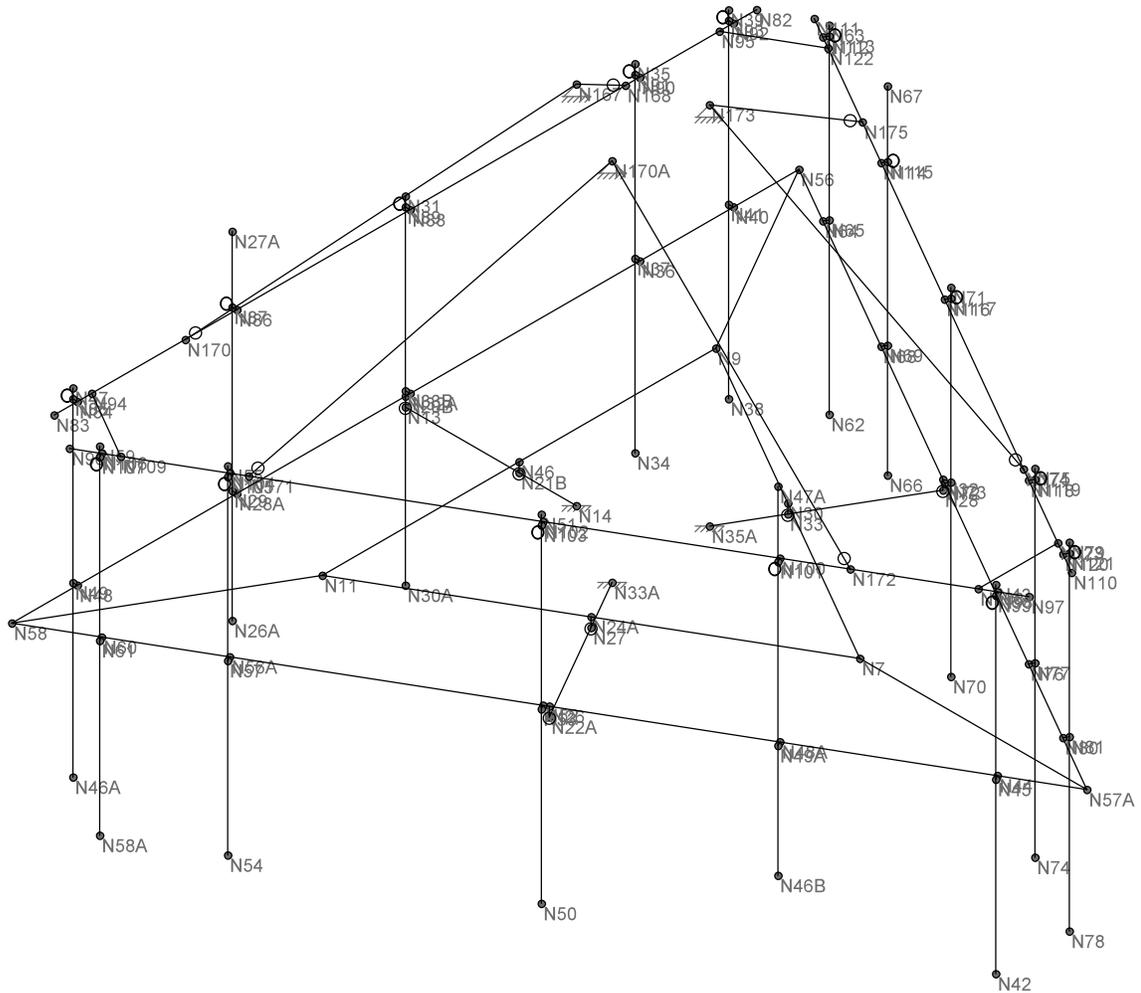
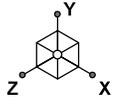
**STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING  
SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY**

- 1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.
- 2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.
- 3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.
- 4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.
- 5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

\*\*\*\*\*

# **APPENDIX A**

## **WIRE FRAME AND RENDERED MODELS**



Envelope Only Solution

Paul J. Ford and Company

GP

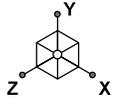
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876342 / BIC DRIVE (SSUSA)

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**LEGEND**  
 EXISTING: BLUE  
 PROPOSED: RED

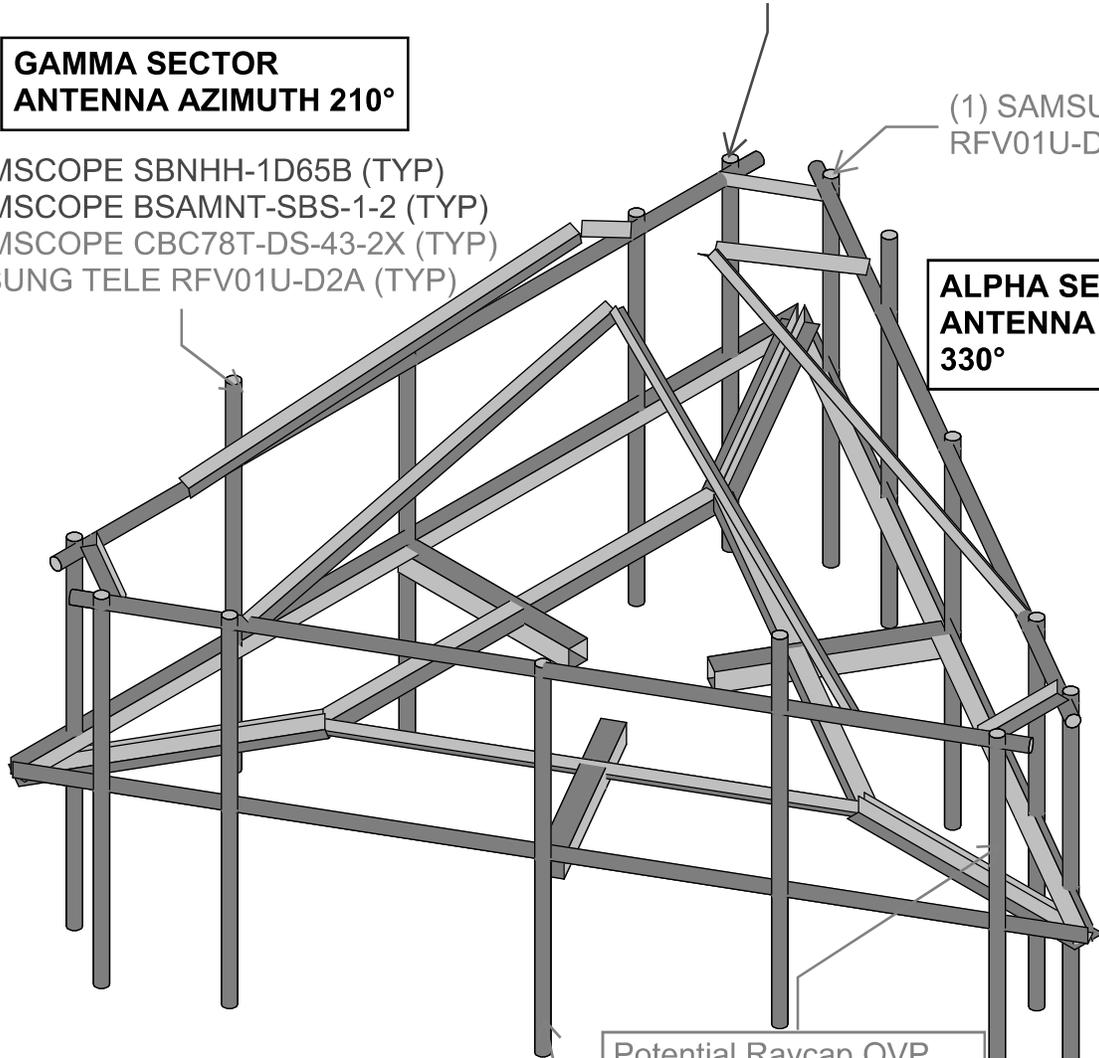
**GAMMA SECTOR  
 ANTENNA AZIMUTH 210°**

- (2) COMMSCOPE SBNHH-1D65B (TYP)
- (1) COMMSCOPE BSAMNT-SBS-1-2 (TYP)
- (1) COMMSCOPE CBC78T-DS-43-2X (TYP)
- (1) SAMSUNG TELE RFV01U-D2A (TYP)

(1) ANDREW  
 LNX-6514DS-VTM (TYP)

(1) SAMSUNG TELE  
 RFV01U-D1A (TYP)

**ALPHA SECTOR  
 ANTENNA AZIMUTH  
 330°**



**BETA SECTOR  
 ANTENNA AZIMUTH 120°**

Potential Raycap OVP  
 relocation position on the  
 mount. Install only one on  
 each sector. Field Verify

- (1) SAMSUNG TELE CBRs (TYP)
- (1) SAMSUNG TELE 20W CBRs (TYP)

**NOTES:**

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Envelope Only Solution

Paul J. Ford and Company		SK - 2
GP	876342 / BIC DRIVE (SSUSA)	Dec 31, 2019 at 1:25 PM
37519-1158.004.7190		37519-1158.004.7190_MDD.r3d

# **APPENDIX B**

## **SOFTWARE INPUT CALCULATION**

**Mount Loading per TIA-222-H**

Structure & Wind Speed		Topography		Velocity Pressure Coefficients		Ice Loading	
Analysis Scope = Client	Risk Category = II	Load	Label	Node #			
Structure Type = Mount	Exposure Category = C	L <sub>1-1</sub> = 500 lbs	N40	40			
Mount Type = 3 Sectors	Topographic Category = 1	L <sub>1-2</sub> = 500 lbs	N32A	32			
Mount Centerline (Z) = 104 ft	Structure Base Height (Z <sub>0</sub> ) = 44.06 ft	L <sub>1-3</sub> = 500 lbs	N28A	28			
C/L Y Coordinate = 0 ft	Crest Height (H) = ft	L <sub>1-4</sub> = 500 lbs	N48	22			
Ultimate Wind Speed = 125 mph							
Service Wind Speed = 30 mph							
Ice Thickness = 1.5 in							
Const. Duration = #N/A							
Non-Op Wind Speed = 30 mph							

