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

July 18, 2019

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

RE: **Notice of Exempt Modification for T-Mobile:**
881535- T-Mobile Site ID: CT11961A
425 Indian Ledge Park Rd. Trumbull, CT 06611
Latitude: 41° 16' 23.81"/ Longitude: -73° 12' 47.18"

Dear Ms. Bachman:

T-Mobile currently maintains six (6) total antennas at the 144-foot mount on the existing 195-foot Monopole Tower, located at 425 Indian Ledge Road, Trumbull, CT. The tower is owned by Crown Castle. The property is owned by the Town of Trumbull. T-Mobile now intends to replace three (3) existing antennas with three (3) new 600/700 MHz antennas at the 144-foot mount.

Planned Modifications:

Tower:

Remove and Replace:
(3) Commscope SBNH-1D65C Antenna **(REMOVE)** - (3) RFS-APXVAARR24_43U-NA20 Antenna 600/700/2100 MHz **(REPLACE)**

(3) RRUS11 B12 **(REMOVE)** - (3) RADIO 4449 B12/B71**(REPLACE)**

Install New:
(1) 1 5/8" Hybrid Line

Existing to Remain:
(12) 1-5/8" Coax
(1) Hybrid 1-5/8" Fiber
(3) Ericsson Air 21 B4A B2P Antenna 1900/2100 MHz
(3) RRUS11 B2 RRH
(3) TMA

Ground:
Upgrade: Internal upgrade to ground cabinets.

The Town of Trumbull no longer has the original zoning approval documents on file. Please see email response from Gail Andreyka of the Town of Trumbull Zoning Department stating the same.

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 First-Selectman - Ms. Vicki Tesoro, Town of Trumbull, Economic & Community Development Director Rina Bakalar, Town of Trumbull. The property owner is the Town of Trumbull and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

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

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

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

Sincerely,

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

Attachments

cc:

First-Selectman - Ms. Vicki Tesoro
Town of Trumbull
5866 Main Street
Trumbull, CT 06611
203-452-5005

Economic & Community Development Director Rina Bakalar
Town of Trumbull
5866 Main Street
Trumbull, CT 06611
203-452-5043

Town of Trumbull, Land Owner

Crown Castle, Tower Owner

ORIGIN ID:GFLA (518) 373-3523
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 17JUL19
ACTWGT: 2.00 LB
CAD: 104924194/INET4160

BILL SENDER

TO **RINA BAKALAR, COMM DEV DIRECTOR**
TOWN OF TRUMBULL
5866 MAIN ST
2ND FLOOR
TRUMBULL CT 06611
(203) 452-5005
INV:
PO:
REF: 1734.7680
DEPT:

567J2/A6F9/05A2

FedEx Express

J192019062401uv

THU - 18 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7757 6340 8117**

EB BCCA

06611
BDL
CT-US

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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 ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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Exhibit A

Original Facility Approval

Hanlon, Dashanna

From: Myl, Kimberly
Sent: Friday, March 11, 2016 9:34 AM
To: siting.council@ct.gov
Subject: Existing Telecommunications Tower - 425 Indian Ledge Park Road, Trumbull (Crown: 881535 / T-Mobile CT11961A)

Good Morning,
Please be advised per the below email from the Town of Trumbull and on behalf of Crown Castle the Tower Owner, neither party have the original zoning approval on file. Please use this email notification to replace that requirement. Please let me know if you have any questions or need additional information. Thank you in advance.

KIMBERLY MYL
Real Estate Specialist
T: (201) 236-9069 | M: (201) 993-3697

CROWN CASTLE
1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

From: Gail Andreyka [mailto:gandreyka@trumbull-ct.gov]
Sent: Tuesday, March 08, 2016 9:48 AM
To: Myl, Kimberly
Cc: Douglas Wenz
Subject: RE: Zoning Approval - Telecommunications Tower 425 Indian Ledge Park Road

Hi Kim,

We cannot locate the zoning approval. They never came to Planning & Zoning with an application as far as we know. If you have any further questions, please contact Doug Wenz 203-452-5052.

Thank you,

Gail Andreyka

From: Myl, Kimberly [mailto:Kimberly.Myl@crowncastle.com]
Sent: Monday, February 29, 2016 12:45 PM
To: Gail Andreyka
Subject: Zoning Approval - Telecommunications Tower 425 Indian Ledge Park Road

Good Afternoon Gail,
I have another existing telecommunications facility that I will need a copy of the original zoning resolution to submit into the CSC. Can you kindly forward this over to me so I can submit on behalf of T-Mobile, one of our tenants. If you do not have this document, kindly reply stating that the township does not have this on record and I can use your email in place of this requirement. Please call or email me if you have any questions or need additional information. Thank you in advance.

KIMBERLY MYL
Real Estate Specialist
T: (201) 236-9069 | M: (201) 993-3697

CROWN CASTLE
1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

Exhibit B

Property Card

425 INDIAN LEDGE PARK ROAD

Location	425 INDIAN LEDGE PARK ROAD	**Mblu**	F/05 / 00096/ 000/
		Acct#	
Owner	TRUMBULL TOWN OF	**Assessment**	$1,320,620
Appraisal	$1,886,600	**PID**	12730
Building Count	1	**Fire District**	T

Current Value

Appraisal	
Valuation Year	**Total**
2015	$1,886,600
Assessment	
Valuation Year	**Total**
2015	$1,320,620

Owner of Record

Owner	TRUMBULL TOWN OF	**Sale Price**	$0
Co-Owner		**Book & Page**	1/ 466
Address	5866 MAIN STREET TRUMBULL, CT 06611	**Sale Date**	06/15/1989
		Instrument	

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
TRUMBULL TOWN OF	$0	1/ 466		06/15/1989

Building Information

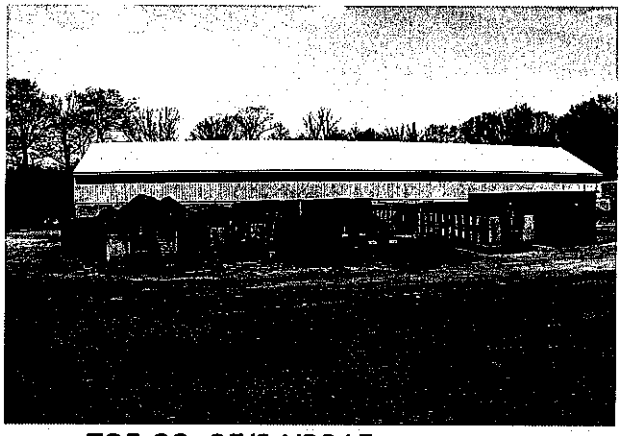
Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes	
Field	**Description**
Style	Outbuildings
Stories:	

Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Covering	
Alt. Floor Cover	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Total Elec Meters	

Building Photo



F05-96 05/04/2015

(http://images.vgsi.com/photos2/TrumbullCTPhotos//\00\02\19/

Building Layout

Building Layout

(http://images.vgsi.com/photos2/TrumbullCTPhotos//Sketches/1

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 921
Description Mun Lnd Res
Zone AA
Neighborhood 320
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 46.5
Frontage
Depth

Outbuildings

Outbuildings					Legend
Code	Description	Sub Code	Sub Description	Size	Bldg #
BHS1	Comm Bth Hse	CB	CindBk/Frame	200 S.F.	1

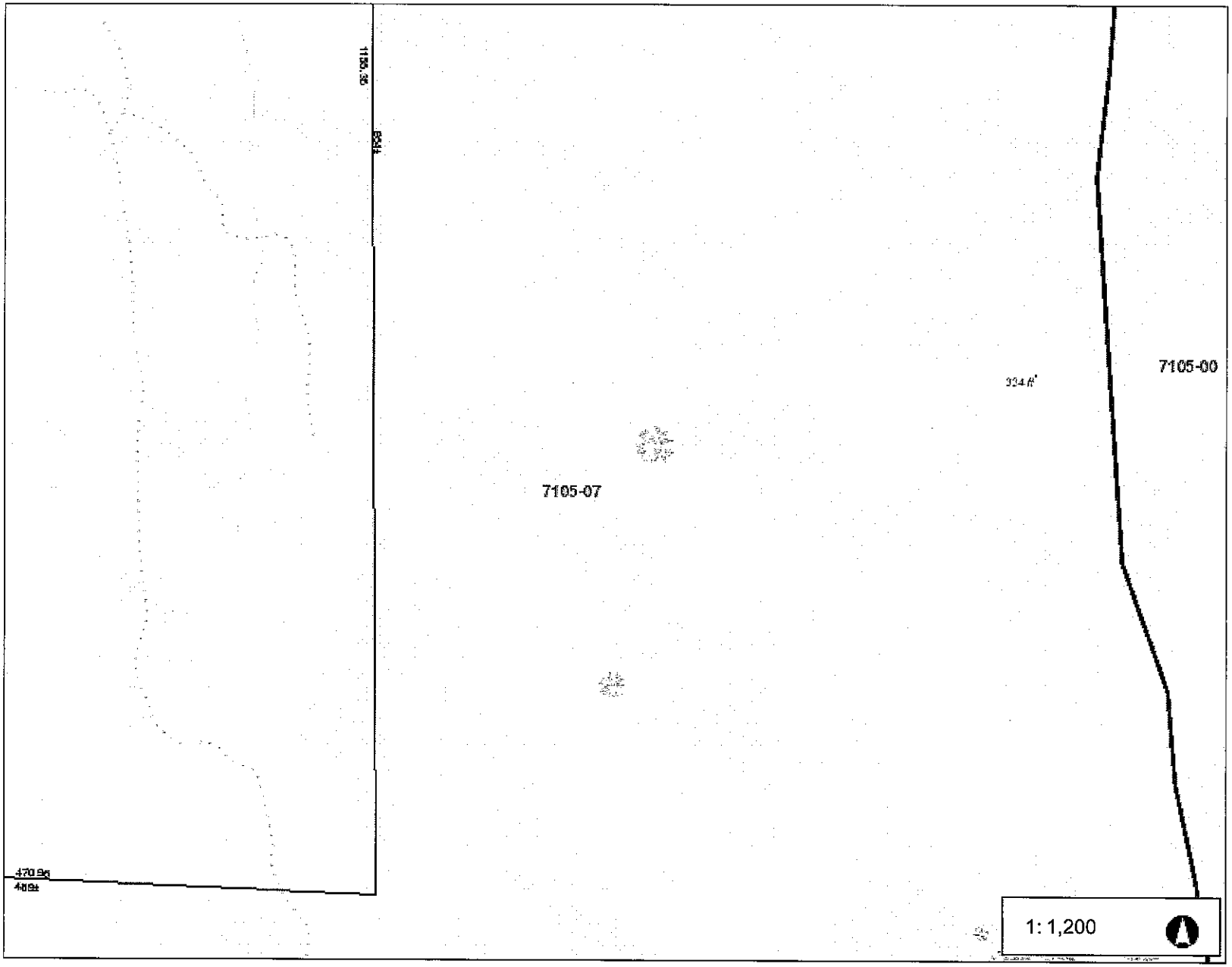
Valuation History

Appraisal	
Valuation Year	**Total**
2017	$1,886,600
2016	$1,886,600
2015	$1,886,600

Assessment	
Valuation Year	**Total**
2017	$1,320,620
2016	$1,320,620
2015	$1,320,620

Town of Trumbull

Map Title



Legend

- Streetname
- Roadways
  - Local
  - Collector
  - Minor Collector
  - Minor Arterial
  - Major Collector
  - PA Other
  - PA Other Expwy
  - PA Interstate
- Inland Wetland Soils
  - Poorly Drained and Very Poorly Dra
  - Alluvial and Floodplain Soils
- Local Basin Boundary
  - Major
  - Regional
  - Subregional
  - Local
- Local Basin Area
- Citations

200.0 0 100.00 200.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

METROCOG
Connecticut Metropolitan Council of Governments

Exhibit C

Construction Drawings

T-MOBILE SITE NAME:

CT961/INDIAN LEDGE PRK

T-MOBILE SITE NUMBER:

CT11961A

CROWN BU: 881535 / APP#: 479844

67D91D_WU21 CONFIGURATION

425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611

EXISTING 195'-0" MONOPOLE

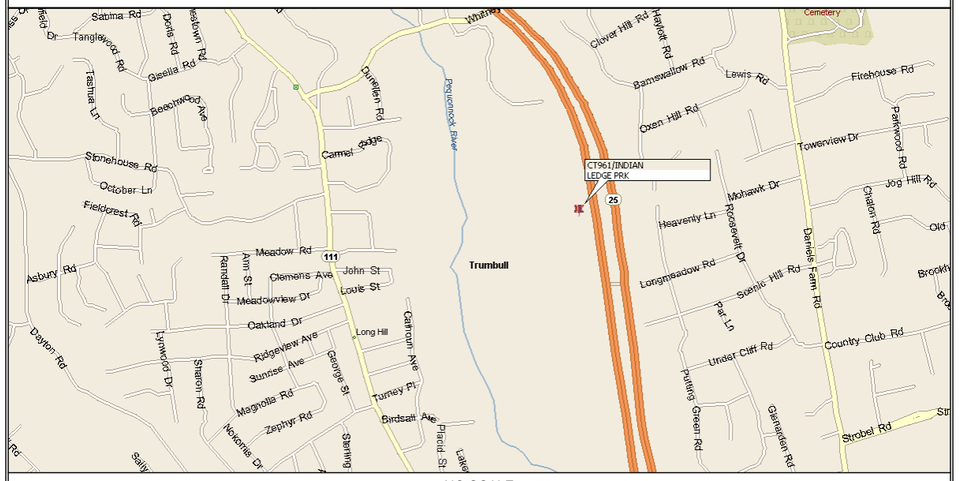
PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	425 INDIAN LEDGE PARK ROAD TRUMBULL, CT 06611
JURISDICTION:	FAIRFIELD COUNTY

NAD83

LATITUDE:	41.27324° N
LONGITUDE:	73.21311° W
TOWER OWNER:	CROWN CASTLE 3200 HORIZON DRIVE, SUITE 150 KING OF PRUSSIA, PA 19406 JASON SMITH (610) 635-3225
CUSTOMER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054 (973) 397-4800
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



NO SCALE

DRAWING INDEX

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

CONTACT INFORMATION

A&E FIRM:	B+T GROUP 1717 S. BOULDER, STE. 300 TULSA, OK 74119	ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. (203) 499-2000
CONTACT:	MIKE OAKES	TELCO PROVIDER:	AT&T (855) 637-9527
PHONE:	(918) 587-4630		

DRIVING DIRECTIONS

DEPART FROM LAGUARDIA INTERNATIONAL AIRPORT ON LOCAL ROAD. TURN RIGHT ONTO LOCAL ROAD. MERGE ONTO LA GUARDIA RD. KEEP RIGHT ONTO RAMP. KEEP RIGHT TO STAY ON RAMP. KEEP LEFT TO STAY ON RAMP. BEAR RIGHT ONTO LOCAL ROAD. TURN LEFT ONTO 94TH ST. TAKE RAMP ONTO GRAND CENTRAL PKWY. AT EXIT 9E, KEEP RIGHT ONTO RAMP. KEEP LEFT TO STAY ON RAMP. KEEP LEFT TO STAY ON RAMP. TAKE RAMP ONTO I-678 [WHITESTONE EXPY]*TOLL ROAD*. STAY ON I-678 [WHITESTONE EXPY]. STAY ON I-678 [HUTCHINSON RIVER PKWY]. ROAD NAME CHANGES TO HUTCHINSON RIVER PKWY N. AT EXIT 6, TAKE RAMP ONTO I-95 [NEW ENGLAND THROUGHWAY]. AT EXIT 16, STAY ON I-95 [NEW ENGLAND THROUGHWAY]. STAY ON I-95 [NEW ENGLAND THROUGHWAY]. ENTERING CONNECTICUT. AT EXIT 27A, TURN RIGHT ONTO RAMP. ROAD NAME CHANGES TO CT-25 [CT-8]. AT EXIT 9, KEEP RIGHT ONTO RAMP. BEAR RIGHT ONTO DANIELS FARM RD. TURN LEFT ONTO LEWIS RD. TURN LEFT ONTO OXEN HILL RD. TURN LEFT ONTO DEER RUN DR. TURN RIGHT ONTO LOCAL ROAD. ARRIVE AT CT961/INDIAN LEDGE PRK.

A/E DOCUMENT REVIEW STATUS

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

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

CODE COMPLIANCE

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

CODE TYPE	CODE
BUILDING/DWELLING	2018 CT BUILDING CODE
STRUCTURAL	2018 CT BUILDING CODE
MECHANICAL	2018 CT BUILDING CODE
ELECTRICAL	2018 CT BUILDING CODE

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (3) EXISTING ANTENNAS AT 145'-0".
- REMOVE (3) EXISTING RRUS AT 145'-0".
- REMOVE (1) EXISTING DUS41 FROM EXISTING CABINET.
- REMOVE (1) EXISTING XMU FROM EXISTING CABINET.
- INSTALL (3) NEW ANTENNAS AT 145'-0".
- INSTALL (3) NEW RRUS AT 145'-0".
- INSTALL (1) NEW 6x12 HCS CABLE.
- INSTALL (2) NEW BB 6630 IN EXISTING CABINET.

DO NOT SCALE DRAWINGS

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

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

811

CT11961A
BU #: 881535
CT961/INDIAN LEDGE PRK
425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611
EXISTING 195'-0" MONOPOLE

PROJECT NO:	136595.001.01
CHECKED BY:	GEH

ISSUED FOR:

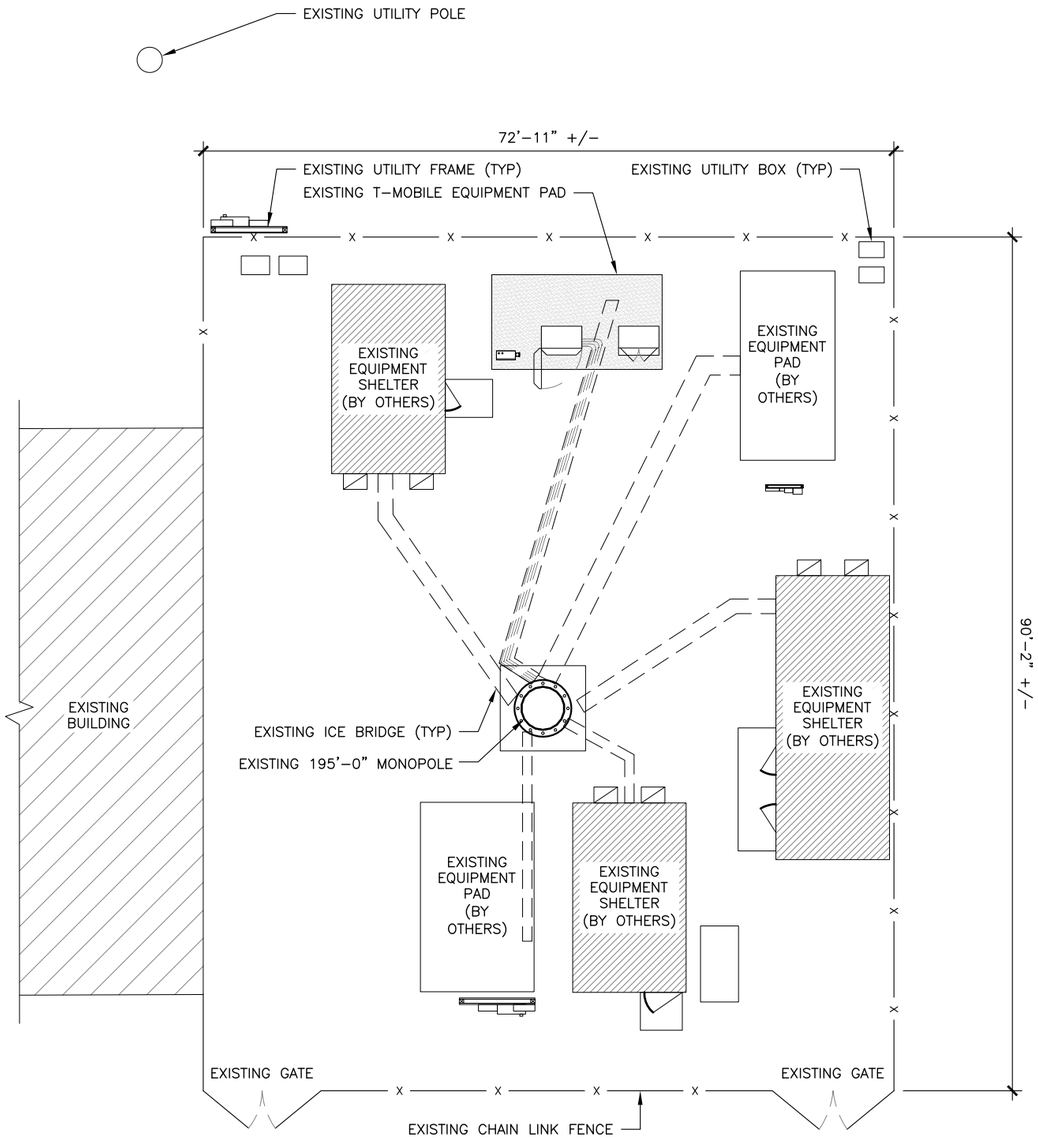
REV	DATE	DRWN	DESCRIPTION
0	7/2/19	STH	CONSTRUCTION
1	7/18/19	STH	CONSTRUCTION

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

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
7/18/19

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

SHEET NUMBER:	REVISION:
T-1	1



1 OVERALL SITE PLAN

SCALE: 0' 8' 16' 32' 48'

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS KNOWN AS BLOCK TBD LOT TBD AS SHOWN ON THE TRUMBULL TOWNSHIP TAX MAP AND IS SITUATED AT 425 INDIAN LEDGE PARK ROAD, TRUMBULL, CT 06611.

2. APPLICANT: T-MOBILE
A DELAWARE LIMITED LIABILITY COMPANY
4 SYLVAN WAY
PARSIPPANY, NEW JERSEY 07054
(973) 397-4800

   TOWER OWNER: CROWN CASTLE INTERNATIONAL

- THE APPLICANT IS TO UPDATE THEIR NETWORK BY INSTALLING THREE (3) NEW PANEL ANTENNAS, THREE (3) RRUS, AND ONE (1) 6X12 HCS CABLE MOUNTED ON AN EXISTING MONOPOLE.

3. THIS FACILITY SHALL BE VISITED ON THE AVERAGE OF ONCE A MONTH FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.

4. THE EXISTING SITE IS LOCATED AT LATITUDE OF 41.27324° N± AND LONGITUDE OF 73.21311° W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).

5. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION"

6. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:

   6.A. CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   6.B. CURRENT PREVAILING UTILITY COMPANY AUTHORITY SPECIFICATIONS, STANDARDS AND REQUIREMENTS.

7. THE CONTRACTOR SHALL NOTIFY B+T GROUP, P.A. IMMEDIATELY IF ANY FIELD-CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE AND/OR INEFFECTIVE.

8. THE CONTRACTOR IS RESPONSIBLE TO PROTECT, REPAIR AND/OR REPLACE ANY DAMAGED STRUCTURES, UTILITIES OR LANDSCAPED AREA WHICH MAY BE DISTURBED DURING THE CONSTRUCTION OF THIS FACILITY.

9. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.

10. SITE INFORMATION SHOWN TAKEN FROM CROWN CASTLE SITE PLANS AND FROM CROWN CASTLE INSPECTION PHOTOS.

11. NO GUARANTEE IS MADE NOR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE HORIZONTAL OR VERTICAL LOCATIONS. ALL PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN PRIOR TO CONSTRUCTION ACTIVITIES.

12. ALL IMPROVEMENTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE TOWNSHIP ENGINEER WHO WILL BE GIVEN PROPER NOTIFICATION PRIOR TO THE START OF ANY CONSTRUCTION.

B+T GRP

CROWN CASTLE

T-Mobile

CT11961A
BU #: 881535

CT961/INDIAN LEDGE PRK

425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611

EXISTING 195'-0" MONOPOLE

PROJECT NO:	136595.001.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/2/19	STH	CONSTRUCTION
1	7/18/19	STH	CONSTRUCTION

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

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER

7/18/19

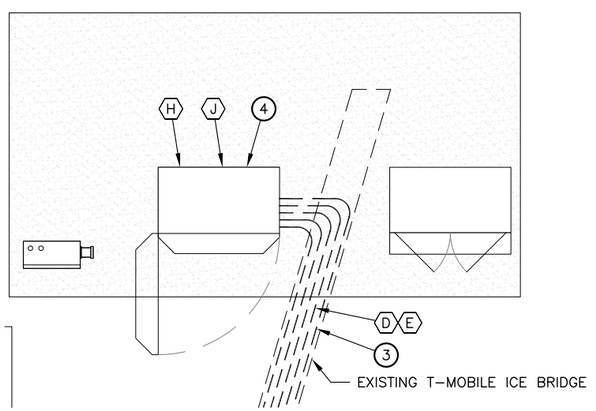
SHEET NUMBER:	REVISION:
A-1	1

LEGEND

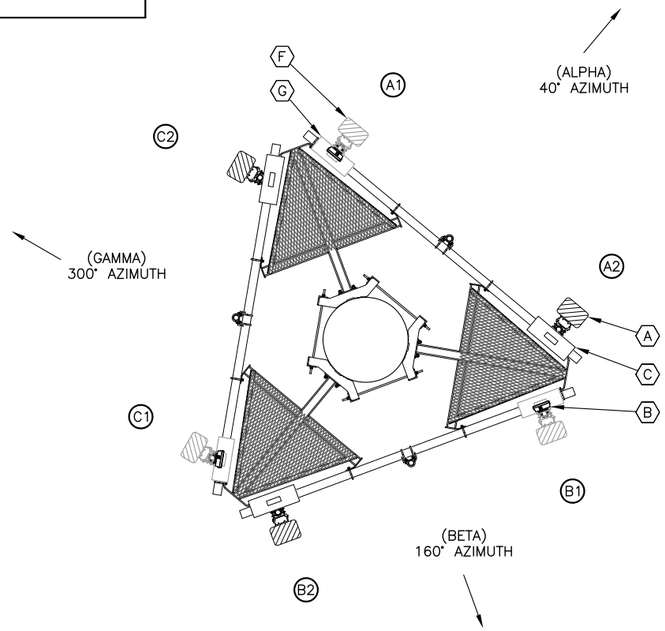
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118046-1_B4A_B2P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO REMAIN (SEE INSTALLATION NOTE 2)	2	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ERICSSON RRUS11 B2 RRH TO REMAIN (TOTAL OF 3)	3	INSTALL (1) 6x12 HCS. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
D	EXISTING ANDREW LDF7-50A 1 5/8" COAX CABLES TO REMAIN (TOTAL OF 12)	4	INSTALL (2) BB 6630 INSIDE EXISTING RBS 6131 CABINET.
E	EXISTING 9x18 HCS 1 5/8" HYBRID CABLE TO REMAIN (TOTAL OF 1)		
F	EXISTING COMMSCOPE SBNH-1D65C ANTENNA TO BE REMOVED (TOTAL OF 3)		
G	EXISTING ERICSSON RRUS11 B12 RRH TO BE REMOVED (TOTAL OF 3)		
H	EXISTING DUS41 TO BE REMOVED (TOTAL OF 1)		
J	EXISTING XMU TO BE REMOVED (TOTAL OF 1)		

ANTENNA AND CABLE SCHEDULE

SECTOR	POSITION	EXISTING ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
40° – ALPHA	**A1**	**RFS APXVAARR24_43-U-NA20**	**LTE/ UMTS**	**B71+ B12**	**2°**	**0°**	145'-0"	1/**1**	(2) 1 5/8" COAX (1) 9x18 HCS	(1) FIBER	195'-0"
	A2	ERICSSON AIR21 KRC118046-1_B2P_B4A	LTE	B2	2°/2°	0°		0/1	(2) 1 5/8" COAX	(3) FIBER	195'-0"
160° – BETA	**B1**	**RFS APXVAARR24_43-U-NA20**	**LTE/ UMTS**	**B71+ B12**	**2°**	**0°**	145'-0"	1/**1**	(2) 1 5/8" COAX **SHARED FIBER**	**(1) FIBER**	195'-0"
	B2	ERICSSON AIR21 KRC118046-1_B2P_B4A	LTE	B2	2°/2°	0°		0/1	(2) 1 5/8" COAX	(3) FIBER	195'-0"
300° – GAMMA	**C1**	**RFS APXVAARR24_43-U-NA20**	**LTE/ UMTS**	**B71+ B12**	**2°**	**0°**	145'-0"	1/**1**	(2) 1 5/8" COAX **(1) 6x12 HCS**	**(1) FIBER**	**195'-0"**
	C2	ERICSSON AIR21 KRC118046-1_B2P_B4A	LTE	B2	2°/2°	0°		0/1	(2) 1 5/8" COAX	(3) FIBER	195'-0"



1 ENLARGED AREA PLAN
SCALE: 0' 1' 4' 8' 16'



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

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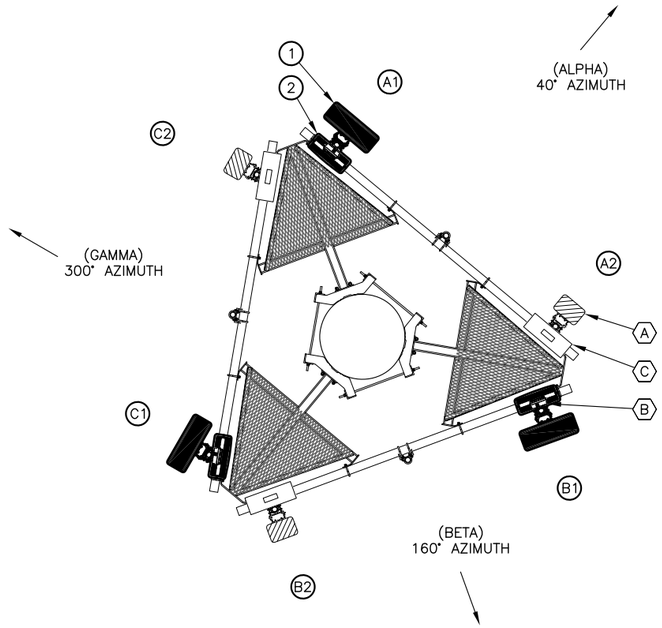

3 PROPOSED ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 16'

N

B+T GRP

CROWN CASTLE

T-Mobile

CT11961A
BU #: 881535

CT961/INDIAN LEDGE PRK

425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611

EXISTING 195'-0" MONOPOLE

PROJECT NO:	136595.001.01
CHECKED BY:	GEH

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	7/2/19	STH	CONSTRUCTION
1	7/18/19	STH	CONSTRUCTION

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A-2	1

LEGEND

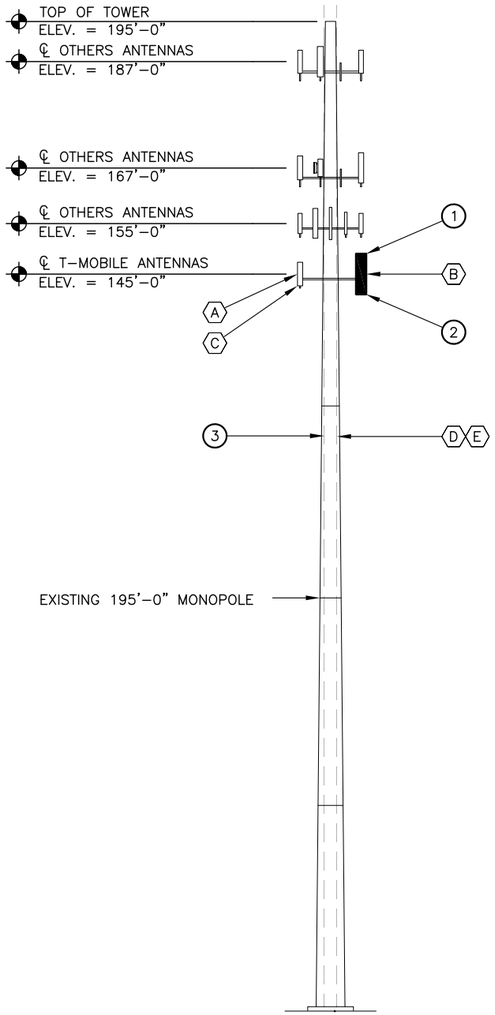
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING ERICSSON AIR21 KRC118046-1_B4A_B2P ANTENNA TO REMAIN (TOTAL OF 3)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING TMA TO REMAIN (SEE INSTALLATION NOTE 2)	2	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING ERICSSON RRUS11 B2 RRH TO REMAIN (TOTAL OF 3)	3	INSTALL (1) 6x12 HCS. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
D	EXISTING ANDREW LDF7-50A 1 5/8" COAX CABLES TO REMAIN (TOTAL OF 12)		
E	EXISTING 9x18 HCS 1 5/8" HYBRID CABLE TO REMAIN (TOTAL OF 1)		
F	EXISTING COMMSCOPE SBNH-1D65C ANTENNA TO BE REMOVED (TOTAL OF 3)		
G	EXISTING ERICSSON RRUS11 B12 RRH TO BE REMOVED (TOTAL OF 3)		

STRUCTURAL ANALYSIS NOTE:

REFER TO STRUCTURAL ANALYSIS OR STRUCTURAL LETTER FOR APPROVAL OF ADDITIONAL NEW APPURTENANCES.