**Maintenance Point Loads**

Load	Label	Node #
L <sub>1-1</sub>	N40	40
L <sub>1-2</sub>	N32A	32
L <sub>1-3</sub>	N28A	28
L <sub>1-4</sub>	N48	22

**Wind Pressure**

Parameter	Value
Z <sub>0</sub>	900 ft
α	9.50
K <sub>z</sub>	1.28
K <sub>zt</sub>	1.00
K <sub>d</sub>	0.95
G <sub>h</sub>	1.00
K <sub>wp</sub>	1.0
q <sub>w</sub>	48.41 psf

**Ice Loading**

Parameter	Value
Z <sub>0</sub>	900 ft
α	9.50
K <sub>z</sub>	1.28
K <sub>zt</sub>	1.00
K <sub>d</sub>	0.95
G <sub>h</sub>	1.00
K <sub>wp</sub>	1.0
q <sub>w</sub>	48.41 psf

**Antennas**

Item	Status	Manufacturer	Antenna	Height (ft)	Width (ft)	Depth (ft)	Flat or Round	Weight (lbs)	Sector / Face	Position	Quantity	Orientation	Use InxTower C <sub>A</sub> A <sub>3</sub> (CFD)	Top/Bottom Mounting Point Spacing	Override Spacing (in)	Max Antenna C/L (ft)	Min Antenna C/L (ft)	Antenna C/L (ft)	Antenna Top Mount Location from Mount Pipe Bottom (in)	Antenna Bottom Mount Location from Mount Pipe Bottom (in)	Override Top Antenna Mounting Location (in)	Override Bottom Antenna Mounting Location (in)	Normal Wind Force per Antenna (lbs)	Transverse Wind Force per Antenna (lbs)
1	I	ANDREW	LNX-6514DS-VTM_CCI CFD	72.7	11.9	7.1	Flat	38.8	A	5	1	Normal	Yes	66.70		104.221	103.779	104	69.35	2.65			181,266	108,468
2	I	ANDREW	LNX-6514DS-VTM_CCI CFD	72.7	11.9	7.1	Flat	38.8	B	5	1	Normal	Yes	66.70		104.221	103.779	104	69.35	2.65			181,266	108,468
3	I	ANDREW	LNX-6514DS-VTM_CCI CFD	72.7	11.9	7.1	Flat	38.8	C	5	1	Normal	Yes	66.70		104.221	103.779	104	69.35	2.65			181,266	108,468
4	I	COMMSCOPE	SRNH-1D65B_CCI CFD	72.9	11.9	7.1	Flat	40.6	A	2	1	Normal	Yes	66.90		106.213	104.788	105	69.45	2.55			181,266	108,468
5	I	COMMSCOPE	SRNH-1D65B_CCI CFD	72.9	11.9	7.1	Flat	40.6	A	2	1	Normal	Yes	66.90		106.213	104.788	105	69.45	2.55			181,266	108,468
6	I	COMMSCOPE	SRNH-1D65B_CCI CFD	72.9	11.9	7.1	Flat	40.6	B	2	1	Normal	Yes	66.90		106.213	104.788	105	69.45	2.55			181,266	108,468
7	I	COMMSCOPE	SRNH-1D65B_CCI CFD	72.9	11.9	7.1	Flat	40.6	B	2	1	Normal	Yes	66.90		106.213	104.788	105	69.45	2.55			181,266	108,468
8	I	COMMSCOPE	SRNH-1D65B_CCI CFD	72.9	11.9	7.1	Flat	40.6	C	2	1	Normal	Yes	66.90		106.213	104.788	105	69.45	2.55			181,266	108,468
9	I	COMMSCOPE	SRNH-1D65B_CCI CFD	72.9	11.9	7.1	Flat	40.6	C	2	1	Normal	Yes	66.90		106.213	104.788	105	69.45	2.55			181,266	108,468
10	I	COMMSCOPE	BSAMNT-SBS4-2 (MOUNT BRACKET)	1	1	1	Flat	40	A	2	1	Normal	No	1.00		107.958	102.042	105	36.50	35.50			0.363	0.363
11	I	COMMSCOPE	BSAMNT-SBS4-2 (MOUNT BRACKET)	1	1	1	Flat	40	B	2	1	Normal	No	1.00		107.958	102.042	105	36.50	35.50			0.363	0.363
12	I	COMMSCOPE	BSAMNT-SBS4-2 (MOUNT BRACKET)	1	1	1	Flat	40	C	2	1	Normal	No	1.00		107.958	102.042	105	36.50	35.50			0.363	0.363
13	P	SAHINBU TELECOMMUNICATIONS	CBRS	16.16	11.39	5.45	Flat	23.14	A	3	1	Normal	No	10.16		106.577	101.423	104	41.08	30.32			66,635	32,531
14	P	SAHINBU TELECOMMUNICATIONS	CBRS	16.16	11.39	5.45	Flat	23.14	B	3	1	Normal	No	10.16		106.577	101.423	104	41.08	30.32			66,635	32,531
15	P	SAHINBU TELECOMMUNICATIONS	CBRS	16.16	11.39	5.45	Flat	23.14	C	3	1	Normal	No	10.16		106.577	101.423	104	41.08	30.32			66,635	32,531
16	P	COMMSCOPE	CBCT87-DS-43-2X	6.4	6.9	9.6	Flat	20.7	A	2	1	Normal	No	0.40		107.983	102.017	105	36.20	36.80			16,035	22,310
17	P	COMMSCOPE	CBCT87-DS-43-2X	6.4	6.9	9.6	Flat	20.7	B	2	1	Normal	No	0.40		107.983	102.017	105	36.20	36.80			16,035	22,310
18	P	COMMSCOPE	CBCT87-DS-43-2X	6.4	6.9	9.6	Flat	20.7	C	2	1	Normal	No	0.40		107.983	102.017	105	36.20	36.80			16,035	22,310
19	P	SAHINBU TELECOMMUNICATIONS	20W CBRS	12.1	8.5	4.1	Flat	18.64	A	3	1	Normal	No	6.10		106.746	101.254	105	51.05	44.95			37,346	18,315
20	P	SAHINBU TELECOMMUNICATIONS	20W CBRS	12.1	8.5	4.1	Flat	18.64	B	3	1	Normal	No	6.10		106.746	101.254	105	51.05	44.95			37,346	18,315
21	P	SAHINBU TELECOMMUNICATIONS	20W CBRS	12.1	8.5	4.1	Flat	18.64	C	3	1	Normal	No	6.10		106.746	101.254	105	51.05	44.95			37,346	18,315
22	P	SAHINBU TELECOMMUNICATIONS	REV01LD1A	15	15	10	Flat	84.4	A	1	1	Normal	No	8.00		106.625	101.375	105	52.50	43.50			81,700	54,467
23	P	SAHINBU TELECOMMUNICATIONS	REV01LD1A	15	15	10	Flat	84.4	B	1	1	Normal	No	8.00		106.625	101.375	105	52.50	43.50			81,700	54,467
24	P	SAHINBU TELECOMMUNICATIONS	REV01LD1A	15	15	10	Flat	84.4	C	1	1	Normal	No	8.00		106.625	101.375	105	52.50	43.50			81,700	54,467
25	P	SAHINBU TELECOMMUNICATIONS	REV01LD2A	15	15	8.1	Flat	70.3	A	2	1	Normal	No	8.00		107.625	102.375	105	40.50	31.50			81,700	44,118
26	P	SAHINBU TELECOMMUNICATIONS	REV01LD2A	15	15	8.1	Flat	70.3	B	2	1	Normal	No	8.00		107.625	102.375	105	40.50	31.50			81,700	44,118
27	P	SAHINBU TELECOMMUNICATIONS	REV01LD2A	15	15	8.1	Flat	70.3	C	2	1	Normal	No	8.00		107.625	102.375	105	40.50	31.50			81,700	44,118

# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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

**Elevation:** 40.17 ft (NAVD 88)  
**Latitude:** 41.212794  
**Longitude:** -73.085306



## Wind

### Results:

Wind Speed:	124 Vmph	← Jurisdiction requires 125 mph wind speed
10-year MRI	77 Vmph	
25-year MRI	87 Vmph	
50-year MRI	94 Vmph	
100-year MRI	100 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:** Fri Dec 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.

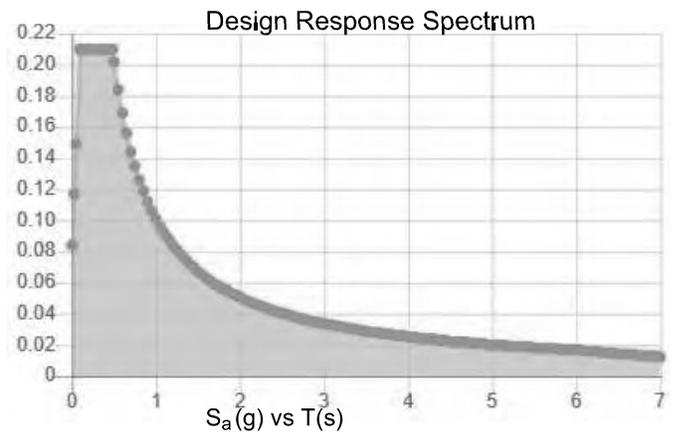
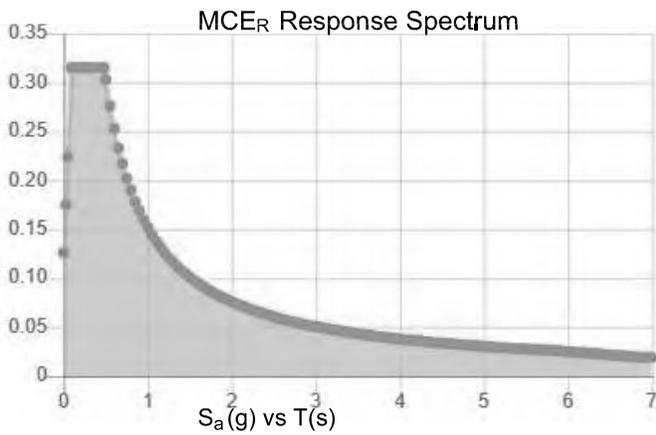
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.197	$S_{DS}$ :	0.21
$S_1$ :	0.063	$S_{D1}$ :	0.101
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.105
$S_{MS}$ :	0.315	PGA <sub>M</sub> :	0.167
$S_{M1}$ :	0.152	$F_{PGA}$ :	1.59
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Fri Dec 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:** Fri Dec 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.