LEGEND:

- **NEW**
- EXISTING
- FUTURE



1 TOWER ELEVATION

SCALE: 0' 15' 30' 45' 60' 1"=30'

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CT11961A
BU #: 881535

CT961/INDIAN LEDGE PRK

425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611

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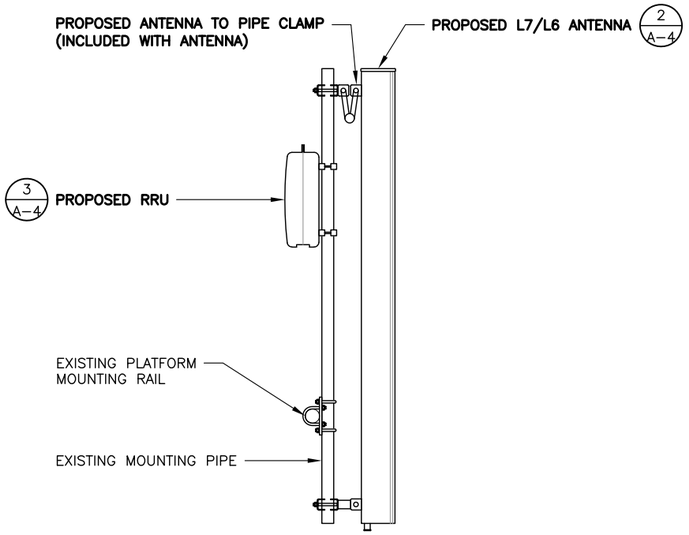
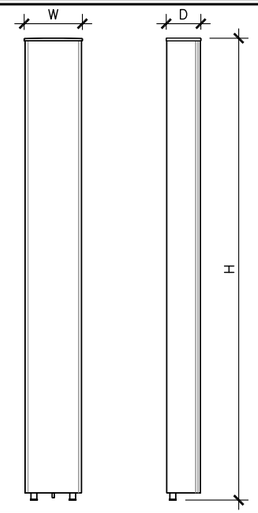
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
A-3	1



1 PROPOSED ANTENNA & RRU MOUNTING DETAIL

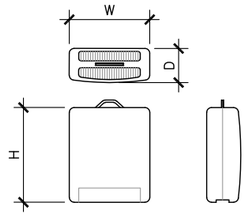
SCALE: N.T.S.



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

2 L7/L6 ANTENNA DETAIL

SCALE: N.T.S.

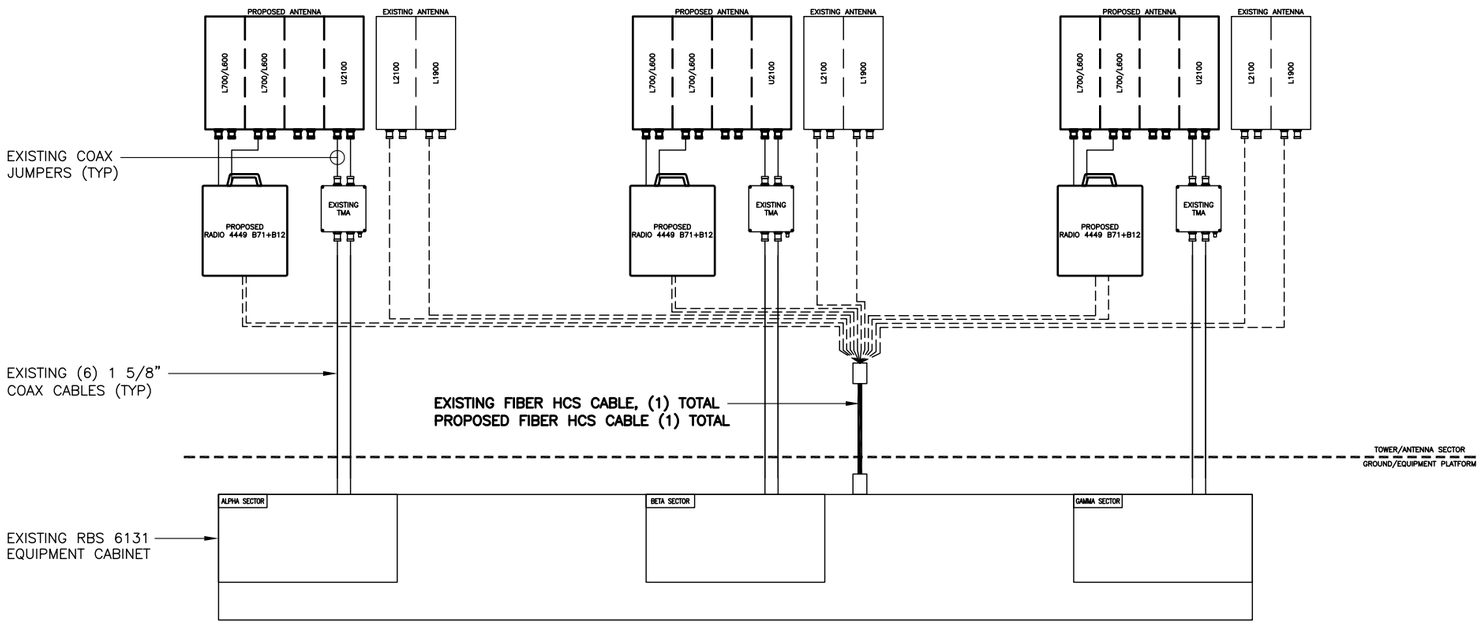


RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4449
WIDTH	13.2"
DEPTH	10.4"
HEIGHT	14.9"
WEIGHT	74 LBS

3 REMOTE RADIO UNIT (RRU)

SCALE: N.T.S.

NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS.
2. SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
3. REFER TO ANTENNA ORIENTATION ON SHEET A-3 FOR EXACT ANTENNA POSITIONING.



4 ANTENNA & CABLING SCHEMATIC

SCALE: N.T.S.

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T-Mobile

CT11961A
BU #: 881535

CT961/INDIAN LEDGE PRK

425 INDIAN LEDGE PARK ROAD
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A-4	1

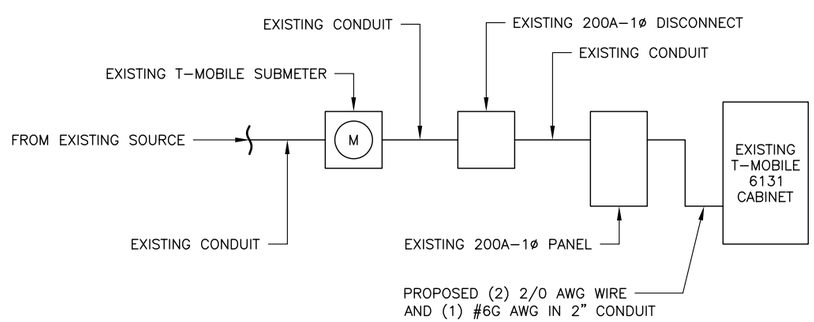
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
MAIN	2	60	1	2	30	2	
			3	4			
6131	2	**150**	5	6	50	2	
			7	8			
			9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
	1	10	23	24			

RATED VOLTAGE: ■120/240 ☐_____. 1 PHASE, 3 WIRE		BRANCH POLES: ☐12 ■24 ☐30 ☐42	APPROVED MF'RS
RATED AMPS: ☐100 ■225 ☐400 ☐_____.		CABINET: ■SURFACE ☐FLUSH	NEMA ☐1 ■3R ☐4X
☐MAIN LUGS ONLY	MAIN 200 AMPS ■BREAKER ☐FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
☐FUSED ■CIRCUIT BREAKER	BRANCH DEVICES	☐_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS / GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL			

REPLACE EXISTING BREAKER IN POSITION 5 AND 7 WITH A NEW 2P 150A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 6131 CABINET WITH (3) 2/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 150A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO2040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.



2 ONE-LINE DIAGRAM

SCALE: N.T.S.

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CROWN CASTLE

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CT11961A
BU #: 881535

CT961/INDIAN LEDGE PRK

425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611

EXISTING 195'-0" MONOPOLE

PROJECT NO:	136595.001.01
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7/18/19

SHEET NUMBER:	REVISION:
E-1	1

Exhibit D

Structural Analysis Report

Date: **June 10, 2019**

Darcy Tarr
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-6909

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11961A
	Carrier Site Name:	CT961/ Indian Ledge Prk
Crown Castle Designation:	**Crown Castle BU Number:**	881535
	Crown Castle Site Name:	TRUMBULL TOWER
	Crown Castle JDE Job Number:	559346
	Crown Castle Work Order Number:	1747592
	Crown Castle Order Number:	479844 Rev. 0
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	400087
Site Data:	**425 Indian Ledge Park Rd, Trumbull, Fairfield County, CT** **Latitude *41° 16' 23.81"*, Longitude *-73° 12' 47.18"*** **194.79 Foot - Monopole Tower**	

Dear Darcy Tarr,

Black & Veatch Corp. 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 – 61.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Sirada Jaritreab / Saranphat Klurvudthikul

Respectfully submitted by:

Joshua J. Riley, P.E.
Professional Engineer

06/10/2019

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 194.79 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.500 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
144.0	145.0	3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	14	1-5/8
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	ericsson	RRUS 11 B2		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	144.0	1	cci tower mounts	Platform Mount [LP 601-1]		

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)
185.0	188.0	1	site pro 1	HRK12	12 2 4	1-1/4 3/8 5/8
	186.5	1	site pro 1	PRK-SFS-V-L		
	187.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS12/RRUS A2		
		3	kathrein	80010965 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
	185.0	1	cci tower mounts	Platform Mount [LP 601-1]		
		6	powerwave technologies	LGP21401		
		2	raycap	DC6-48-60-18-8F		
	184.0	1	site pro 1	HRK12		
	182.5	1	site pro 1	PRK-1245 Tri-Sector Kickers		
	181.5	1	site pro 1	PRK-SFS-V-L		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
175.0	175.0	1	cci tower mounts	Platform Mount [LP 601-1]	-	-
164.0	166.0	3	dragonwave	A-ANT-23G-2-C	4 6 2 1	1-1/4 5/16 7983A 2” conduit
		3	alcatel lucent	1900MHz RRH (65MHz)		
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER		
		3	alcatel lucent	800MHZ RRH		
		3	alcatel lucent	TD-RRH8x20-25		
		3	argus technologies	LLPX310R w/ Mount Pipe		
		9	rfs celwave	ACU-A20-N		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		3	samsung telecommunications	FDD_R6_RRH		
	164.0	1	cci tower mounts	Platform Mount [LP 602-1]		
154.0	155.0	3	alcatel lucent	RRH2X60-PCS	20	1-5/8
		3	alcatel lucent	RRH2x60-700		
		3	alcatel lucent	RRH4X45-AWS4 B66		
		9	andrew	SBNHH-1D65B w/ Mount Pipe		
		2	antel	LPA-4016 w/ Mount Pipe		
		4	decibel	DB844G65ZAXY w/ Mount Pipe		
		2	rfs celwave	DB-B1-6C-8AB-0Z		
	154.0	1	cci tower mounts	Platform Mount [LP 601-1]		
134.0	135.0	12	decibel	DB844H90E-XY w/ Mount Pipe	9 6	1-1/4 1-5/8
	134.0	1	cci tower mounts	Platform Mount [LP 303-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	1406210	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors Inc.	1405798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors Inc.	1405789	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.

3.2) Assumptions

1) Tower and structures were 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) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10323, Base Plate Grout Repair.
4) The wind loading Exposure Category and Topographic Category for this site have been analyzed and determined by the tower owner. Black & Veatch does not assume any responsibility for its accuracy.
5) The wind loading EPA of the panel antennas has been analyzed and determined by the tower owner. Verification of its accuracy is outside the scope of this structural analysis/design. Black & Veatch does not assume any responsibility for its accuracy.
6) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, appurtenance loading, tower/foundation details, and geotechnical data. The loading on the structure is based on CAD level drawings and carrier orders provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

This analysis may be affected if any assumptions are not valid or have been made in error. Black & Veatch Corp. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	194.789 - 157.422	Pole	TP33.875x25x0.25	1	-12.19	1584.10	20.6	Pass
L2	157.422 - 116.857	Pole	TP42.9063x32.2505x0.3125	2	-27.94	2511.01	50.8	Pass
L3	116.857 - 80.8672	Pole	TP50.75x40.9017x0.375	3	-39.53	3565.24	58.3	Pass
L4	80.8672 - 39.8125	Pole	TP59.6563x48.3897x0.5	4	-58.31	5584.21	49.4	Pass
L5	39.8125 - 0	Pole	TP68x56.7849x0.5	5	-84.80	6580.00	56.7	Pass
							Summary	
						Pole (L3)	58.3	Pass
						Rating =	58.3	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower) - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	60.5	Pass
	Base Plate		51.1	Pass
1	Base Foundation	0	61.4	Pass
	Base Foundation Soil Interaction		54.8	Pass

Structure Rating (max from all components) =	61.4%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity. Rating per TIA-222-H Section 15.5.