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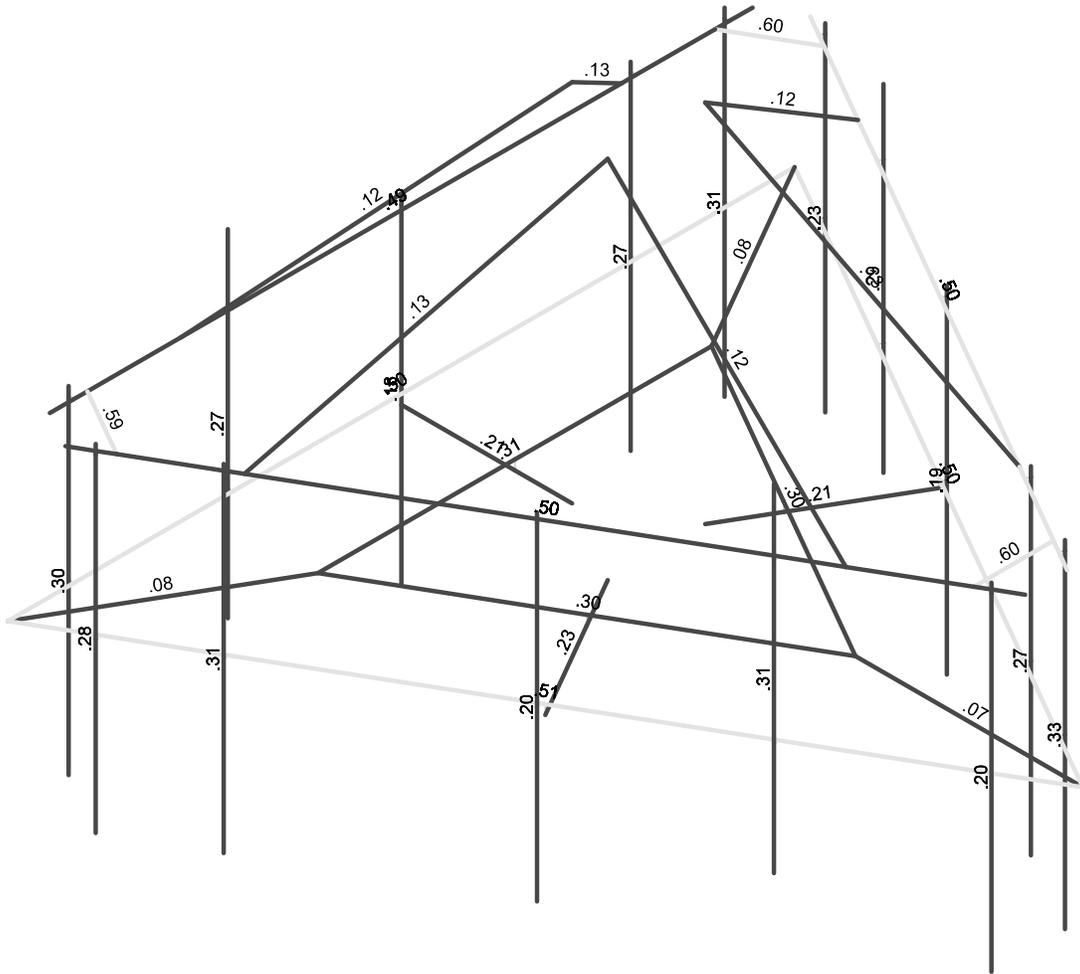
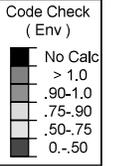
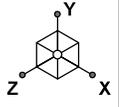
The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated 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.

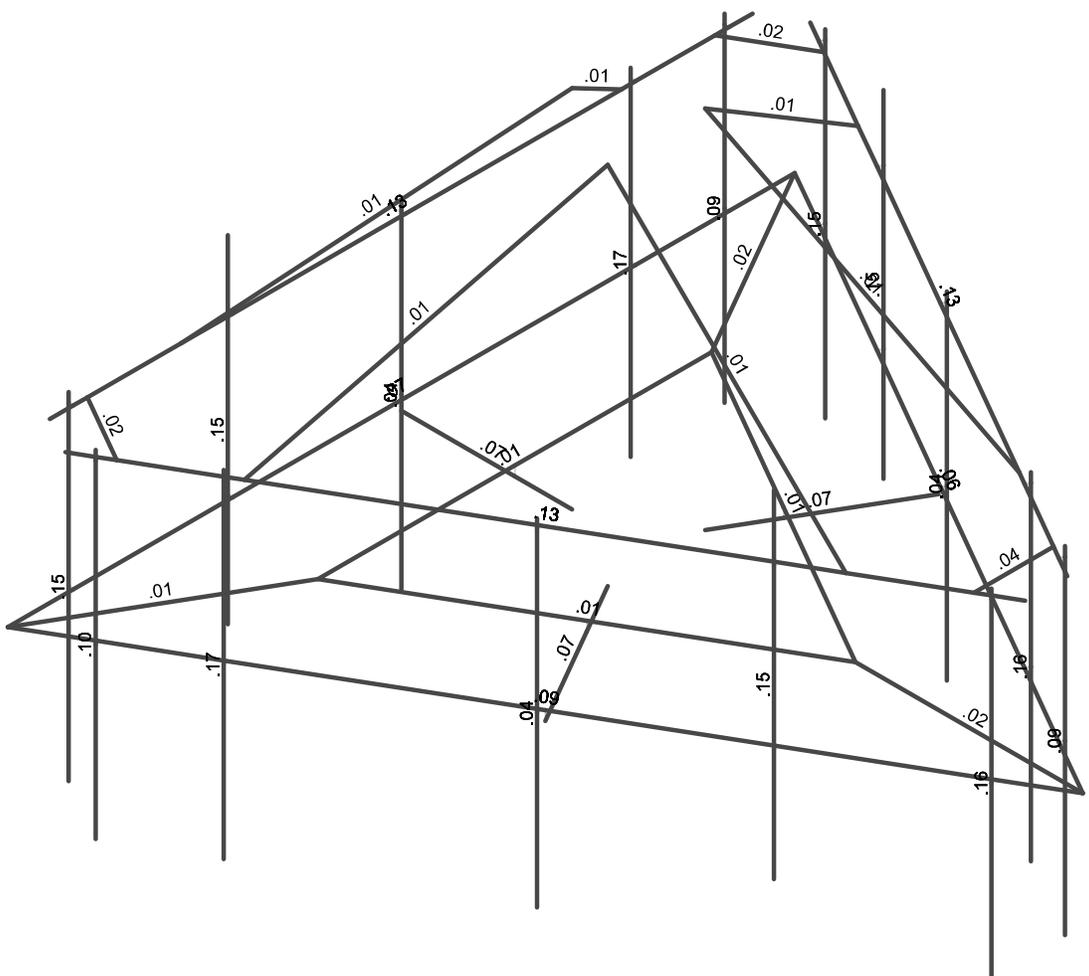
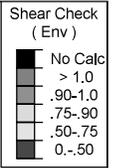
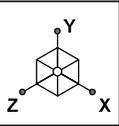
# **APPENDIX C**

## **SOFTWARE ANALYSIS OUTPUT**



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

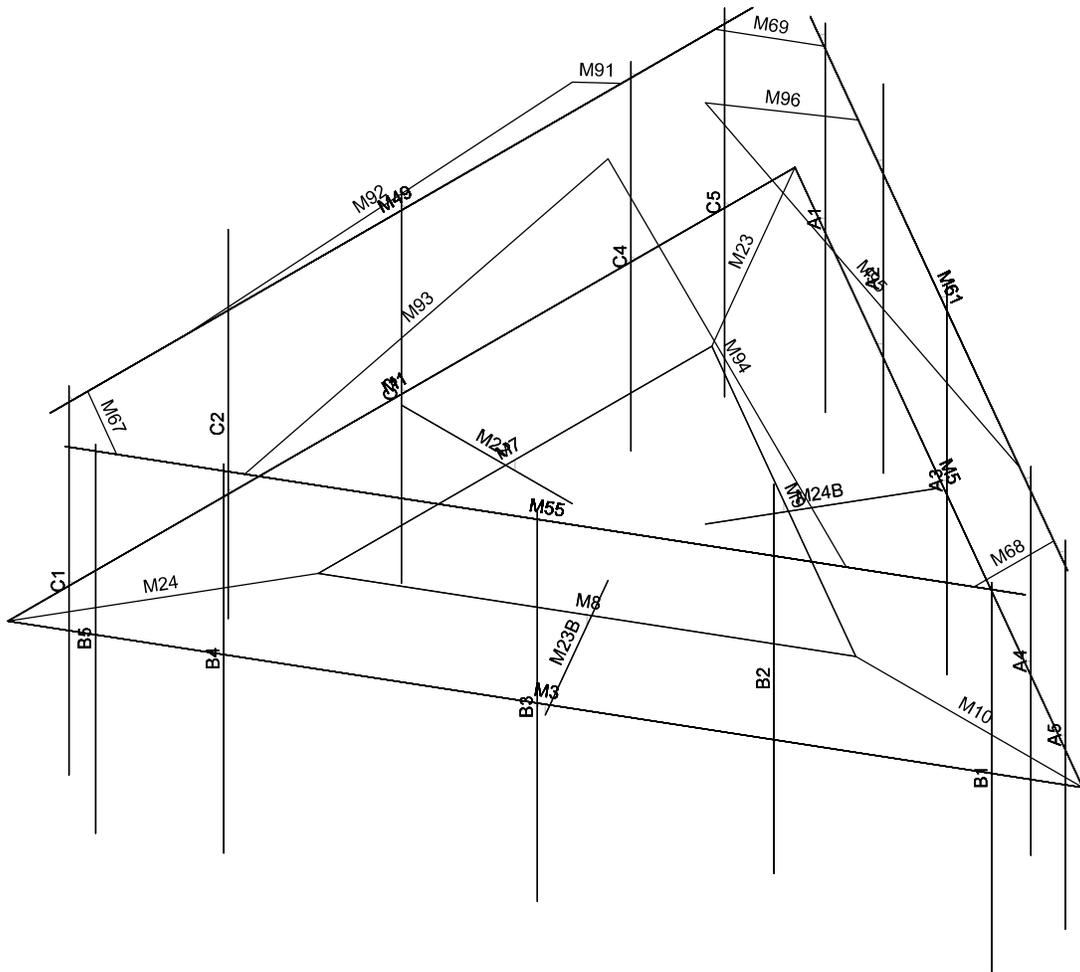
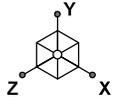
Paul J. Ford and Company	876342 / BIC DRIVE (SSUSA)	SK - 3
GP		Dec 31, 2019 at 1:29 PM
37519-1158.004.7190		37519-1158.004.7190_MDD.r3d