4.1) Recommendations

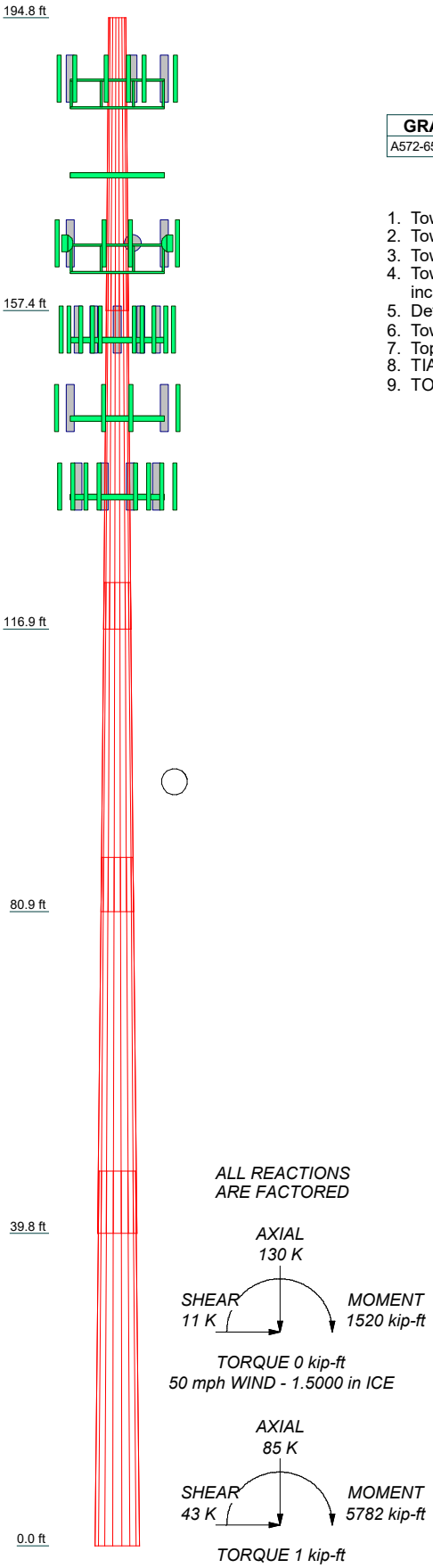
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10323, Base Plate Grout Repair.

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	37.37	18	0.2500	4.73	25.0000	33.8750		2.9
2	45.30	18	0.3125	5.86	32.2505	42.9063		5.7
3	41.85	18	0.3750	6.84	40.9017	50.7500	A572-65	7.7
4	47.90	18	0.5000	7.96	48.3897	59.6563		13.8
5	47.77	18	0.5000		56.7849	68.0000		16.0
								46.2



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B 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 0.00 ft
8. TIA-222-H Annex S
9. TOWER RATING: 58.3%

BLACK & VEATCH
Building a world of difference.

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
Phone: (913) 458-2984
FAX: (913) 458-8136

Job: ***TRUMBULL TOWER (BU#881535)***			
Project: ***400087 (881535.1747592)***			
Client: Crown Castle	Drawn by: Josh Riley	App'd:	
Code: TIA-222-H	Date: 06/10/19	Scale: NTS	
Path: C:\Users\r689982\OneDrive - Black & Veatch\Desktop\881535\881535.1747592 Structural Analysis.eri		Dwg No. E-1	

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 Fairfield County, Connecticut.
2) Tower base elevation above sea level: 323.00 ft.
3) Basic wind speed of 125 mph.
4) Risk Category II.
5) Exposure Category B.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height: 0.00 ft.
9) Nominal ice thickness of 1.5000 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56 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		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	

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	194.79-157.42	37.37	4.73	18	25.0000	33.8750	0.2500	1.0000	A572-65 (65 ksi)
L2	157.42-116.86	45.30	5.86	18	32.2505	42.9063	0.3125	1.2500	A572-65 (65 ksi)
L3	116.86-80.87	41.85	6.84	18	40.9017	50.7500	0.3750	1.5000	A572-65 (65 ksi)
L4	80.87-39.81	47.90	7.96	18	48.3897	59.6563	0.5000	2.0000	A572-65 (65 ksi)
L5	39.81-0.00	47.77		18	56.7849	68.0000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	25.3471	19.6391	1519.8824	8.7863	12.7000	119.6758	3041.7647	9.8214	3.9600	15.84
	34.3590	26.6814	3811.2835	11.9369	17.2085	221.4768	7627.5821	13.3433	5.5220	22.088
L2	33.8307	31.6786	4082.4375	11.3380	16.3833	249.1832	8170.2467	15.8423	5.1261	16.404
	43.5199	42.2477	9683.4926	15.1208	21.7964	444.2708	19379.7271	21.1279	7.0015	22.405
L3	42.8761	48.2369	10009.2266	14.3870	20.7781	481.7204	20031.6236	24.1231	6.5387	17.437
	51.4751	59.9588	19222.9846	17.8831	25.7810	745.6260	38471.2633	29.9851	8.2720	22.059
L4	50.6936	76.0009	22021.1443	17.0008	24.5820	895.8257	44071.2646	38.0077	7.6366	15.273
	60.4994	93.8810	41506.5163	21.0005	30.3054	1369.6091	83067.6479	46.9494	9.6195	19.239
L5	59.4805	89.3242	35751.1890	19.9811	28.8467	1239.3494	71549.4204	44.6706	9.1141	18.228
	68.9719	107.1225	61663.1484	23.9625	34.5440	1785.0610	123407.4348	53.5714	11.0880	22.176

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 194.79-157.42				1	1	1			
L2 157.42-116.86				1	1	1			
L3 116.86-80.87				1	1	1			
L4 80.87-39.81				1	1	1			
L5 39.81-0.00				1	1	1			

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 plf
***										
Safety Line 3/8	A	No	Surface Ar (CaAa)	194.79 - 10.00	1	1	0.050 0.060	0.3750		0.22
(1E+1R)HB158-1-08U8-S8J18(1-5/8)+(6E)HJ7-50A(1-	B	No	Surface Ar (CaAa)	154.00 - 3.00	8	8	-0.220 0.080	1.9800		1.30

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 plf
5/8)										
*****										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***									
LDF6-50A(1-1/4)	C	No	No	Inside Pole	185.00 - 0.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	185.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8)	C	No	No	Inside Pole	185.00 - 0.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
WR-VG82ST-BRDA(5/8)	C	No	No	Inside Pole	185.00 - 0.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
***									
HB114-21U3M12-XXXF(1-1/4)	B	No	No	Inside Pole	164.00 - 0.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
HB114-1-0813U4-M5J(1-1/4)	B	No	No	Inside Pole	164.00 - 0.00	3	No Ice	0.00	1.20
							1/2" Ice	0.00	1.20
							1" Ice	0.00	1.20
							2" Ice	0.00	1.20
*									
7983A(ELLIPTICAL)	B	No	No	Inside Pole	164.00 - 0.00	2	No Ice	0.00	0.08
							1/2" Ice	0.00	0.08
							1" Ice	0.00	0.08
							2" Ice	0.00	0.08
2" Rigid Conduit	B	No	No	Inside Pole	164.00 - 0.00	1	No Ice	0.00	2.80
							1/2" Ice	0.00	2.80
							1" Ice	0.00	2.80
							2" Ice	0.00	2.80
9207(5/16)	B	No	No	Inside Pole	164.00 - 0.00	6	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
***									
AL7-50(1-5/8)	B	No	No	Inside Pole	154.00 - 0.00	3	No Ice	0.00	0.52
							1/2" Ice	0.00	0.52
							1" Ice	0.00	0.52
							2" Ice	0.00	0.52
HJ7-50A(1-5/8)	B	No	No	Inside Pole	154.00 - 0.00	9	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
							2" Ice	0.00	1.04
***									
MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	A	No	No	Inside Pole	144.00 - 0.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
							2" Ice	0.00	1.07
LDF7-50A(1-5/8)	A	No	No	Inside Pole	144.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							2" Ice	0.00	0.82
HCS 6X12 4AWG(1-5/8)	A	No	No	Inside Pole	144.00 - 0.00	1	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
***									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	134.00 - 0.00	9	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
LDF7-50A(1-5/8)	A	No	No	Inside Pole	134.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
*****									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	194.79-157.42	A	0.000	0.000	1.401	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.24
L2	157.42-116.86	A	0.000	0.000	1.521	0.000	0.55
		B	0.000	0.000	58.835	0.000	1.12
		C	0.000	0.000	0.000	0.000	0.35
L3	116.86-80.87	A	0.000	0.000	1.350	0.000	0.86
		B	0.000	0.000	57.008	0.000	1.06
		C	0.000	0.000	0.000	0.000	0.31
L4	80.87-39.81	A	0.000	0.000	1.540	0.000	0.98
		B	0.000	0.000	65.031	0.000	1.21
		C	0.000	0.000	0.000	0.000	0.35
L5	39.81-0.00	A	0.000	0.000	1.118	0.000	0.95
		B	0.000	0.000	58.311	0.000	1.14
		C	0.000	0.000	0.000	0.000	0.34

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	194.79-157.42	A	1.507	0.000	0.000	12.662	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.24
L2	157.42-116.86	A	1.470	0.000	0.000	13.745	0.000	0.69
		B		0.000	0.000	87.535	0.000	2.05
		C		0.000	0.000	0.000	0.000	0.35
L3	116.86-80.87	A	1.422	0.000	0.000	11.927	0.000	0.98
		B		0.000	0.000	84.481	0.000	1.94
		C		0.000	0.000	0.000	0.000	0.31
L4	80.87-39.81	A	1.354	0.000	0.000	13.219	0.000	1.11
		B		0.000	0.000	95.887	0.000	2.18
		C		0.000	0.000	0.000	0.000	0.35
L5	39.81-0.00	A	1.209	0.000	0.000	9.192	0.000	1.03
		B		0.000	0.000	85.351	0.000	1.97
		C		0.000	0.000	0.000	0.000	0.34

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	194.79-157.42	-0.2421	-0.1798	-1.1185	-0.8306
L2	157.42-116.86	5.8448	-4.8642	4.0102	-4.2896
L3	116.86-80.87	6.5448	-5.4286	4.6200	-4.8148
L4	80.87-39.81	6.8808	-5.7086	4.9266	-5.1078
L5	39.81-0.00	6.7731	-5.5687	5.0749	-4.9481

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8	157.42 - 194.79	1.0000	1.0000
L1	18	(1E+1R)HB158-1-08U8-S8J18(1-5/8)+(6E)HJ7-50A(1-5/8)	157.42 - 154.00	1.0000	1.0000
L2	2	Safety Line 3/8	116.86 - 157.42	1.0000	1.0000
L2	18	(1E+1R)HB158-1-08U8-S8J18(1-5/8)+(6E)HJ7-50A(1-5/8)	116.86 - 154.00	1.0000	1.0000
L3	2	Safety Line 3/8	80.87 - 116.86	1.0000	1.0000
L3	18	(1E+1R)HB158-1-08U8-S8J18(1-5/8)+(6E)HJ7-50A(1-5/8)	80.87 - 116.86	1.0000	1.0000
L4	2	Safety Line 3/8	39.81 - 80.87	1.0000	1.0000
L4	18	(1E+1R)HB158-1-08U8-S8J18(1-5/8)+(6E)HJ7-50A(1-5/8)	39.81 - 80.87	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
Platform Mount [LP 601-1]	C	None		0.0000	185.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
						2" Ice	48.95	48.95	2.69
Miscellaneous [NA 507-1]	A	From Leg	0.00 0.00	0.0000	185.00	No Ice 1/2"	4.80 6.70	4.80 6.70	0.25 0.29

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.00			Ice	8.60	8.60	0.34
						1" Ice	12.40	12.40	0.44
						2" Ice			
Miscellaneous [NA 507-1]	A	From Leg	0.00	0.0000	185.00	No Ice	4.80	4.80	0.25
			0.00			1/2"	6.70	6.70	0.29
			-1.00			Ice	8.60	8.60	0.34
						1" Ice	12.40	12.40	0.44
						2" Ice			
Site Pro 1 SFS-V-L Sector Frame Stabilizer	A	From Leg	0.00	0.0000	185.00	No Ice	2.71	0.08	0.08
			0.00			1/2"	3.48	0.13	0.10
			1.50			Ice	4.29	0.20	0.14
						1" Ice	5.96	0.36	0.23
						2" Ice			
Site Pro 1 SFS-V-L Sector Frame Stabilizer	B	From Leg	0.00	0.0000	185.00	No Ice	2.71	0.08	0.08
			0.00			1/2"	3.48	0.13	0.10
			1.50			Ice	4.29	0.20	0.14
						1" Ice	5.96	0.36	0.23
						2" Ice			
Site Pro 1 SFS-V-L Sector Frame Stabilizer	C	From Leg	0.00	0.0000	185.00	No Ice	2.71	0.08	0.08
			0.00			1/2"	3.48	0.13	0.10
			1.50			Ice	4.29	0.20	0.14
						1" Ice	5.96	0.36	0.23
						2" Ice			
Site Pro 1 SFS-V-L Sector Frame Stabilizer	A	From Leg	0.00	0.0000	185.00	No Ice	2.71	0.08	0.08
			0.00			1/2"	3.48	0.13	0.10
			-3.50			Ice	4.29	0.20	0.14
						1" Ice	5.96	0.36	0.23
						2" Ice			
Site Pro 1 SFS-V-L Sector Frame Stabilizer	B	From Leg	0.00	0.0000	185.00	No Ice	2.71	0.08	0.08
			0.00			1/2"	3.48	0.13	0.10
			-3.50			Ice	4.29	0.20	0.14
						1" Ice	5.96	0.36	0.23
						2" Ice			
Site Pro 1 SFS-V-L Sector Frame Stabilizer	C	From Leg	0.00	0.0000	185.00	No Ice	2.71	0.08	0.08
			0.00			1/2"	3.48	0.13	0.10
			-3.50			Ice	4.29	0.20	0.14
						1" Ice	5.96	0.36	0.23
						2" Ice			
Site Pro 1 PRK-1245 Tri-Sector Kickers	A	From Leg	0.00	0.0000	185.00	No Ice	1.97	1.75	0.47
			0.00			1/2"	2.33	2.26	0.51
			-2.50			Ice	2.73	2.80	0.57
						1" Ice	3.41	3.79	0.63
						2" Ice			
8'x2" Mount Pipe	A	From Leg	4.00	0.0000	185.00	No Ice	1.90	1.90	0.03
			-2.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
8'x2" Mount Pipe	B	From Leg	4.00	0.0000	185.00	No Ice	1.90	1.90	0.03
			-2.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
8'x2" Mount Pipe	C	From Leg	4.00	0.0000	185.00	No Ice	1.90	1.90	0.03
			-2.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	185.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	185.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	185.00	No Ice	5.75	4.25	0.06
			-6.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00	0.0000	185.00	No Ice	9.22	6.25	0.07
			2.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00	0.0000	185.00	No Ice	9.22	6.25	0.07
			2.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00	0.0000	185.00	No Ice	9.22	6.25	0.07
			2.00			1/2"	9.98	6.96	0.14
			2.00			Ice	10.76	7.70	0.22
						1" Ice	12.36	9.22	0.42
						2" Ice			
80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	185.00	No Ice	14.05	7.63	0.13
			6.00			1/2"	14.69	8.90	0.22
			2.00			Ice	15.30	9.96	0.33
						1" Ice	16.53	11.92	0.57
						2" Ice			
80010965 w/ Mount Pipe	B	From Leg	4.00	0.0000	185.00	No Ice	14.05	7.63	0.13
			6.00			1/2"	14.69	8.90	0.22
			2.00			Ice	15.30	9.96	0.33
						1" Ice	16.53	11.92	0.57
						2" Ice			
80010965 w/ Mount Pipe	C	From Leg	4.00	0.0000	185.00	No Ice	14.05	7.63	0.13
			6.00			1/2"	14.69	8.90	0.22
			2.00			Ice	15.30	9.96	0.33
						1" Ice	16.53	11.92	0.57
						2" Ice			
(2) LGP21401	A	From Leg	4.00	0.0000	185.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	185.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
(2) LGP21401	C	From Leg	4.00	0.0000	185.00	No Ice	1.10	0.35	0.01
			0.00			1/2"	1.24	0.44	0.02
			0.00			Ice	1.38	0.54	0.03
						1" Ice	1.69	0.77	0.05
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	185.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	185.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	185.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	185.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	185.00	No Ice	0.92	0.92	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.64	1.64	0.06
						1" Ice	2.04	2.04	0.11
						2" Ice			
RRUS12/RRUS A2	A	From Leg	4.00	0.0000	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS12/RRUS A2	B	From Leg	4.00	0.0000	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS12/RRUS A2	C	From Leg	4.00	0.0000	185.00	No Ice	3.14	1.84	0.07
			0.00			1/2"	3.36	2.01	0.10
			2.00			Ice	3.59	2.20	0.13
						1" Ice	4.07	2.59	0.20
						2" Ice			
RRUS 32	A	From Leg	4.00	0.0000	185.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	B	From Leg	4.00	0.0000	185.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
RRUS 32	C	From Leg	4.00	0.0000	185.00	No Ice	2.86	1.78	0.06
			0.00			1/2"	3.08	1.97	0.08
			2.00			Ice	3.32	2.17	0.10
						1" Ice	3.81	2.58	0.16
						2" Ice			
***									
Platform Mount [LP 601-1]	C	None		0.0000	175.00	No Ice	28.47	28.47	1.12
						1/2"	33.59	33.59	1.51
						Ice	38.71	38.71	1.91
						1" Ice	48.95	48.95	2.69
						2" Ice			
(4) 8'x2" Mount Pipe	A	From Leg	4.00	0.0000	175.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(4) 8'x2" Mount Pipe	B	From Leg	4.00	0.0000	175.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(4) 8'x2" Mount Pipe	C	From Leg	4.00	0.0000	175.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
***									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount [LP 602-1]	C	None		0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	32.03 38.71 45.39 58.75	32.03 38.71 45.39 58.75	1.34 1.80 2.26 3.17
8'x2" Mount Pipe	A	From Leg	4.00 -2.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
8'x2" Mount Pipe	B	From Leg	4.00 -2.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
8'x2" Mount Pipe	C	From Leg	4.00 -6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 -6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 -6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 -6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00 6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00 6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00 6.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
1900MHz RRH (65MHz)	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
1900MHz RRH (65MHz)	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
1900MHz RRH (65MHz)	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
800MHZ RRH	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800MHZ RRH	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800MHZ RRH	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.13 2.32 2.51 2.92	1.77 1.95 2.13 2.51	0.05 0.07 0.10 0.16
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.66 0.76 0.87 1.11	0.32 0.40 0.48 0.67	0.01 0.02 0.02 0.04
(3) ACU-A20-N	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.07 0.10 0.15 0.26	0.12 0.16 0.21 0.34	0.00 0.00 0.00 0.01
(3) ACU-A20-N	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.07 0.10 0.15 0.26	0.12 0.16 0.21 0.34	0.00 0.00 0.00 0.01
(3) ACU-A20-N	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.07 0.10 0.15 0.26	0.12 0.16 0.21 0.34	0.00 0.00 0.00 0.01
TD-RRH8x20-25	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8x20-25	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8x20-25	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
**									
LLPX310R w/ Mount Pipe	A	From Leg	4.00 2.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25 6.01	2.98 3.53 4.09 5.24	0.05 0.08 0.13 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
LLPX310R w/ Mount Pipe	B	From Leg	4.00 2.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.54 4.89 5.25 6.01	2.98 3.53 4.09 5.24	0.05 0.08 0.13 0.23
LLPX310R w/ Mount Pipe	C	From Leg	4.00 2.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.54 4.89 5.25 6.01	2.98 3.53 4.09 5.24	0.05 0.08 0.13 0.23
FDD_R6_RRH	A	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.53 1.69 1.85 2.20	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
FDD_R6_RRH	B	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.53 1.69 1.85 2.20	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
FDD_R6_RRH	C	From Leg	4.00 0.00 2.00	0.0000	164.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.53 1.69 1.85 2.20	0.68 0.80 0.92 1.19	0.03 0.04 0.06 0.09
***									
Platform Mount [LP 601-1]	C	None		0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	28.47 33.59 38.71 48.95	28.47 33.59 38.71 48.95	1.12 1.51 1.91 2.69
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 -3.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 -3.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 -3.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 3.00 1.00	0.0000	154.00	No Ice 1/2" Ice	4.09 4.49 4.89	3.30 3.68 4.07	0.07 0.13 0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	5.72	4.87	0.39
						2" Ice			
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 3.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 3.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	0.07 0.13 0.20 0.39
(2) LPA-4016 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.62 9.06 9.51 10.45	6.75 7.38 8.02 9.36	0.04 0.12 0.21 0.40
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.58 4.96 5.34 6.14	4.80 5.42 6.04 7.34	0.03 0.08 0.13 0.26
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.58 4.96 5.34 6.14	4.80 5.42 6.04 7.34	0.03 0.08 0.13 0.26
RRH2x60-700	A	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.50 3.76 4.03 4.58	1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2x60-700	B	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.50 3.76 4.03 4.58	1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2x60-700	C	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.50 3.76 4.03 4.58	1.82 2.05 2.29 2.79	0.06 0.08 0.11 0.17
RRH2X60-PCS	A	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.20 2.39 2.59 3.01	1.72 1.90 2.09 2.48	0.06 0.08 0.10 0.16
RRH2X60-PCS	B	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.20 2.39 2.59 3.01	1.72 1.90 2.09 2.48	0.06 0.08 0.10 0.16
RRH2X60-PCS	C	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.20 2.39 2.59 3.01	1.72 1.90 2.09 2.48	0.06 0.08 0.10 0.16
RRH4X45-AWS4 B66	A	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.66 2.88 3.10 3.58	1.59 1.77 1.96 2.36	0.06 0.08 0.11 0.17
RRH4X45-AWS4 B66	B	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice Ice	2.66 2.88 3.10	1.59 1.77 1.96	0.06 0.08 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice 2" Ice	3.58	2.36	0.17
RRH4X45-AWS4 B66	C	From Leg	4.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.66 2.88 3.10 3.58	1.59 1.77 1.96 2.36	0.06 0.08 0.11 0.17
(2) DB-B1-6C-8AB-0Z	C	From Leg	1.00 0.00 1.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	0.04 0.08 0.12 0.21
***									
Platform Mount [LP 601-1]	C	None		0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	28.47 33.59 38.71 48.95	28.47 33.59 38.71 48.95	1.12 1.51 1.91 2.69
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 6.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.32 6.76 7.20 8.10	5.63 6.41 7.12 8.57	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 6.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.32 6.76 7.20 8.10	5.63 6.41 7.12 8.57	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 6.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.32 6.76 7.20 8.10	5.63 6.41 7.12 8.57	0.11 0.17 0.23 0.38
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 -6.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 -6.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 -6.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
KRY 112 144/1	A	From Leg	4.00 0.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.00 0.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.00 0.00 1.00	0.0000	144.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
RADIO 4449 B12/B71	A	From Leg	4.00 0.00	0.0000	144.00	No Ice 1/2"	1.65 1.81	1.30 1.44	0.08 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
				1.00			Ice	1.98	1.60	0.11
							1" Ice	2.34	1.92	0.16
							2" Ice			
RADIO 4449 B12/B71	B	From Leg	4.00		0.0000	144.00	No Ice	1.65	1.30	0.08
			0.00				1/2"	1.81	1.44	0.09
				1.00			Ice	1.98	1.60	0.11
							1" Ice	2.34	1.92	0.16
							2" Ice			
RADIO 4449 B12/B71	C	From Leg	4.00		0.0000	144.00	No Ice	1.65	1.30	0.08
			0.00				1/2"	1.81	1.44	0.09
				1.00			Ice	1.98	1.60	0.11
							1" Ice	2.34	1.92	0.16
							2" Ice			
RRUS 11 B2	A	From Leg	4.00		0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00				1/2"	3.04	1.33	0.07
				1.00			Ice	3.26	1.48	0.10
							1" Ice	3.71	1.83	0.15
							2" Ice			
RRUS 11 B2	B	From Leg	4.00		0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00				1/2"	3.04	1.33	0.07
				1.00			Ice	3.26	1.48	0.10
							1" Ice	3.71	1.83	0.15
							2" Ice			
RRUS 11 B2	C	From Leg	4.00		0.0000	144.00	No Ice	2.83	1.18	0.05
			0.00				1/2"	3.04	1.33	0.07
				1.00			Ice	3.26	1.48	0.10
							1" Ice	3.71	1.83	0.15
							2" Ice			
***										
Platform Mount [LP 303-1]	C	None			0.0000	134.00	No Ice	14.66	14.66	1.25
							1/2"	18.87	18.87	1.48
							Ice	23.08	23.08	1.71
							1" Ice	31.50	31.50	2.18
							2" Ice			
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00		0.0000	134.00	No Ice	3.30	4.80	0.03
			0.00				1/2"	3.67	5.42	0.07
				1.00			Ice	4.03	6.04	0.12
							1" Ice	4.80	7.34	0.23
							2" Ice			
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00		0.0000	134.00	No Ice	3.30	4.80	0.03
			0.00				1/2"	3.67	5.42	0.07
				1.00			Ice	4.03	6.04	0.12
							1" Ice	4.80	7.34	0.23
							2" Ice			
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.00		0.0000	134.00	No Ice	3.30	4.80	0.03
			0.00				1/2"	3.67	5.42	0.07
				1.00			Ice	4.03	6.04	0.12
							1" Ice	4.80	7.34	0.23
							2" Ice			
*****										

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft^2	Weight K
***											

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
A-ANT-23G-2-C	A	Paraboloid w/Shroud (HP)	From Leg	4.00 2.00 2.00	0.0000		164.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.01 0.03 0.05 0.09
A-ANT-23G-2-C	B	Paraboloid w/Shroud (HP)	From Leg	4.00 -2.00 2.00	40.0000		164.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.01 0.03 0.05 0.09
A-ANT-23G-2-C	C	Paraboloid w/Shroud (HP)	From Leg	4.00 2.00 2.00	20.0000		164.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	0.01 0.03 0.05 0.09
***											

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

Comb. No.	Description
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	194.789 - 157.422	Pole	Max Tension	8	0.00	0.00	-0.00
			Max. Compression	26	-27.43	-0.27	2.23
			Max. Mx	8	-12.19	-240.43	1.22
			Max. My	2	-12.19	0.02	242.05
			Max. Vy	8	16.03	-240.43	1.22
			Max. Vx	2	-16.09	0.02	242.05
			Max. Torque	23			-1.89
L2	157.422 - 116.857	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.93	-2.35	2.56
			Max. Mx	8	-27.94	-1215.60	1.59
			Max. My	2	-27.95	-0.59	1213.61
			Max. Vy	8	30.90	-1215.60	1.59
			Max. Vx	2	-30.79	-0.59	1213.61
			Max. Torque	23			-1.75
L3	116.857 - 80.8672	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.36	-4.55	4.13
			Max. Mx	8	-39.53	-2364.07	2.30
			Max. My	2	-39.54	-1.58	2357.73
			Max. Vy	8	34.59	-2364.07	2.30
			Max. Vx	2	-34.47	-1.58	2357.73
			Max. Torque	23			-1.45
L4	80.8672 - 39.8125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.99	-7.17	5.95
			Max. Mx	8	-58.31	-3832.48	3.19
			Max. My	2	-58.32	-2.85	3821.12
			Max. Vy	8	38.73	-3832.48	3.19
			Max. Vx	2	-38.62	-2.85	3821.12
			Max. Torque	23			-1.45
L5	39.8125 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-130.13	-10.50	8.18
			Max. Mx	8	-84.80	-5782.15	4.26
			Max. My	2	-84.80	-4.41	5764.84
			Max. Vy	8	42.65	-5782.15	4.26
			Max. Vx	14	42.54	1.03	-5758.17
			Max. Torque	23			-1.44

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	29	130.13	-9.43	5.44
	Max. H_x	20	84.82	42.57	0.06
	Max. H_z	2	84.82	-0.01	42.50
	Max. M_x	2	5764.84	-0.01	42.50
	Max. M_z	8	5782.15	-42.61	0.01
	Max. Torsion	13	1.29	-21.31	-36.79
	Min. Vert	13	63.62	-21.31	-36.79
	Min. H_x	8	84.82	-42.61	0.01

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_z	14	84.82	0.03	-42.50
	Min. M_x	14	-5758.17	0.03	-42.50
	Min. M_z	20	-5767.10	42.57	0.06
	Min. Torsion	23	-1.44	36.86	21.29

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	70.69	0.00	0.00	-2.73	-2.93	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	84.82	0.01	-42.50	-5764.84	-4.41	1.33
0.9 Dead+1.0 Wind 0 deg - No Ice	63.62	0.01	-42.50	-5700.45	-3.46	1.33
1.2 Dead+1.0 Wind 30 deg - No Ice	84.82	21.30	-36.83	-4997.17	-2890.81	1.33
0.9 Dead+1.0 Wind 30 deg - No Ice	63.62	21.30	-36.83	-4941.20	-2858.05	1.32
1.2 Dead+1.0 Wind 60 deg - No Ice	84.82	36.89	-21.29	-2890.71	-5005.90	0.47
0.9 Dead+1.0 Wind 60 deg - No Ice	63.62	36.89	-21.29	-2857.97	-4949.82	0.46
1.2 Dead+1.0 Wind 90 deg - No Ice	84.82	42.61	-0.01	-4.26	-5782.15	-0.56
0.9 Dead+1.0 Wind 90 deg - No Ice	63.62	42.61	-0.01	-3.35	-5717.52	-0.57
1.2 Dead+1.0 Wind 120 deg - No Ice	84.82	36.87	21.30	2885.38	-5002.40	-1.21
0.9 Dead+1.0 Wind 120 deg - No Ice	63.62	36.87	21.30	2854.42	-4946.35	-1.21
1.2 Dead+1.0 Wind 150 deg - No Ice	84.82	21.31	36.79	4983.76	-2893.60	-1.28
0.9 Dead+1.0 Wind 150 deg - No Ice	63.62	21.31	36.79	4929.68	-2860.79	-1.29
1.2 Dead+1.0 Wind 180 deg - No Ice	84.82	-0.03	42.50	5758.17	1.03	-1.17
0.9 Dead+1.0 Wind 180 deg - No Ice	63.62	-0.03	42.50	5695.57	1.91	-1.17
1.2 Dead+1.0 Wind 210 deg - No Ice	84.82	-21.28	36.83	4990.61	2881.17	-1.21
0.9 Dead+1.0 Wind 210 deg - No Ice	63.62	-21.28	36.83	4936.45	2850.32	-1.21
1.2 Dead+1.0 Wind 240 deg - No Ice	84.82	-36.83	21.33	2890.53	4988.63	-0.73
0.9 Dead+1.0 Wind 240 deg - No Ice	63.62	-36.83	21.33	2859.51	4934.55	-0.72
1.2 Dead+1.0 Wind 270 deg - No Ice	84.82	-42.57	-0.06	-14.48	5767.10	0.78
0.9 Dead+1.0 Wind 270 deg - No Ice	63.62	-42.57	-0.06	-13.45	5704.45	0.79
1.2 Dead+1.0 Wind 300 deg - No Ice	84.82	-36.86	-21.29	-2890.71	4994.11	1.44
0.9 Dead+1.0 Wind 300 deg - No Ice	63.62	-36.86	-21.29	-2857.97	4939.96	1.44
1.2 Dead+1.0 Wind 330 deg - No Ice	84.82	-21.29	-36.80	-4992.76	2883.70	1.34
0.9 Dead+1.0 Wind 330 deg - No Ice	63.62	-21.29	-36.80	-4936.85	2852.81	1.34
1.2 Dead+1.0 Ice+1.0 Temp	130.13	0.00	-0.00	-8.18	-10.50	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	130.13	0.00	-10.86	-1512.21	-10.92	0.26
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	130.13	5.44	-9.41	-1311.57	-763.98	0.22
1.2 Dead+1.0 Wind 60	130.13	9.43	-5.44	-761.62	-1315.72	0.03