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

Paul J. Ford and Company	876342 / BIC DRIVE (SSUSA)	SK - 4
GP		Dec 31, 2019 at 1:29 PM
37519-1158.004.7190		37519-1158.004.7190_MDD.r3d





Envelope Only Solution

Paul J. Ford and Company

GP

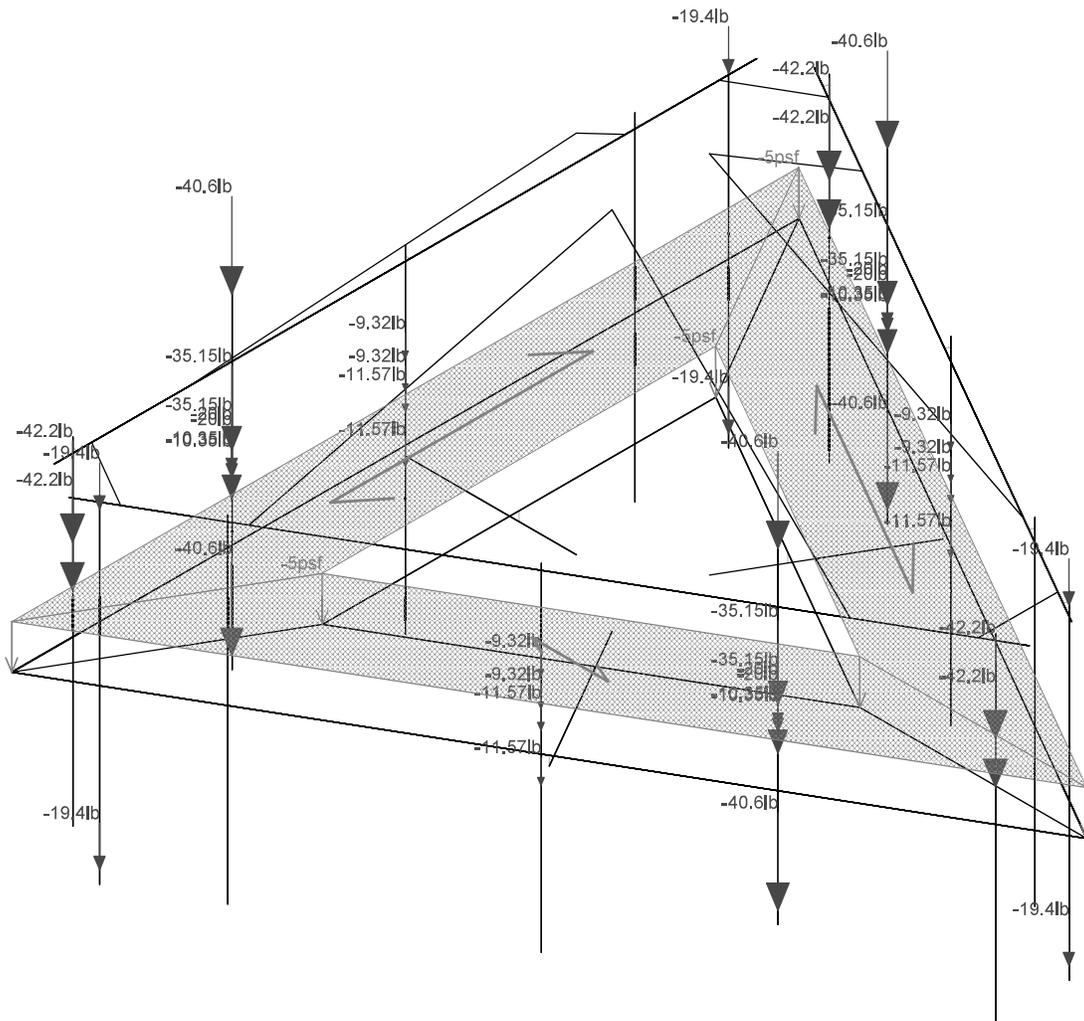
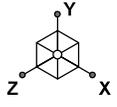
37519-1158.004.7190

876342 / BIC DRIVE (SSUSA)

SK - 6

Dec 31, 2019 at 1:30 PM

37519-1158.004.7190\_MDD.r3d



Loads: BLC 1, Dead  
Envelope Only Solution

Paul J. Ford and Company	876342 / BIC DRIVE (SSUSA)	SK - 7
GP		Dec 31, 2019 at 1:30 PM
37519-1158.004.7190		37519-1158.004.7190_MDD.r3d







Company : Paul J. Ford and Company  
 Designer : GP  
 Job Number : 37519-1158.004.7190  
 Model Name : 876342 / BIC DRIVE (SSUSA)

Dec 31, 2019  
 2:33 PM  
 Checked By: \_\_\_\_\_

**(Global) Model Settings**

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISACONNECTION CODE	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

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



**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr. B (35 ksi)	29000	11154	.3	.65	.49	35	1.5	60	1.2

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate...	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N56	N58		270	L3X3X4	None	None	A36 Gr.36	Typical
2	M3	N58	N57A		270	L3X3X4	None	None	A36 Gr.36	Typical
3	M5	N57A	N56		270	L3X3X4	None	None	A36 Gr.36	Typical
4	M7	N9	N11		90	L3X3X4	None	None	A36 Gr.36	Typical
5	M8	N11	N7		90	L3X3X4	None	None	A36 Gr.36	Typical
6	M9	N7	N9		90	L3X3X4	None	None	A36 Gr.36	Typical
7	M10	N7	N57A		180	LL3x3x4x0	None	None	A36 Gr.36	Typical
8	M23	N9	N56		180	LL3x3x4x0	None	None	A36 Gr.36	Typical
9	M24	N11	N58		180	LL3x3x4x0	None	None	A36 Gr.36	Typical
10	M14	N13	N20B			RIGID	None	None	RIGID	Typical
11	M15	N21B	N46			RIGID	None	None	RIGID	Typical
12	M17	N22A	N26			RIGID	None	None	RIGID	Typical
13	M18	N27	N24A			RIGID	None	None	RIGID	Typical
14	M20	N28	N32			RIGID	None	None	RIGID	Typical
15	M21	N33	N30			RIGID	None	None	RIGID	Typical
16	C1	N46A	N47			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
17	M32	N48	N49			RIGID	None	None	RIGID	Typical
18	M22	N14	N13			HSS4X4X4	None	None	A500 Gr.46	Typical
19	M23B	N33A	N22A			HSS4X4X4	None	None	A500 Gr.46	Typical
20	M24B	N35A	N28			HSS4X4X4	None	None	A500 Gr.46	Typical



Company : Paul J. Ford and Company  
 Designer : GP  
 Job Number : 37519-1158.004.7190  
 Model Name : 876342 / BIC DRIVE (SSUSA)

Dec 31, 2019  
 2:33 PM  
 Checked By: \_\_\_\_\_

**Member Primary Data (Continued)**

	Label	I Joint	J Joint	K Joint	Rotate...	Section/Shape	Type	Design List	Material	Design Rules
21	C2	N26A	N27A			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
22	M22A	N28A	N29			RIGID	None	None	RIGID	Typical
23	C3	N30A	N31			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
24	M24A	N32A	N33B			RIGID	None	None	RIGID	Typical
25	C4	N34	N35			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
26	M26	N36	N37			RIGID	None	None	RIGID	Typical
27	C5	N38	N39			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
28	M28	N40	N41			RIGID	None	None	RIGID	Typical
29	B1	N42	N43			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
30	M30	N44	N45			RIGID	None	None	RIGID	Typical
31	B2	N46B	N47A			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
32	M32A	N48A	N49A			RIGID	None	None	RIGID	Typical
33	B3	N50	N51			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
34	M34	N52	N53			RIGID	None	None	RIGID	Typical
35	B4	N54	N55			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
36	M36	N56A	N57			RIGID	None	None	RIGID	Typical
37	B5	N58A	N59			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
38	M38	N60	N61			RIGID	None	None	RIGID	Typical
39	A1	N62	N63			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
40	M40	N64	N65			RIGID	None	None	RIGID	Typical
41	A2	N66	N67			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
42	M42	N68	N69			RIGID	None	None	RIGID	Typical
43	A3	N70	N71			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
44	M44	N72	N73			RIGID	None	None	RIGID	Typical
45	A4	N74	N75			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
46	M46	N76	N77			RIGID	None	None	RIGID	Typical
47	A5	N78	N79			PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
48	M48	N80	N81			RIGID	None	None	RIGID	Typical
49	M49	N82	N83		270	PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
50	M50	N84	N85			RIGID	None	None	RIGID	Typical
51	M51	N86	N87			RIGID	None	None	RIGID	Typical
52	M52	N88	N89			RIGID	None	None	RIGID	Typical
53	M53	N90	N91			RIGID	None	None	RIGID	Typical
54	M54	N92	N93			RIGID	None	None	RIGID	Typical
55	M55	N96	N97		270	PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
56	M56	N98	N99			RIGID	None	None	RIGID	Typical
57	M57	N100	N101			RIGID	None	None	RIGID	Typical
58	M58	N102	N103			RIGID	None	None	RIGID	Typical
59	M59	N104	N105			RIGID	None	None	RIGID	Typical
60	M60	N106	N107			RIGID	None	None	RIGID	Typical
61	M61	N110	N111		270	PIPE 2.0	None	None	A53 Gr. B (35 ksi)	Typical
62	M62	N112	N113			RIGID	None	None	RIGID	Typical
63	M63	N114	N115			RIGID	None	None	RIGID	Typical
64	M64	N116	N117			RIGID	None	None	RIGID	Typical
65	M65	N118	N119			RIGID	None	None	RIGID	Typical
66	M66	N120	N121			RIGID	None	None	RIGID	Typical
67	M67	N94	N109			L2.5x2.5x4	None	None	A36 Gr.36	Typical
68	M68	N108	N123			L2.5x2.5x4	None	None	A36 Gr.36	Typical
69	M69	N122	N95			L2.5x2.5x4	None	None	A36 Gr.36	Typical
70	M91	N168	N167			L2.5x2.5x3	None	None	A36 Gr.36	Typical
71	M92	N170	N167			L2.5x2.5x3	None	None	A36 Gr.36	Typical
72	M93	N171	N170A			L2.5x2.5x3	None	None	A36 Gr.36	Typical
73	M94	N172	N170A			L2.5x2.5x3	None	None	A36 Gr.36	Typical
74	M95	N174	N173			L2.5x2.5x3	None	None	A36 Gr.36	Typical
75	M96	N175	N173			L2.5x2.5x3	None	None	A36 Gr.36	Typical



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 Model Name : 876342 / BIC DRIVE (SSUSA)

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**Member Advanced Data**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic..
1	M1						Yes	** NA **			None
2	M3						Yes	** NA **			None
3	M5						Yes	** NA **			None
4	M7						Yes	** NA **			None
5	M8						Yes	** NA **			None
6	M9						Yes	** NA **			None
7	M10						Yes	** NA **			None
8	M23						Yes	** NA **			None
9	M24						Yes	** NA **			None
10	M14		BenPIN				Yes	** NA **			None
11	M15		BenPIN				Yes	** NA **			None
12	M17		BenPIN				Yes	** NA **			None
13	M18		BenPIN				Yes	** NA **			None
14	M20		BenPIN				Yes	** NA **			None
15	M21		BenPIN				Yes	** NA **			None
16	C1						Yes	** NA **			None
17	M32						Yes	** NA **			None
18	M22						Yes	** NA **			None
19	M23B						Yes	** NA **			None
20	M24B						Yes	** NA **			None
21	C2						Yes	** NA **			None
22	M22A						Yes	** NA **			None
23	C3						Yes	** NA **			None
24	M24A						Yes	** NA **			None
25	C4						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	C5						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	B1						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	B2						Yes	** NA **			None
32	M32A						Yes	** NA **			None
33	B3						Yes	** NA **			None
34	M34						Yes	** NA **			None
35	B4						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	B5						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	A1						Yes	** NA **			None
40	M40						Yes	** NA **			None
41	A2						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	A3						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	A4						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	A5						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49						Yes	** NA **			None
50	M50	OOOXOX					Yes	** NA **			None
51	M51	OOOXOX					Yes	** NA **			None
52	M52	OOOXOX					Yes	** NA **			None
53	M53	OOOXOX					Yes	** NA **			None
54	M54	OOOXOX					Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56	OOOXOX					Yes	** NA **			None



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**Member Advanced Data (Continued)**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic..
57	M57	OOOXOX					Yes	** NA **			None
58	M58	OOOXOX					Yes	** NA **			None
59	M59	OOOXOX					Yes	** NA **			None
60	M60	OOOXOX					Yes	** NA **			None
61	M61						Yes	** NA **			None
62	M62	OOOXOX					Yes	** NA **			None
63	M63	OOOXOX					Yes	** NA **			None
64	M64	OOOXOX					Yes	** NA **			None
65	M65	OOOXOX					Yes	** NA **			None
66	M66	OOOXOX					Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M91	BenPIN					Yes	** NA **			None
71	M92	BenPIN					Yes	** NA **			None
72	M93	BenPIN					Yes	** NA **			None
73	M94	BenPIN					Yes	** NA **			None
74	M95	BenPIN					Yes	** NA **			None
75	M96	BenPIN					Yes	** NA **			None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[...]	Lcomp botf[...]	L-torq...	Kyy	Kzz	Cb	Funci...
1	M1	L3X3X4	168			Lbyy						Lateral
2	M3	L3X3X4	168			Lbyy						Lateral
3	M5	L3X3X4	168			Lbyy						Lateral
4	M7	L3X3X4	84			Lbyy						Lateral
5	M8	L3X3X4	84			Lbyy						Lateral
6	M9	L3X3X4	84			Lbyy						Lateral
7	M10	LL3x3x4x0	48.497			Lbyy						Lateral
8	M23	LL3x3x4x0	48.497			Lbyy						Lateral
9	M24	LL3x3x4x0	48.497			Lbyy						Lateral
10	C1	PIPE 2.0	72			Lbyy						Lateral
11	M22	HSS4X4X4	36.497									Lateral
12	M23B	HSS4X4X4	36.497									Lateral
13	M24B	HSS4X4X4	36.497									Lateral
14	C2	PIPE 2.0	72			Lbyy						Lateral
15	C3	PIPE 2.0	72			Lbyy						Lateral
16	C4	PIPE 2.0	72			Lbyy						Lateral
17	C5	PIPE 2.0	72			Lbyy						Lateral
18	B1	PIPE 2.0	72			Lbyy						Lateral
19	B2	PIPE 2.0	72			Lbyy						Lateral
20	B3	PIPE 2.0	72			Lbyy						Lateral
21	B4	PIPE 2.0	72			Lbyy						Lateral
22	B5	PIPE 2.0	72			Lbyy						Lateral
23	A1	PIPE 2.0	72			Lbyy						Lateral
24	A2	PIPE 2.0	72			Lbyy						Lateral
25	A3	PIPE 2.0	72			Lbyy						Lateral
26	A4	PIPE 2.0	72			Lbyy						Lateral
27	A5	PIPE 2.0	72			Lbyy						Lateral
28	M49	PIPE 2.0	150			Lbyy						Lateral
29	M55	PIPE 2.0	150			Lbyy						Lateral
30	M61	PIPE 2.0	150			Lbyy						Lateral
31	M67	L2.5x2.5x4	17									Lateral
32	M68	L2.5x2.5x4	17									Lateral
33	M69	L2.5x2.5x4	17									Lateral



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### Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbvy[in]	Lbzz[in]	Lcomp top[...]	Lcomp botf[...]	L-torg[...]	Kyy	Kzz	Cb	Funci...
34	M91	L2.5x2.5x3	72.836									Lateral
35	M92	L2.5x2.5x3	72.836									Lateral
36	M93	L2.5x2.5x3	72.836									Lateral
37	M94	L2.5x2.5x3	72.836									Lateral
38	M95	L2.5x2.5x3	72.836									Lateral
39	M96	L2.5x2.5x3	72.836									Lateral

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(M...	Surface...
1	Dead	None		-1.1			48		3	
2	Wind 0	None					96	78		
3	Wind 30	None					96	78		
4	Wind 60	None					96	78		
5	Wind 90	None					96	78		
6	Wind 120	None					96	78		
7	Wind 150	None					96	78		
8	Ice Load	None					48	39	3	
9	Ice 0	None					96	78		
10	Ice 30	None					96	78		
11	Ice 60	None					96	78		
12	Ice 90	None					96	78		
13	Ice 120	None					96	78		
14	Ice 150	None					96	78		
15	Lm1	None				1				
16	Lm2	None				1				
17	Lm3	None				1				
18	Lm4	None				1				
19	Lv1	None				1				
20	Lv2	None				1				
21	Lv3	None				1				
22	Lv4	None				1				
23	BLC 1 Transient Area Loads	None						26		
24	BLC 8 Transient Area Loads	None						26		

### Load Combinations

	Description	So...	P...	S...	BLCFac...									
1	1.4 D	Yes	Y		1	1.4								
2	1.2 D + 1.0 Wo @ 0	Yes	Y		1	1.2	2	1						
3	1.2 D + 1.0 Wo @ 30	Yes	Y		1	1.2	3	1						
4	1.2 D + 1.0 Wo @ 60	Yes	Y		1	1.2	4	1						
5	1.2 D + 1.0 Wo @ 90	Yes	Y		1	1.2	5	1						
6	1.2 D + 1.0 Wo @ 1...	Yes	Y		1	1.2	6	1						
7	1.2 D + 1.0 Wo @ 1...	Yes	Y		1	1.2	7	1						
8	1.2 D + 1.0 Wo @ 1...	Yes	Y		1	1.2	2	-1						
9	1.2 D + 1.0 Wo @ 2...	Yes	Y		1	1.2	3	-1						
10	1.2 D + 1.0 Wo @ 2...	Yes	Y		1	1.2	4	-1						
11	1.2 D + 1.0 Wo @ 2...	Yes	Y		1	1.2	5	-1						
12	1.2 D + 1.0 Wo @ 3...	Yes	Y		1	1.2	6	-1						
13	1.2 D + 1.0 Wo @ 3...	Yes	Y		1	1.2	7	-1						
14	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	9	1				
15	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	10	1				
16	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	11	1				
17	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	12	1				
18	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	13	1				



**Load Combinations (Continued)**

	Description	So.	P...	S...	BLCFac.									
19	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	14	1				
20	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	9	-1				
21	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	10	-1				
22	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	11	-1				
23	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	12	-1				
24	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	13	-1				
25	1.2 D + 1.0 Di + 1.0 ...	Yes	Y		1	1.2	8	1	14	-1				
26	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	2	.058				
27	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	3	.058				
28	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	4	.058				
29	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	5	.058				
30	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	6	.058				
31	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	7	.058				
32	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	2	.058				
33	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	3	.058				
34	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	4	.058				
35	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	5	.058				
36	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	6	.058				
37	1.2 D + 1.5 Lm1 + 1...	Yes	Y		1	1.2	15	1.5	7	.058				
38	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	2	.058				
39	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	3	.058				
40	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	4	.058				
41	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	5	.058				
42	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	6	.058				
43	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	7	.058				
44	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	2	.058				
45	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	3	.058				
46	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	4	.058				
47	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	5	.058				
48	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	6	.058				
49	1.2 D + 1.5 Lm2 + 1...	Yes	Y		1	1.2	16	1.5	7	.058				
50	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	2	.058				
51	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	3	.058				
52	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	4	.058				
53	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	5	.058				
54	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	6	.058				
55	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	7	.058				
56	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	2	.058				
57	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	3	.058				
58	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	4	.058				
59	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	5	.058				
60	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	6	.058				
61	1.2 D + 1.5 Lm3 + 1...	Yes	Y		1	1.2	17	1.5	7	.058				
62	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	2	.058				
63	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	3	.058				
64	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	4	.058				
65	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	5	.058				
66	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	6	.058				
67	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	7	.058				
68	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	2	-.058				
69	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	3	-.058				
70	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	4	-.058				
71	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	5	-.058				
72	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	6	-.058				
73	1.2 D + 1.5 Lm4 + 1...	Yes	Y		1	1.2	18	1.5	7	-.058				
74	1.2 D + 1.5 Lv1	Yes	Y		1	1.2	19	1.5						
75	1.2 D + 1.5 Lv2	Yes	Y		1	1.2	20	1.5						