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	130.13	10.89	-0.00	-8.55	-1518.13	-0.19
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	130.13	9.42	5.44	745.17	-1315.06	-0.30
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	130.13	5.44	9.41	1293.40	-764.68	-0.29
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	130.13	-0.01	10.86	1495.36	-9.94	-0.23
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	130.13	-5.44	9.41	1294.75	741.84	-0.20
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	130.13	-9.41	5.45	746.11	1292.00	-0.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	130.13	-10.88	-0.01	-10.80	1494.86	0.23
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	130.13	-9.42	-5.44	-761.74	1293.20	0.35
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	130.13	-5.44	-9.41	-1310.73	742.48	0.30
Dead+Wind 0 deg - Service	70.69	0.00	-9.22	-1245.04	-3.20	0.29
Dead+Wind 30 deg - Service	70.69	4.62	-7.99	-1079.52	-625.52	0.29
Dead+Wind 60 deg - Service	70.69	8.01	-4.62	-625.36	-1081.54	0.10
Dead+Wind 90 deg - Service	70.69	9.25	-0.00	-3.03	-1248.91	-0.12
Dead+Wind 120 deg - Service	70.69	8.00	4.62	619.98	-1080.78	-0.27
Dead+Wind 150 deg - Service	70.69	4.62	7.98	1072.40	-626.11	-0.28
Dead+Wind 180 deg - Service	70.69	-0.01	9.22	1239.37	-2.02	-0.26
Dead+Wind 210 deg - Service	70.69	-4.62	7.99	1073.88	618.95	-0.26
Dead+Wind 240 deg - Service	70.69	-7.99	4.63	621.09	1073.33	-0.16
Dead+Wind 270 deg - Service	70.69	-9.24	-0.01	-5.24	1241.17	0.17
Dead+Wind 300 deg - Service	70.69	-8.00	-4.62	-625.37	1074.51	0.32
Dead+Wind 330 deg - Service	70.69	-4.62	-7.99	-1078.57	619.49	0.29

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-70.69	0.00	0.00	70.69	0.00	0.000%
2	0.01	-84.82	-42.50	-0.01	84.82	42.50	0.000%
3	0.01	-63.62	-42.50	-0.01	63.62	42.50	0.000%
4	21.30	-84.82	-36.83	-21.30	84.82	36.83	0.000%
5	21.30	-63.62	-36.83	-21.30	63.62	36.83	0.000%
6	36.89	-84.82	-21.29	-36.89	84.82	21.29	0.000%
7	36.89	-63.62	-21.29	-36.89	63.62	21.29	0.000%
8	42.61	-84.82	-0.01	-42.61	84.82	0.01	0.000%
9	42.61	-63.62	-0.01	-42.61	63.62	0.01	0.000%
10	36.87	-84.82	21.30	-36.87	84.82	-21.30	0.000%
11	36.87	-63.62	21.30	-36.87	63.62	-21.30	0.000%
12	21.31	-84.82	36.79	-21.31	84.82	-36.79	0.000%
13	21.31	-63.62	36.79	-21.31	63.62	-36.79	0.000%
14	-0.03	-84.82	42.50	0.03	84.82	-42.50	0.000%
15	-0.03	-63.62	42.50	0.03	63.62	-42.50	0.000%
16	-21.28	-84.82	36.83	21.28	84.82	-36.83	0.000%
17	-21.28	-63.62	36.83	21.28	63.62	-36.83	0.000%
18	-36.83	-84.82	21.33	36.83	84.82	-21.33	0.000%
19	-36.83	-63.62	21.33	36.83	63.62	-21.33	0.000%
20	-42.57	-84.82	-0.06	42.57	84.82	0.06	0.000%
21	-42.57	-63.62	-0.06	42.57	63.62	0.06	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
22	-36.86	-84.82	-21.29	36.86	84.82	21.29	0.000%
23	-36.86	-63.62	-21.29	36.86	63.62	21.29	0.000%
24	-21.29	-84.82	-36.80	21.29	84.82	36.80	0.000%
25	-21.29	-63.62	-36.80	21.29	63.62	36.80	0.000%
26	0.00	-130.13	0.00	-0.00	130.13	0.00	0.000%
27	0.00	-130.13	-10.86	-0.00	130.13	10.86	0.000%
28	5.44	-130.13	-9.41	-5.44	130.13	9.41	0.000%
29	9.42	-130.13	-5.44	-9.43	130.13	5.44	0.000%
30	10.89	-130.13	-0.00	-10.89	130.13	0.00	0.000%
31	9.42	-130.13	5.44	-9.42	130.13	-5.44	0.000%
32	5.44	-130.13	9.41	-5.44	130.13	-9.41	0.000%
33	-0.01	-130.13	10.86	0.01	130.13	-10.86	0.000%
34	-5.44	-130.13	9.41	5.44	130.13	-9.41	0.000%
35	-9.41	-130.13	5.45	9.41	130.13	-5.45	0.000%
36	-10.88	-130.13	-0.01	10.88	130.13	0.01	0.000%
37	-9.42	-130.13	-5.44	9.42	130.13	5.44	0.000%
38	-5.44	-130.13	-9.41	5.44	130.13	9.41	0.000%
39	0.00	-70.69	-9.22	-0.00	70.69	9.22	0.000%
40	4.62	-70.69	-7.99	-4.62	70.69	7.99	0.000%
41	8.01	-70.69	-4.62	-8.01	70.69	4.62	0.000%
42	9.25	-70.69	-0.00	-9.25	70.69	0.00	0.000%
43	8.00	-70.69	4.62	-8.00	70.69	-4.62	0.000%
44	4.62	-70.69	7.98	-4.62	70.69	-7.98	0.000%
45	-0.01	-70.69	9.22	0.01	70.69	-9.22	0.000%
46	-4.62	-70.69	7.99	4.62	70.69	-7.99	0.000%
47	-7.99	-70.69	4.63	7.99	70.69	-4.63	0.000%
48	-9.24	-70.69	-0.01	9.24	70.69	0.01	0.000%
49	-8.00	-70.69	-4.62	8.00	70.69	4.62	0.000%
50	-4.62	-70.69	-7.99	4.62	70.69	7.99	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00082923
3	Yes	4	0.00000001	0.00050404
4	Yes	6	0.00000001	0.00006337
5	Yes	5	0.00000001	0.00057911
6	Yes	6	0.00000001	0.00006222
7	Yes	5	0.00000001	0.00056833
8	Yes	4	0.00000001	0.00059281
9	Yes	4	0.00000001	0.00032779
10	Yes	6	0.00000001	0.00006138
11	Yes	5	0.00000001	0.00056082
12	Yes	6	0.00000001	0.00006319
13	Yes	5	0.00000001	0.00057793
14	Yes	4	0.00000001	0.00071639
15	Yes	4	0.00000001	0.00042240
16	Yes	6	0.00000001	0.00006118
17	Yes	5	0.00000001	0.00055950
18	Yes	6	0.00000001	0.00006267
19	Yes	5	0.00000001	0.00057321
20	Yes	4	0.00000001	0.00075550
21	Yes	4	0.00000001	0.00045035
22	Yes	6	0.00000001	0.00006348
23	Yes	5	0.00000001	0.00058049
24	Yes	6	0.00000001	0.00006120
25	Yes	5	0.00000001	0.00055921
26	Yes	4	0.00000001	0.00003572
27	Yes	5	0.00000001	0.00050099
28	Yes	5	0.00000001	0.00059808
29	Yes	5	0.00000001	0.00059792
30	Yes	5	0.00000001	0.00050232
31	Yes	5	0.00000001	0.00058914

32	Yes	5	0.00000001	0.00059026
33	Yes	5	0.00000001	0.00049421
34	Yes	5	0.00000001	0.00058043
35	Yes	5	0.00000001	0.00058183
36	Yes	5	0.00000001	0.00049461
37	Yes	5	0.00000001	0.00059073
38	Yes	5	0.00000001	0.00058781
39	Yes	4	0.00000001	0.00008118
40	Yes	4	0.00000001	0.00033180
41	Yes	4	0.00000001	0.00031390
42	Yes	4	0.00000001	0.00007599
43	Yes	4	0.00000001	0.00030074
44	Yes	4	0.00000001	0.00032776
45	Yes	4	0.00000001	0.00007873
46	Yes	4	0.00000001	0.00029857
47	Yes	4	0.00000001	0.00031756
48	Yes	4	0.00000001	0.00007753
49	Yes	4	0.00000001	0.00033257
50	Yes	4	0.00000001	0.00030051

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	194.789 - 157.422	24.147	41	1.0644	0.0018
L2	162.156 - 116.857	16.977	41	1.0085	0.0013
L3	122.721 - 80.8672	9.476	41	0.7676	0.0005
L4	87.711 - 39.8125	4.723	41	0.5065	0.0003
L5	47.7683 - 0	1.422	41	0.2685	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	Platform Mount [LP 601-1]	41	21.959	1.0561	0.0016	51251
175.00	Platform Mount [LP 601-1]	41	19.747	1.0424	0.0015	25352
166.00	A-ANT-23G-2-C	41	17.795	1.0211	0.0013	17427
164.00	Platform Mount [LP 602-1]	41	17.368	1.0149	0.0013	16300
154.00	Platform Mount [LP 601-1]	41	15.281	0.9734	0.0011	12431
144.00	Platform Mount [LP 601-1]	41	13.290	0.9174	0.0009	10068
134.00	Platform Mount [LP 303-1]	41	11.417	0.8507	0.0007	8455

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	194.789 - 157.422	111.780	8	4.9230	0.0080
L2	162.156 - 116.857	78.627	8	4.6724	0.0057
L3	122.721 - 80.8672	43.896	8	3.5577	0.0024
L4	87.711 - 39.8125	21.879	8	2.3472	0.0011
L5	47.7683 - 0	6.586	8	1.2439	0.0005

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	Platform Mount [LP 601-1]	8	101.665	4.8880	0.0074	11437
175.00	Platform Mount [LP 601-1]	8	91.437	4.8274	0.0067	5656
166.00	A-ANT-23G-2-C	8	82.410	4.7307	0.0060	3886
164.00	Platform Mount [LP 602-1]	8	80.435	4.7018	0.0058	3633
154.00	Platform Mount [LP 601-1]	8	70.778	4.5104	0.0050	2747
144.00	Platform Mount [LP 601-1]	8	61.558	4.2514	0.0041	2209
134.00	Platform Mount [LP 303-1]	8	52.886	3.9426	0.0032	1845

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	194.789 - 157.422 (1)	TP33.875x25x0.25	37.37	0.00	0.0	25.7892	-12.19	1508.67	0.008
L2	157.422 - 116.857 (2)	TP42.9063x32.2505x0.3125	45.30	0.00	0.0	40.8794	-27.94	2391.44	0.012
L3	116.857 - 80.8672 (3)	TP50.75x40.9017x0.375	41.85	0.00	0.0	58.0421	-39.53	3395.47	0.012
L4	80.8672 - 39.8125 (4)	TP59.6563x48.3897x0.5	47.90	0.00	0.0	90.9112	-58.31	5318.30	0.011
L5	39.8125 - 0 (5)	TP68x56.7849x0.5	47.77	0.00	0.0	107.1220	-84.80	6266.67	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	194.789 - 157.422 (1)	TP33.875x25x0.25	242.05	1168.50	0.207	0.00	1168.50	0.000
L2	157.422 - 116.857 (2)	TP42.9063x32.2505x0.3125	1215.81	2336.93	0.520	0.00	2336.93	0.000
L3	116.857 - 80.8672 (3)	TP50.75x40.9017x0.375	2364.07	3945.55	0.599	0.00	3945.55	0.000
L4	80.8672 - 39.8125 (4)	TP59.6563x48.3897x0.5	3832.48	7560.55	0.507	0.00	7560.55	0.000
L5	39.8125 - 0 (5)	TP68x56.7849x0.5	5782.15	9944.92	0.581	0.00	9944.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	194.789 - 157.422 (1)	TP33.875x25x0.25	16.09	446.92	0.036	0.99	1288.21	0.001
L2	157.422 - 116.857 (2)	TP42.9063x32.2505x0.3125	30.88	717.43	0.043	0.47	2589.46	0.000
L3	116.857 - 80.8672 (3)	TP50.75x40.9017x0.375	34.59	1018.64	0.034	0.56	4350.17	0.000
L4	80.8672 - 39.8125 (4)	TP59.6563x48.3897x0.5	38.73	1595.49	0.024	0.56	8004.14	0.000
L5	39.8125 - 0 (5)	TP68x56.7849x0.5	42.65	1880.00	0.023	0.56	11113.25	0.000