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**Load Combinations (Continued)**

Description	So...	P...	S...	BLCFac..									
76 1.2 D + 1.5 Lv3	Yes	Y		1	1.2	21	1.5						
77 1.2 D + 1.5 Lv4	Yes	Y		1	1.2	22	1.5						
78 1.0 D	Yes	Y		1	1								

**Envelope Joint Reactions**

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1 N14	max	624.528	11	1290.777	17	1734.865	3	3.395	3	16.952	4	1.006	11
	min	-928.414	5	.535	11	-1707.716	9	-3.341	9	-16.55	10	-35.344	17
3 N33A	max	1749.635	11	1418.208	25	1355.215	2	-.176	7	17.11	12	19.679	14
	min	-1550.302	5	41.852	7	-1130.504	8	-33.87	25	-16.394	6	-.989	8
5 N35A	max	1685.968	11	1267.928	21	1115.268	2	30.224	21	17.156	8	18.024	20
	min	-1597.24	5	-6.819	3	-1404.371	8	-.986	3	-16.35	2	-1.915	2
7 N167	max	1627.92	23	1933.149	23	354.491	33	0	78	0	78	0	78
	min	-94.117	5	50.394	5	-375.979	69	0	1	0	1	0	1
9 N170A	max	69.254	12	1930.815	19	78.356	13	0	78	0	78	0	78
	min	-932.25	18	49.55	13	-1343.231	19	0	1	0	1	0	1
11 N173	max	60.951	10	1930.28	15	1485.188	15	0	78	0	78	0	78
	min	-683.124	16	49.598	9	-81.716	9	0	1	0	1	0	1
13 Totals:	max	5155.335	11	8881.867	23	5009.767	2						
	min	-5155.495	5	2663.681	78	-5009.74	8						

**Envelope AISC 15th(360-16): LRFD Steel Code Checks**

Member	Shape	Code Check	Loc...	LC	Shear Check	Loc[in]	...	L	phi*Pn	phi*Pn	phi*M	phi*M	Eqn
1	M68	L2.5x2.5x4	.602	17	.018	17	y	14	36111...	38556	13.363	30.449	1...H2-1
2	M69	L2.5x2.5x4	.598	17	.017	17	y	22	36111...	38556	13.363	30.449	1...H2-1
3	M67	L2.5x2.5x4	.588	17	.040	17	y	66	36111...	38556	13.363	30.449	1...H2-1
4	M3	L3X3X4	.506	84	.066	33.25	z	14	3944...	46656	20.258	28.459	1...H2-1
5	M61	PIPE_2.0	.505	121...	.132	26.562		15	6295...	32130	22.459	22.459	2...H1-1a
6	M1	L3X3X4	.505	84	.090	14	z	33	3944...	46656	20.258	28.562	1...H2-1
7	M5	L3X3X4	.501	84	.065	33.25	z	22	3944...	46656	20.258	28.58	1...H2-1
8	M55	PIPE_2.0	.496	121...	.131	26.562		19	6295...	32130	22.459	22.459	2...H1-1a
9	M49	PIPE_2.0	.488	121...	.130	26.563		23	6295...	32130	22.459	22.459	2...H1-1a
10	B5	PIPE_2.0	.332	36	.093	36		18	20866...	32130	22.459	22.459	1...H1-1b
11	C2	PIPE_2.0	.319	24	.148	24		16	20866...	32130	22.459	22.459	1...H1-1b
12	C4	PIPE_2.0	.318	36	.167	36		18	20866...	32130	22.459	22.459	1...H1-1b
13	A1	PIPE_2.0	.309	36	.152	36		17	20866...	32130	22.459	22.459	1...H1-1b
14	C5	PIPE_2.0	.308	36	.093	36		22	20866...	32130	22.459	22.459	1...H1-1b
15	M7	L3X3X4	.306	42	.013	42	z	20	15778...	46656	20.258	38.535	1...H2-1
16	M9	L3X3X4	.299	42	.013	42	z	19	15778...	46656	20.258	38.474	1...H2-1
17	M8	L3X3X4	.299	42	.014	42	z	16	15778...	46656	20.258	38.713	1...H2-1
18	A2	PIPE_2.0	.290	24	.149	24		20	20866...	32130	22.459	22.459	2...H1-1b
19	A5	PIPE_2.0	.289	36	.088	36		14	20866...	32130	22.459	22.459	1...H1-1b
20	B2	PIPE_2.0	.277	24	.149	24		24	20866...	32130	22.459	22.459	1...H1-1b
21	B4	PIPE_2.0	.267	36	.165	36		14	20866...	32130	22.459	22.459	1...H1-1b
22	A4	PIPE_2.0	.247	36	.161	36		22	20866...	32130	22.459	22.459	1...H1-1b
23	M23B	HSS4X4...	.229	0	.067	0	z	11	13421...	139518	194.166	194.166	1...H1-1b
24	C1	PIPE_2.0	.212	36	.148	36		25	20866...	32130	22.459	22.459	2...H1-1b
25	M24B	HSS4X4...	.209	0	.067	0	z	7	13421...	139518	194.166	194.166	1...H1-1b
26	M22	HSS4X4...	.208	0	.066	0	z	3	13421...	139518	194.166	194.166	1...H1-1b
27	C3	PIPE_2.0	.204	36	.039	36		57	20866...	32130	22.459	22.459	1...H1-1b
28	B1	PIPE_2.0	.196	36	.155	36		21	20866...	32130	22.459	22.459	1...H1-1b
29	A3	PIPE_2.0	.186	36	.037	36		10	20866...	32130	22.459	22.459	1...H1-1b
30	B3	PIPE_2.0	.184	36	.037	36		2	20866...	32130	22.459	22.459	1...H1-1b
31	M91	L2.5x2.5x3	.129	34....	.008	72.836	z	10	8913.91	29192.4	10.471	18.529	1...H2-1



Company : Paul J. Ford and Company  
 Designer : GP  
 Job Number : 37519-1158.004.7190  
 Model Name : 876342 / BIC DRIVE (SSUSA)

Dec 31, 2019  
 2:33 PM  
 Checked By: \_\_\_\_\_

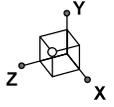
**Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)**

Member	Shape	Code Check	Loc...	LC	Shear Check	Loc[in]	...	L...phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
32	M93	L2.5x2.5x3	.129	34....	6	.008	72.836	z 6	8913.91	29192.4	10.471	18.529	1...H2-1
33	M95	L2.5x2.5x3	.128	34....	2	.008	72.836	z 2	8913.91	29192.4	10.471	18.529	1...H2-1
34	M96	L2.5x2.5x3	.122	72....	16	.012	72.836	z 3	8913.91	29192.4	10.471	18.203	1...H2-1
35	M94	L2.5x2.5x3	.121	72....	20	.012	72.836	z 7	8913.91	29192.4	10.471	18.202	1...H2-1
36	M92	L2.5x2.5x3	.120	72....	24	.012	72.836	z 11	8913.91	29192.4	10.471	18.202	1...H2-1
37	M23	LL3x3x4x0	.082	48....	3	.018	48.497	y 22	76243.9	93312	77.76	52.263	1...H1-1b
38	M24	LL3x3x4x0	.076	48....	11	.016	0	y 65	76243.9	93312	77.76	52.263	1...H1-1b
39	M10	LL3x3x4x0	.072	48....	7	.014	0	y 25	76243.9	93312	77.76	52.263	1...H1-1b



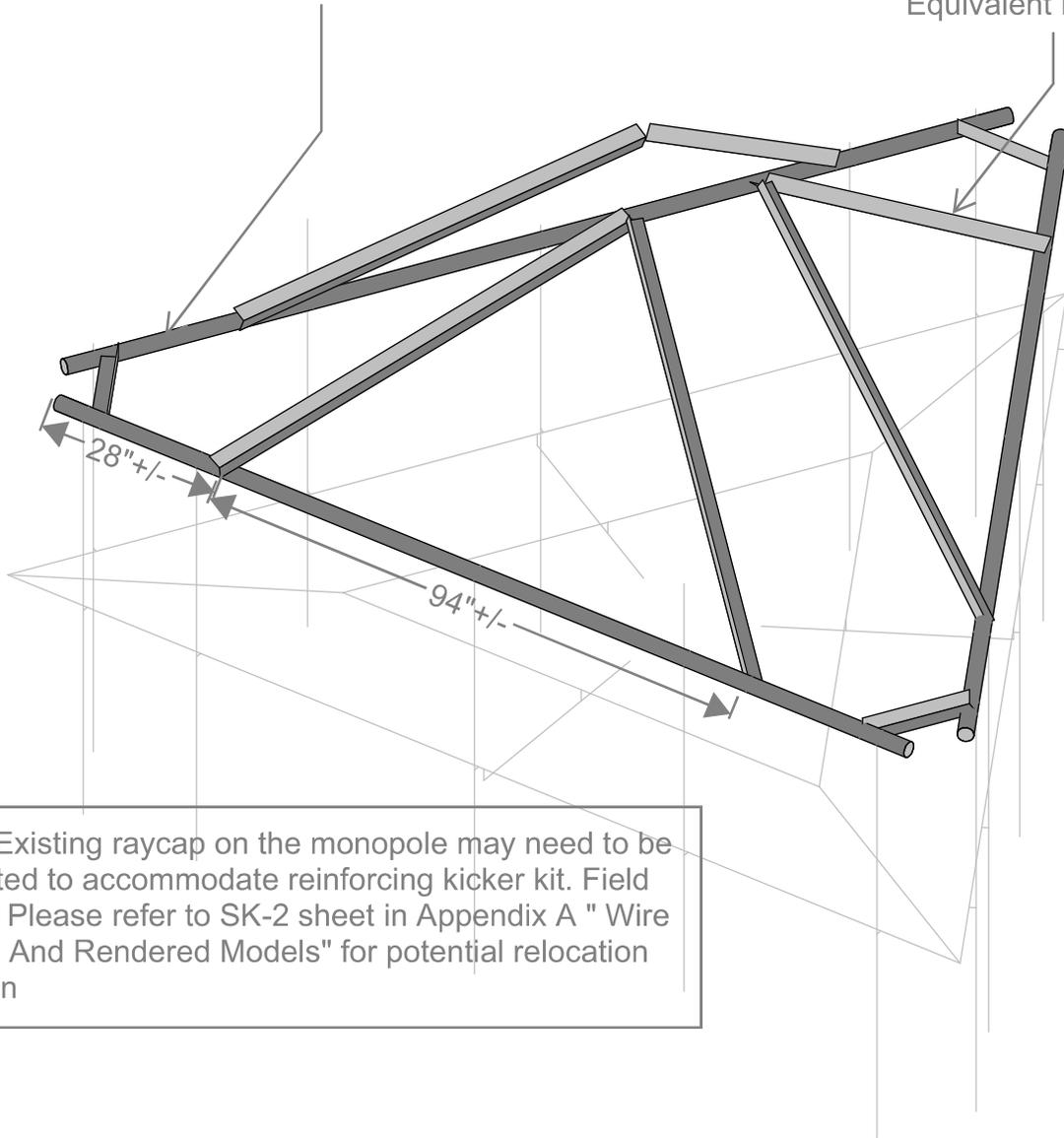
# **APPENDIX D**

## **SUPPLEMENTAL MODIFICATION INFORMATION**



SitePro1 HRK-12 Support Rail or EOR Approved Equivalent Support rail Kit.

SitePro1-PRK-SFS-L Reinforcing Kit or EOR Approved Equivalent Kit.



Note: Existing raycap on the monopole may need to be relocated to accommodate reinforcing kicker kit. Field Verify. Please refer to SK-2 sheet in Appendix A " Wire Frame And Rendered Models" for potential relocation position

**NOTES:**

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

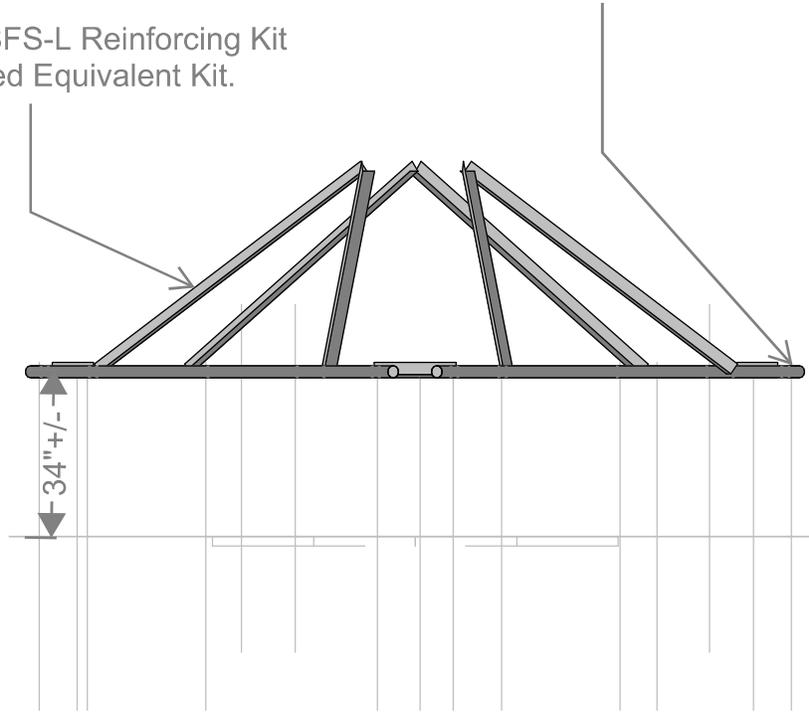
Envelope Only Solution

Paul J. Ford and Company	876342 / BIC DRIVE (SSUSA)	SK - 10
GP		Dec 31, 2019 at 1:34 PM
37519-1158.004.7190		37519-1158.004.7190_MDD.r3d



SitePro1 HRK-12 or  
EOR Approved Equivalent Support rail  
Kit.

SitePro1-PRK-SFS-L Reinforcing Kit  
or EOR Approved Equivalent Kit.

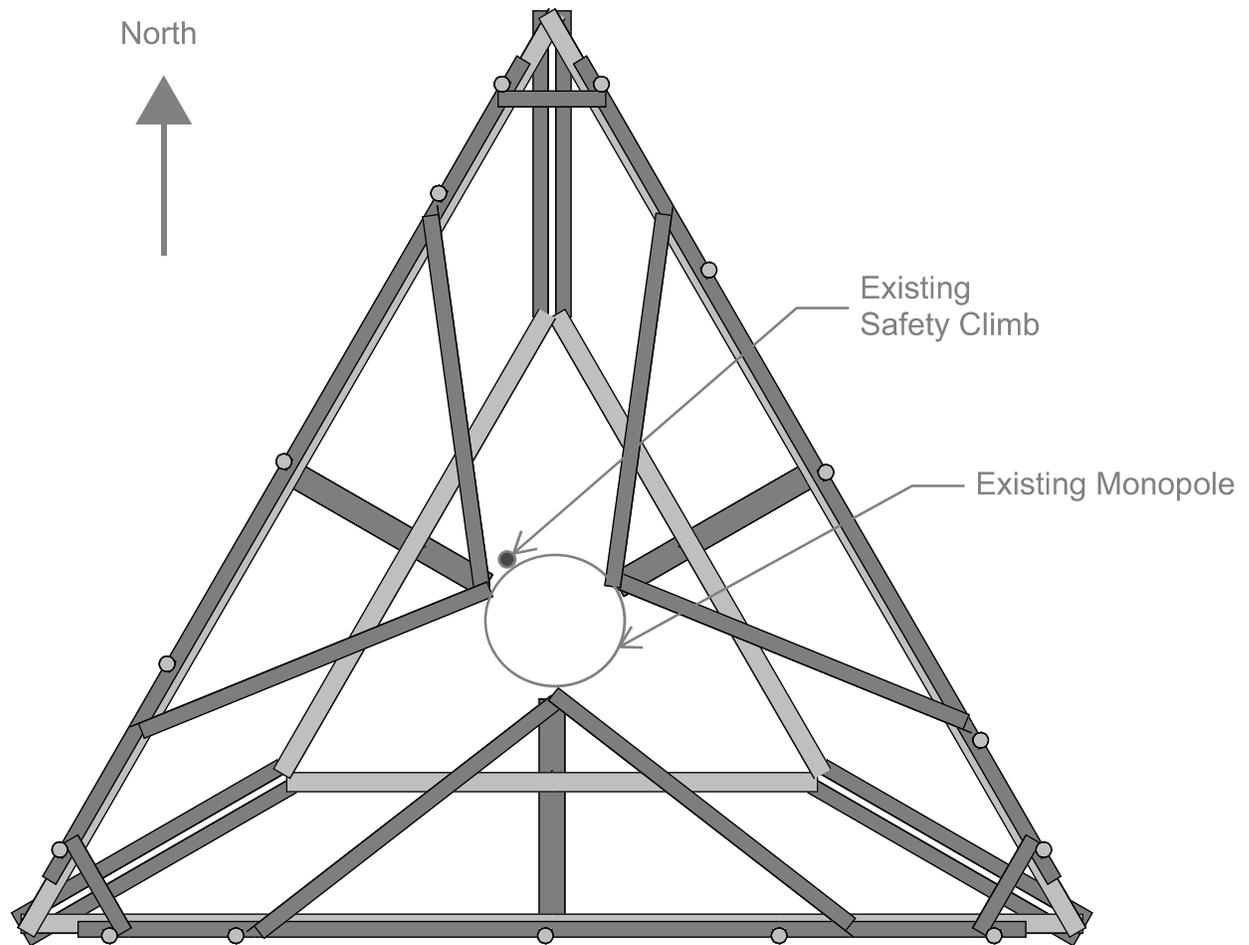


**NOTES:**

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Envelope Only Solution

Paul J. Ford and Company		SK - 11
GP	876342 / BIC DRIVE (SSUSA)	Dec 31, 2019 at 1:34 PM
37519-1158.004.7190		37519-1158.004.7190_MDD.r3d