Pole Interaction Design Data

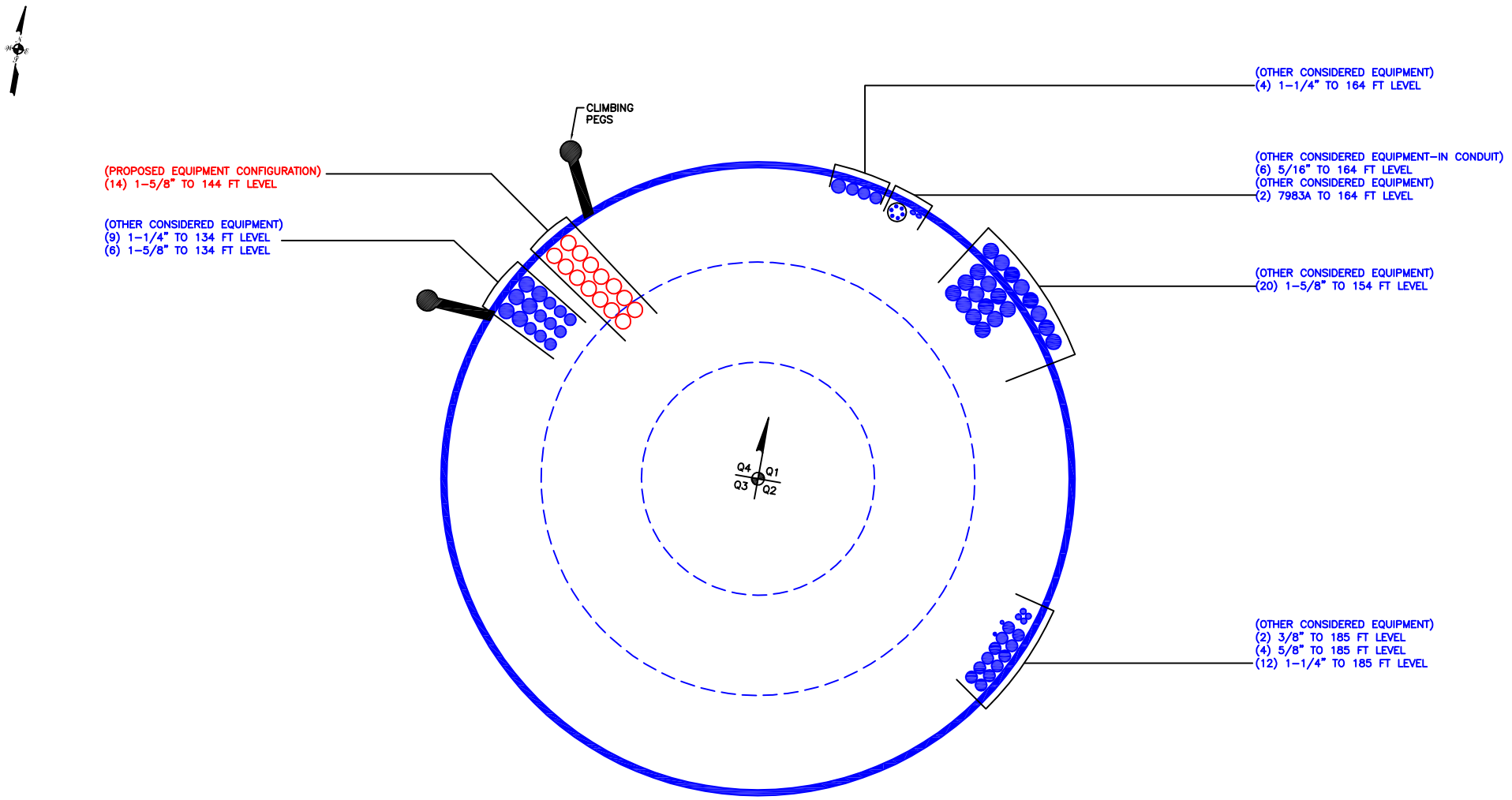
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	194.789 - 157.422 (1)	0.008	0.207	0.000	0.036	0.001	0.217	1.050	4.8.2
L2	157.422 - 116.857 (2)	0.012	0.520	0.000	0.043	0.000	0.534	1.050	4.8.2
L3	116.857 - 80.8672 (3)	0.012	0.599	0.000	0.034	0.000	0.612	1.050	4.8.2
L4	80.8672 - 39.8125 (4)	0.011	0.507	0.000	0.024	0.000	0.518	1.050	4.8.2
L5	39.8125 - 0 (5)	0.014	0.581	0.000	0.023	0.000	0.595	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	194.789 - 157.422	Pole	TP33.875x25x0.25	1	-12.19	1584.10	20.6	Pass
L2	157.422 - 116.857	Pole	TP42.9063x32.2505x0.3125	2	-27.94	2511.01	50.8	Pass
L3	116.857 - 80.8672	Pole	TP50.75x40.9017x0.375	3	-39.53	3565.24	58.3	Pass
L4	80.8672 - 39.8125	Pole	TP59.6563x48.3897x0.5	4	-58.31	5584.21	49.4	Pass
L5	39.8125 - 0	Pole	TP68x56.7849x0.5	5	-84.80	6580.00	56.7	Pass
							Summary	
						Pole (L3)	58.3	Pass
						RATING =	**58.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 881535 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

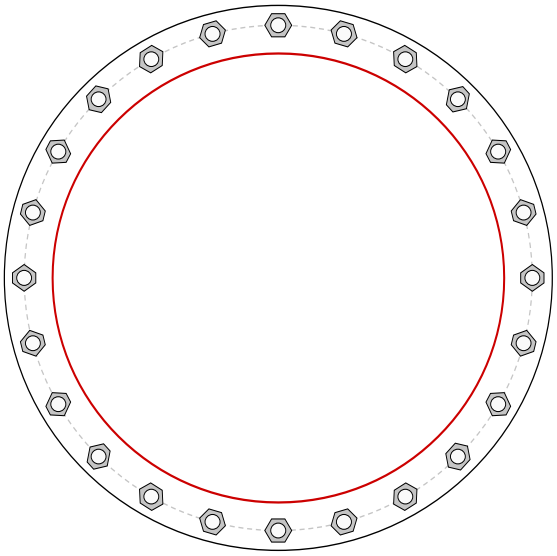
Monopole Base Plate Connection

Site Info	
BU #	881535
Site Name	TRUMBULL TOWER
Order #	479844 Rev.0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	5782.15
Axial Force (kips)	84.80
Shear Force (kips)	42.65

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(24) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 76.5" BC

Base Plate Data

82.5" OD x 2.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

68" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_c = 154.65	ϕPn_c = 243.75	**Stress Rating**
Vu = 1.78	ϕVn = 73.13	**60.5%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	28.97	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**51.1%**	**Pass**

Pier and Pad Foundation

BU # :	881535
Site Name:	TRUMBULL TOWE
App. Number:	479844 Rev.0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	84.8	kips
Base Shear, Vu_comp:	42.65	kips
Moment, M_u:	5782.15	ft-kips
Tower Height, **H**:	195	ft
BP Dist. Above Fdn, bp_{dist}:	6.5	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	9	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	54	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7	ft
Pad Width, **W**:	29	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top), Sp_{top}:	8	
Pad Top Rebar Quantity (Top), mp_{top}:	30	
Pad Rebar Size (Bottom), **Sp**:	8	
Pad Rebar Quantity (Bottom), **mp**:	55	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	34	degrees
SPT Blow Count, N_{blows}:	60	
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	15	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	524.67	42.65	**7.7%**	**Pass**
Bearing Pressure (ksf)	9.00	2.37	**26.3%**	**Pass**
*Overturning (kip*ft)*	11217.49	6146.45	**54.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	9304.84	5995.40	**61.4%**	**Pass**
Pier Compression (kip)	51554.88	157.70	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	5943.63	2034.81	**32.6%**	**Pass**
Pad Shear - 1-way (kips)	1039.95	290.16	**26.6%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.043	**21.5%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	5714.52	3597.24	**60.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**54.8%**
Structural Rating*:	**61.4%**

Version 3.2.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	322.51 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.273281
Soil Class:	D - Stiff Soil	**Longitude:**	-73.213106

Wind

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

Date Accessed: Thu Jun 06 2019

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

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

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

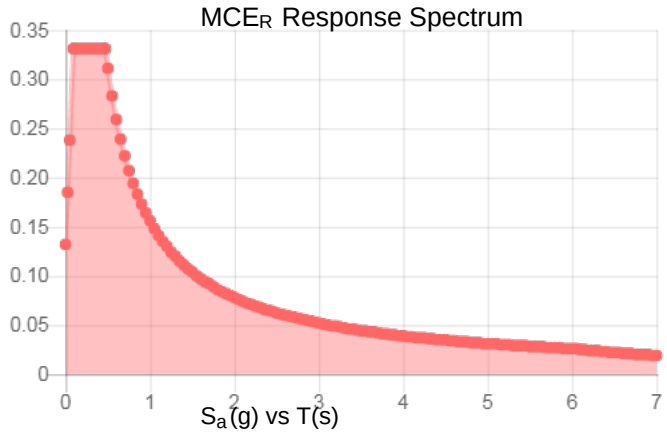
Seismic

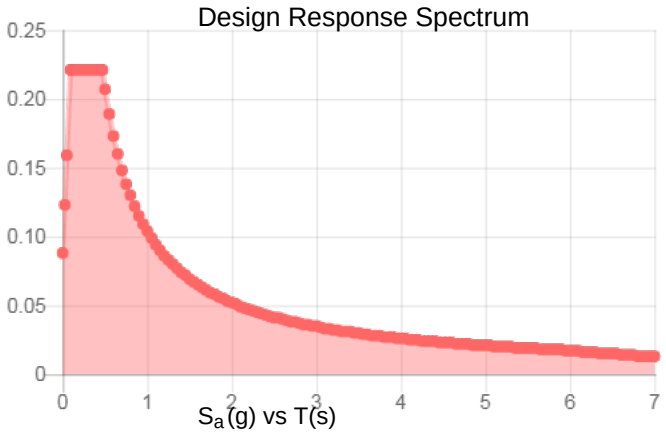
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.207	S_{DS} :	0.221
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.112
S_{MS} :	0.331	PGA_M :	0.176
S_{M1} :	0.156	F_{PGA} :	1.577
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jun 06 2019

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Jun 06 2019

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

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

Exhibit E

Mount Analysis

Date: **June 3, 2019**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 244-5207

Subject:	**Mount Analysis**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11961A
	Carrier Site Name:	CT961 / Indian Ledge Prk
Crown Castle Designation:	**Crown Castle BU Number:**	881535
	Crown Castle Site Name:	Trumbull Tower
	Crown Castle JDE Number:	559346
	Crown Castle Order Number:	479844 Revision 0
Engineering Firm Designation:	**MasTec Network Solutions Project Number:**	18991-MNT1
Site Data:	**425 Indian Ledge Park Rd, Trumbull, Fairfield County, CT 06611** **Latitude: 41° 16' 23.81" Longitude: -73° 12' 47.18"**	
Structure Information	**Tower Height & Type:**	195 ft Monopole
	Mount Elevation:	144 ft
	Mount Width & Type:	12.1 ft Platform Mount

Dear Charles McGuirt,

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

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:

Platform Mount **Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 121 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Arienna Wilson-Muller

Respectfully Submitted by:

Raphael Mohamed, PE, PEng
Senior Director of Engineering
CT PE License No. 25112

TABLE OF CONTENTS

1) INTRODUCTION

This is a 12.1 ft Platform Mount mapped by P-Sec.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category	II
an ultimate:	121 mph
Exposure Category:	B
Topographic Category:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.207
Seismic S1:	0.065
Live Loading Wind Speed:	30 mph
Live Loading at Mid/End-Points:	250 lb
Man Live Loading at Mount Pipes	500 lb

Table 1 - Proposed Loading Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
144.0	145.0	3	ericsson	AIR 21 B4A B2P	(1) 12.1' PLATFORM
		3	rfs/celwave	APXVAARR24_43-U-NA20	
		3	ericsson	KRY 112 144/1	
		3	ericsson	RADIO 4449 B12/B71	
		3	ericsson	RRUS 11 B2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-ORDER INFORMATION	CROWN CASTLE	ORDER NO. 479844, REV. 0	CCIsites
4-MOUNT MAPPING	P-SEC	PROJECT# 19651-19	On File

3.1) Analysis Method

RISA-3D (Version No. 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

3.2) Assumptions

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

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR B-35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Horizontal	--	144	38.2	Pass
1	Standoff	--	144	18.5	Pass
1	Mount Pipe	--	144	75.3	Pass
1	Welded Connection	--	144	17.8	Pass

Structure Rating (max from all components) =	75.3%

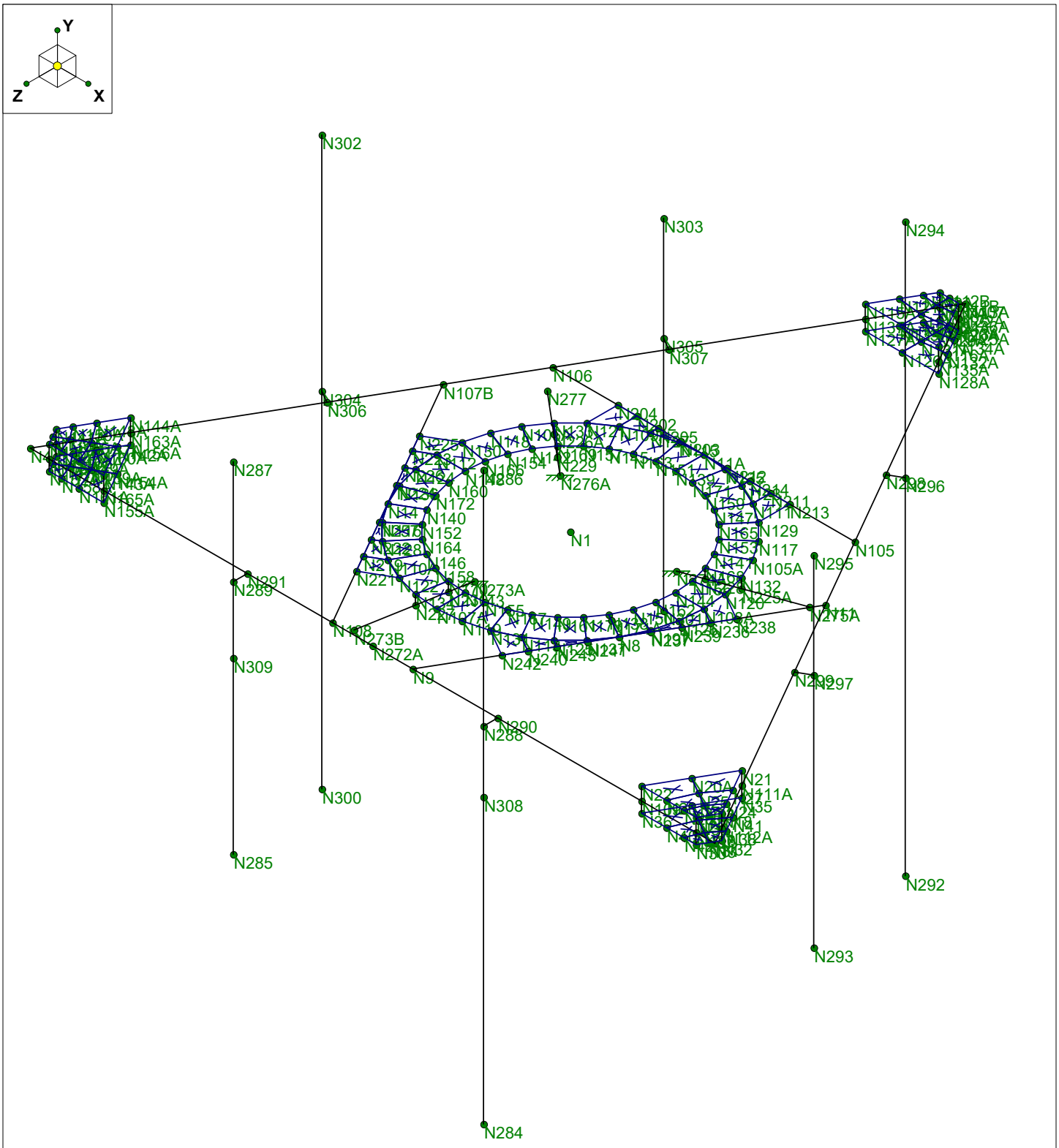
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.