**NOTES:**

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Envelope Only Solution

Paul J. Ford and Company	876342 / BIC DRIVE (SSUSA)	SK - 12
GP		Dec 31, 2019 at 1:35 PM
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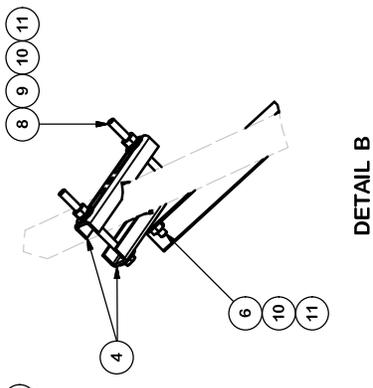
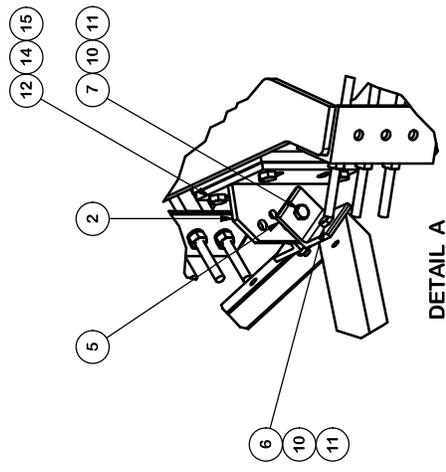
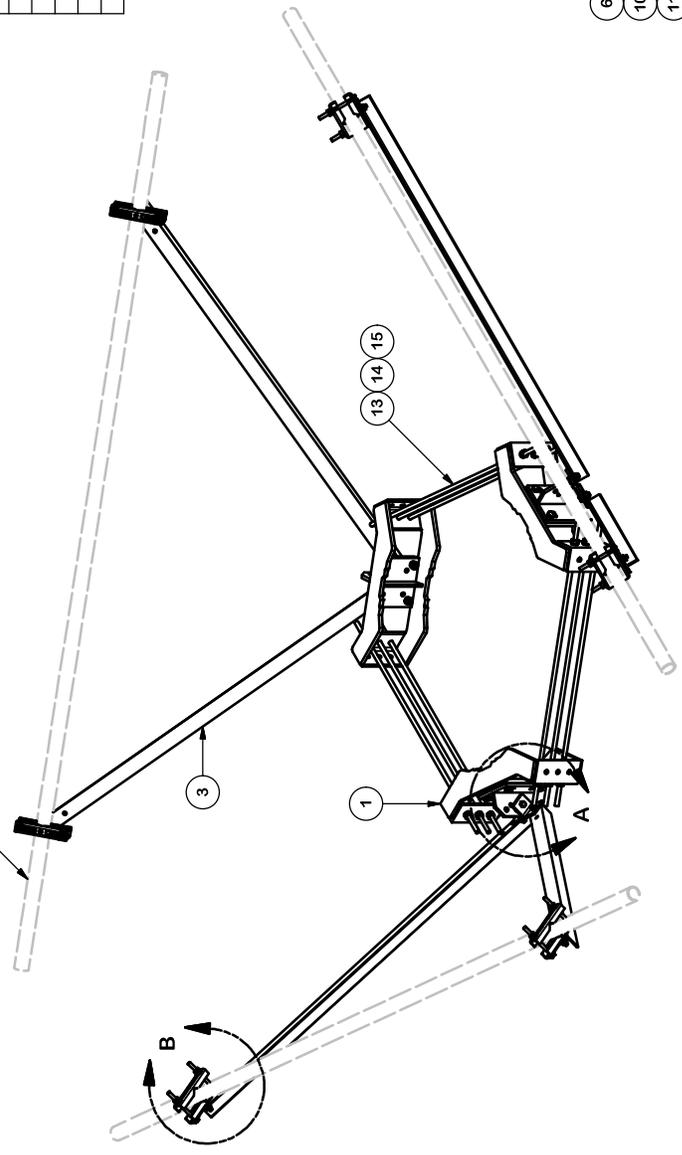
## **APPENDIX E**

### **MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)**

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	642.04

EXISTING HANDRAIL SHOWN FOR CLAIRITY



TOLERANCE NOTES

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

PROPRIETARY NOTE: DIMENSIONS 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.

REV	DESCRIPTION	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	BY	DATE
A	DESCRIPTION OF REVISIONS		CPD			
REVISION HISTORY						

DESCRIPTION  
**HANDRAIL REINFORCEMENT KIT (LONG)**

CPD NO.	DRAWN BY	ENG. APPROVAL
SP1	CSL3	2/23/2017
CLASS	DRAWING USAGE	3RD PARTY
81	SHOP	9/8/2017
SUB	CHECKED BY	BMC
02		



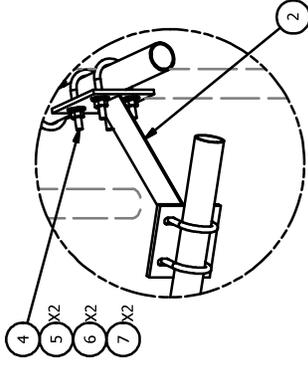
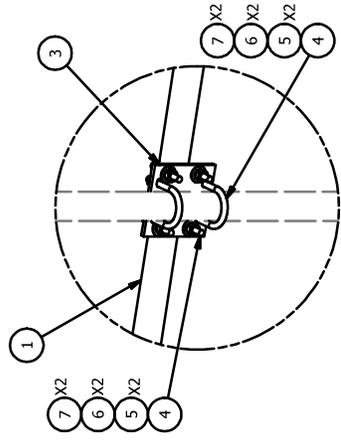
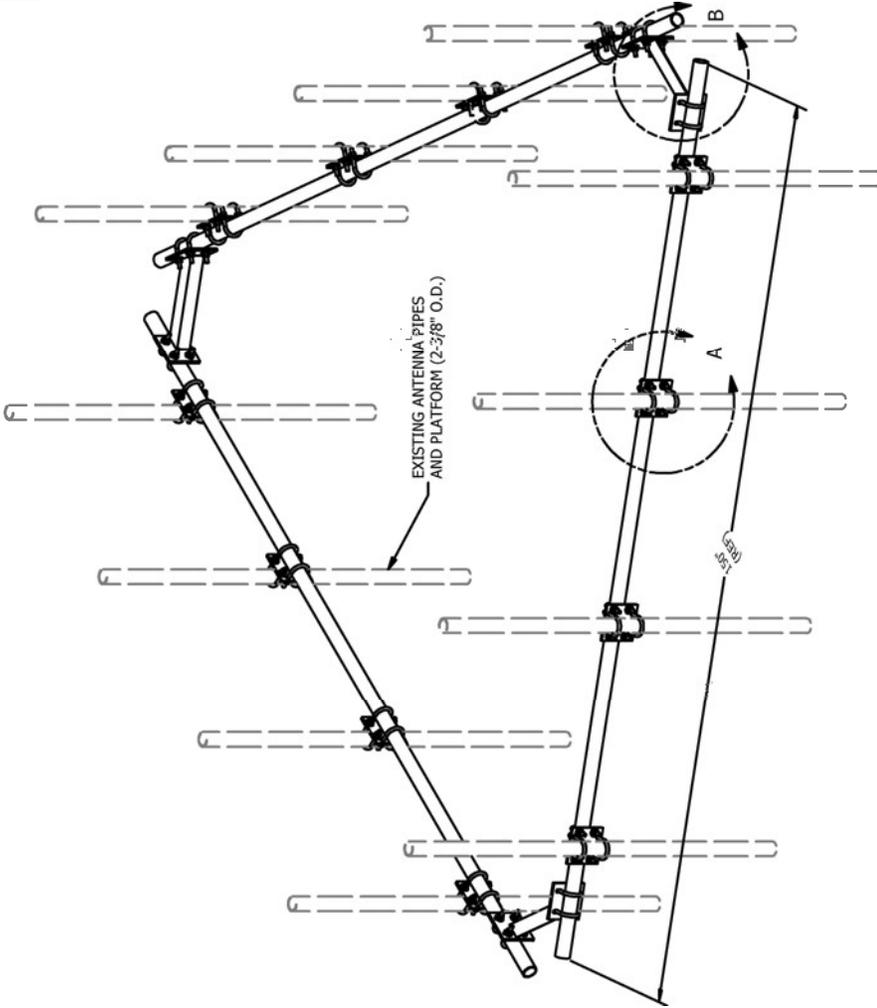
Engineering  
 Support Team:  
 1-888-753-7446

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

PAGE	1	OF	3
PART NO.	PRK-SFS-L		
DWG. NO.	PRK-SFS-L		

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"		3.71	44.50
4	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.08
5	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	43.90
6	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.58
					TOTAL WT. #	261.72



**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 ( $\pm 0.060$ )

THIS DATA AND NOTE: THE DATA AND NOTES 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		HANDRAIL KIT FOR 12'-6" FACE	
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
81	KC8	5/30/2012	HRK12
CLASS SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81 01	CUSTOMER	BMC	7/14/2014



**Valmont COMPANY**

Engineering Support Team:  
 1-888-753-7446

Locations:  
 New York, NY  
 Atlanta, GA  
 Los Angeles, CA  
 Phoenix, AZ  
 Salem, OR  
 Dallas, TX

REV	A	REPLACED HCP WITH X-AHCP	CPD	CEK	7/10/2014
DESCRIPTION OF REVISIONS			BY	DATE	
REVISION HISTORY					

## **APPENDIX F**

# **POST MODIFICATION INSPECTION (PMI) REQUIREMENTS FOR DESKTOP REVIEW**

## Post Modification Inspection (PMI) Report Requirements Documents & Photos Required from Contractor

**Purpose** – to provide PJF the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

### **Base Requirements:**

- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawing (proposed modification) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the modification drawings. NOTE if loading is different than what is conveyed in the modification drawing contact PJF immediately.
- Each photo should be time and date stamped.
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Any special photos outside of the standard requirements will be indicated on the drawings.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope.
- The photos in the file structure should be uploaded to [pjfmount@pauljford.com](mailto:pjfmount@pauljford.com) as depicted on the drawings.

### **Photo Requirements:**

- Base and “During Installation Photos”
  - Base pictures include
    - Photo of Gate Signs showing the tower owner, site name, and number.
    - Photo of carrier shelter showing the carrier site name and number if available.
    - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name.
  - “During Installation” Photos if provided – must be placed only in this folder
- Photos taken at ground level
  - Overall tower structure before and after installation of the modifications
  - Photos of the appropriate mount before and after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed.
- Photos taken at Mount Elevation
  - Photos showing each individual sector before and after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.
  - Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
  - Photos showing the measurements of the installed modification member sizes (i.e. lengths, widths, depths, diameters, thicknesses).
  - Photos showing the elevation or distances of the installed modifications from the appropriate reference locations shown in the modification drawings.



**Schedule A – Photo & Document File Structure**

- VzW Site Number / Name
  - Base & “During Installation” Photos
  - Pre-Installation Photos
    - Alpha
    - Beta
    - Gamma
    - Ground Level
    - Tape Drop
  - Post-Installation Photos
    - Alpha
    - Beta
    - Gamma
    - Ground Level
    - Tape Drop
  - Material Certification – Submission of this document including executed certification on Page 2
  - Specific Required Additional Photos
  - Required Additional Photos

**Special Instructions / Validation as required from the MA or any other information the contractor deems necessary to share that was identified:**

**Issue:**

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**Response:**

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# Exhibit F

## **Power Density/RF Emissions Report**

Site Name: Milford 2 CT  
 Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )	(%)
VZW 700	746	4	713	2853.36	105	0.0931	0.497333333	18.71%
VZW Cellular	869	1	672	671.92	105	0.0219	0.579333333	3.78%
VZW Cellular	880	4	420	1680.56	105	0.0548	0.586666667	9.34%
VZW PCS	1970	4	1630	6518.68	105	0.2126	1.0	21.26%
VZW AWS	2145	4	1608	6432.2	105	0.2098	1.0	20.98%
VZW CBRS	3550	4	6	23.76	106	0.0008	1.0	0.08%

**Total Percentage of Maximum Permissible Exposure** 74.16%

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.