4.1) Recommendations

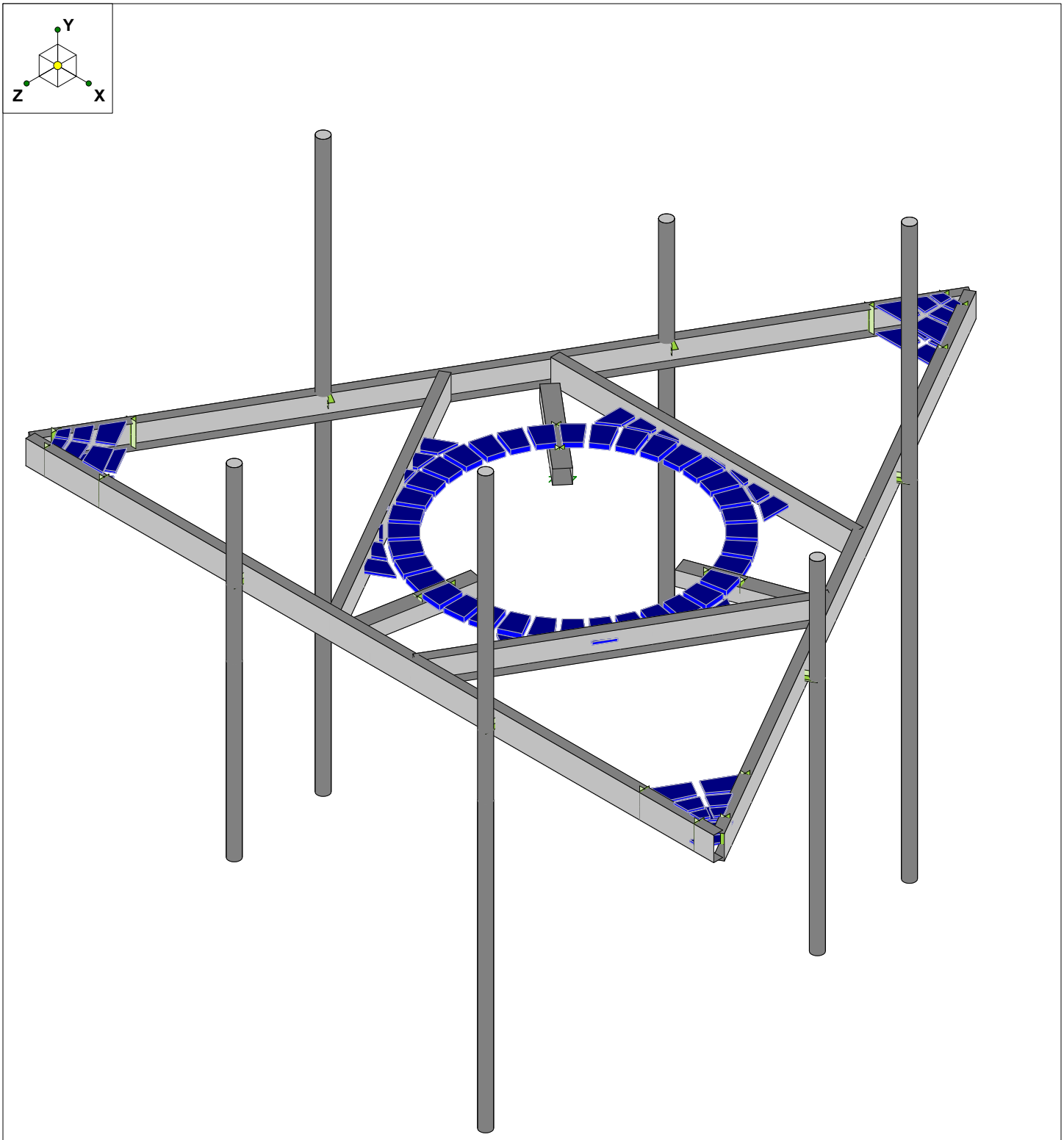
The existing mount has sufficient capacity for the proposed load configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



MasTec	881535 - Trumbell Tower	Joint Labels
ALWM		June 3, 2019 at 5:58 PM
18991-MNT1		881535.r3d



MasTec	881535 - Trumbell Tower	Rendered View
ALWM		June 3, 2019 at 6:01 PM
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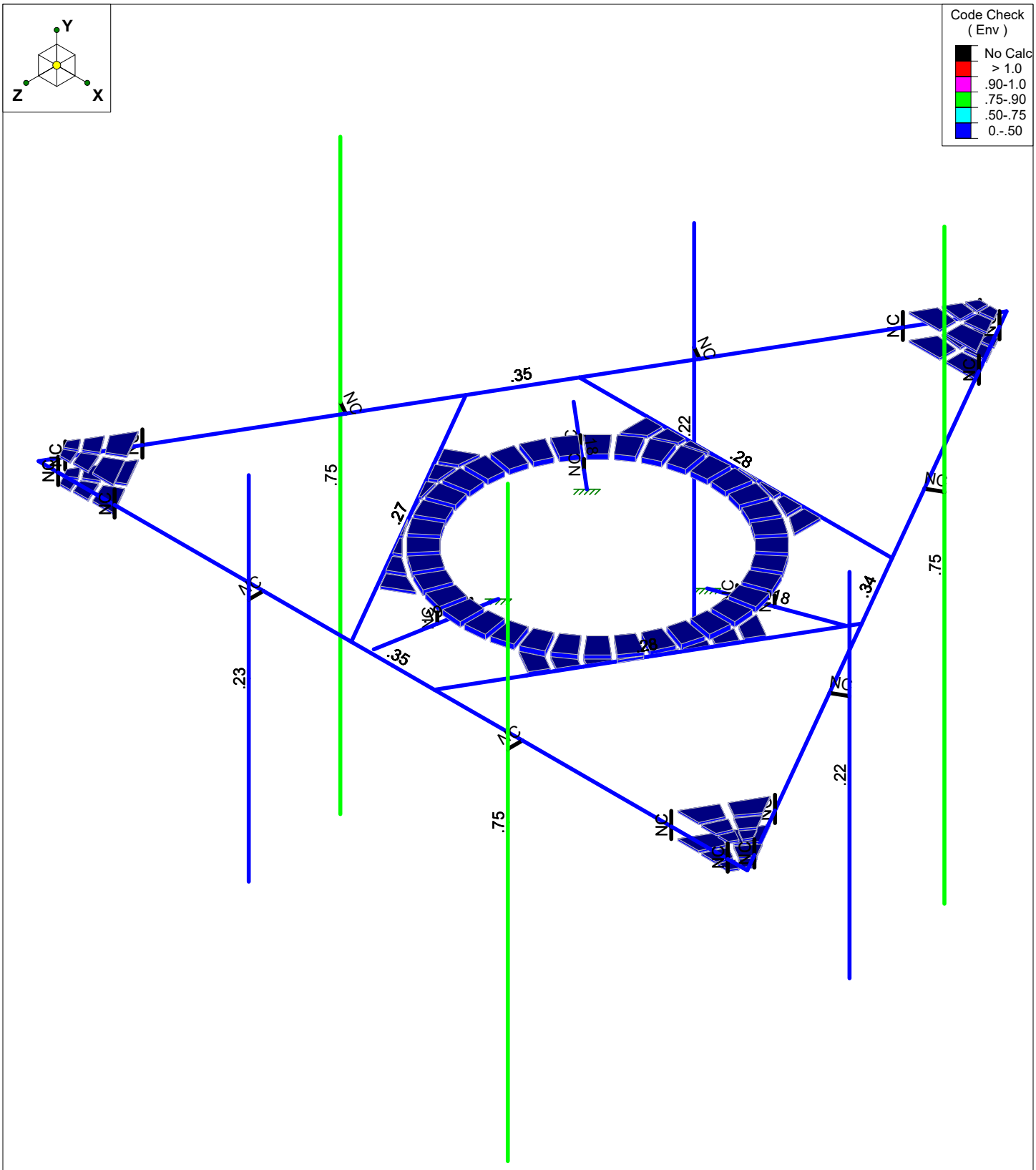
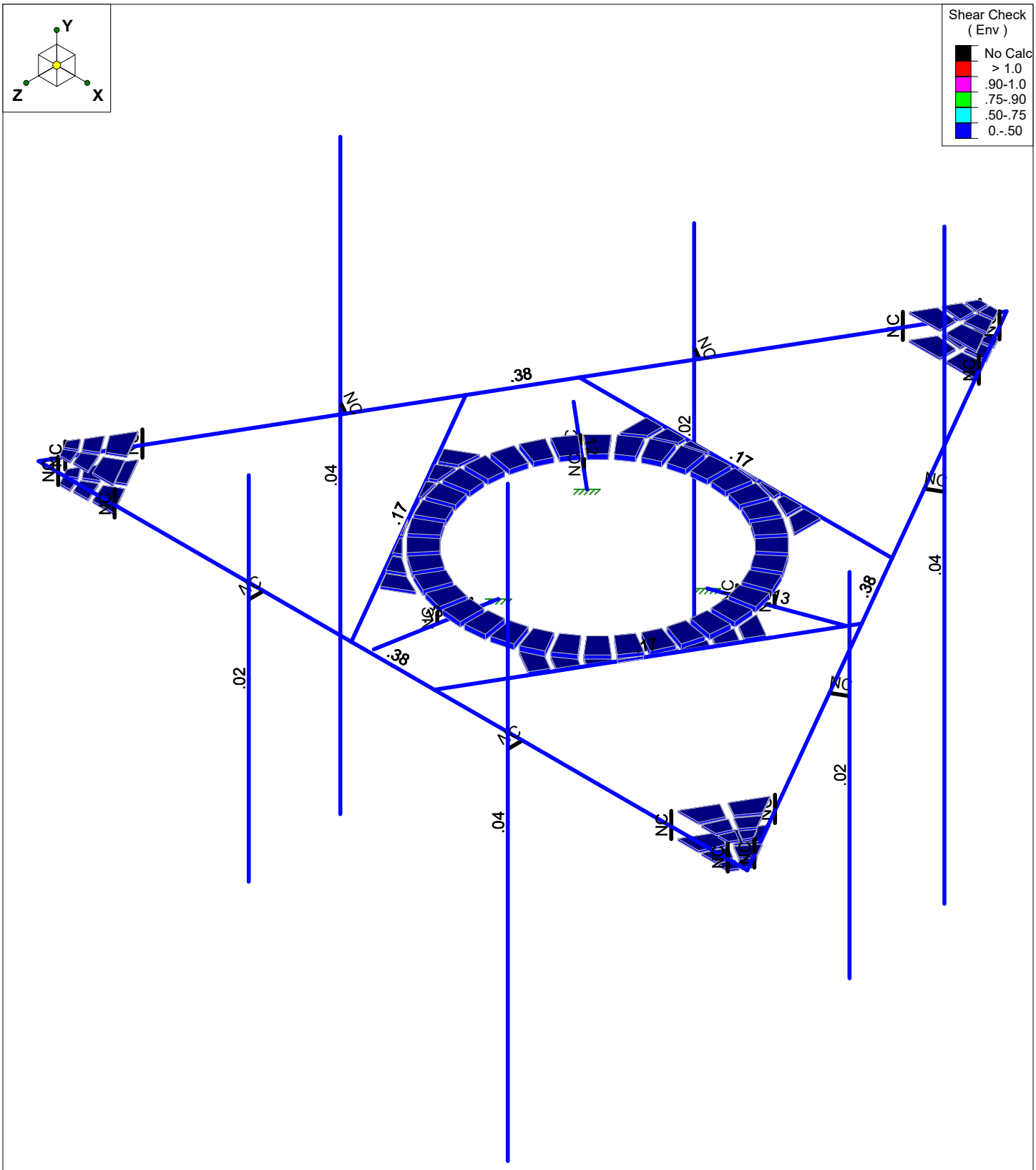


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

MasTec	881535 - Trumbell Tower	Unity Bending Capacity
ALWM		June 3, 2019 at 6:03 PM
18991-MNT1		881535.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

MasTec	881535 - Trumbell Tower	Shear Capacity
ALWM		June 3, 2019 at 6:03 PM
18991-MNT1		881535.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec Network Solutions

Mount Analysis Tool

Site Name	Trumbull Tower		
Site ID	881535		
Job Number	18991-MNT1	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	75.3%	PASS

Analysis Parameters		
Mount Height	147	ft
Exposure Category	B	(B,C, or D)
Ultimate Wind Speed	121	mph
Ice Wind Speed	50	mph
Design Ice Thickness, t_i	1.5	in
Maintenance Wind Speed	30	mph
Run Earthquake Analysis?	Yes	
Ground Elevation	322.51	ft, Google Earth
S_1	0.065	USGS
S_{DS}	0.221	2.7.5
Vertical Seismic Loads, E_v	0.044	2.7.6
Seismic Response Coefficient, C_s	0.111	2.7.7.1.1
C_s Min	0.030	2.7.7.1.1

Wind Parameters					
Gust Effect Factor, G_h	1.000	2.6.9	K_s	1.000	2.6.7
K_z	1.103	2.6.5.2	K_e	0.988	2.6.8
K_{zt}	1.000	2.6.6	K_a	0.900	16.6
K_d	0.950	Table 2-2	*Note for Rooftop Structures greater than 50', unobstructed for 90 deg and protruding 50' above surrounding buildings Ks must be calculated.		
q_z	35.053	psf, 2.6.11.6			
C/D	127.092	Table 2-9			
t_{iz}	1.742	in, 2.6.10			
q_{iz}	5.985	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D_{iz}	52.517	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	2.173	psf, 2.6.9.6	$K_{es\ (Wind)}$	1.000	Table S-1
$C/D_{Maintenance}$	31.510	Table 2-9	$K_{es\ (ice)}$	1.000	Table S-1
Ice Dead, Grating	0.016255801	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
A1	145.92	120	2.375
A2	145.83	72	2.375
B1	145.92	120	2.375
B2	145.83	72	2.375
C1	145.92	120	2.375
C2	145.83	72	2.375

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
Ericsson AIR 21 B4A B2P	Antenna	55.9	12.1	7.87	91.5
RFS/Celwave APXVAARR24_43-U-N	Antenna	95.9	24	8.7	128
Ericsson KRY 112 144/1	RRU, TMA, Etc.	7	6	3	11
Ericsson Radio 4449 B12/B71	RRU, TMA, Etc.	14.95	13.19	9.25	75
Ericsson RRUS 11 B2	RRU, TMA, Etc.	20	17	7	50.7

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
A1	Celwave APXVAARR24_43-U-N	148	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.710	0.312	0.0%	69.2%
A1	Ericsson Radio 4449 B12/B71	148	1	0	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.040	23.0%	35.4%
A1	Ericsson KRY 112 144/1	145	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.006	56.3%	62.1%
A1																	
A1																	
A1																	
A2	Ericsson AIR 21 B4A B2P	148	1	0	100.0%	100.0%	Antenna	55.900	12.100	7.870	91.500	6.079	4.288	0.213	0.150	0.0%	52.7%
A2	Ericsson RRUS 11 B2	144	1	0	100.0%	100.0%	RRU, TMA, Etc.	20.000	17.000	7.000	50.700	2.833	1.182	0.099	0.041	66.6%	94.4%
A2																	
A2																	
A2																	
A2																	
B1	Celwave APXVAARR24_43-U-N	148	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.411	0.610	0.0%	69.2%
B1	Ericsson Radio 4449 B12/B71	148	1	120	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.053	23.0%	35.4%
B1	Ericsson KRY 112 144/1	145	1	120	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.011	56.3%	62.1%
B1																	
B1																	
B1																	
B2	Ericsson AIR 21 B4A B2P	148	1	120	100.0%	100.0%	Antenna	55.900	12.100	7.870	91.500	6.079	4.288	0.166	0.197	0.0%	52.7%
B2	Ericsson RRUS 11 B2	144	1	0	100.0%	100.0%	RRU, TMA, Etc.	20.000	17.000	7.000	50.700	2.833	1.182	0.099	0.041	66.6%	94.4%
B2																	
B2																	
B2																	
B2																	
C1	Celwave APXVAARR24_43-U-N	148	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.411	0.610	0.0%	69.2%
C1	Ericsson Radio 4449 B12/B71	148	1	240	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.053	23.0%	35.4%
C1	Ericsson KRY 112 144/1	145	1	240	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.011	56.3%	62.1%
C1																	
C1																	
C1																	
C2	Ericsson AIR 21 B4A B2P	148	1	240	100.0%	100.0%	Antenna	55.900	12.100	7.870	91.500	6.079	4.288	0.166	0.197	0.0%	52.7%
C2	Ericsson RRUS 11 B2	144	1	0	100.0%	100.0%	RRU, TMA, Etc.	20.000	17.000	7.000	50.700	2.833	1.182	0.099	0.041	66.6%	94.4%
C2																	
C2																	
C2																	
C2																	

Member	Section Set	Member Length (ft)	Flat/Round	Wind Projection (in)	D_c (in)	A_w (in^2)	C_f	Front Wind (klf)	Side Wind (klf)	Front Ice Wind (klf)	Side Ice Wind (klf)	Ice Dead (klf)	Front Maint Wind (klf)	Side Maint Wind (klf)
M1	Horizontal	12.0834	Flat	5.000	5.345	38.778	2.000	0.029	0.000	0.007	0.002	0.015	0.002	0.000
M4	Horizontal	5.333348125	Flat	5.000	5.345	38.778	2.000	0.007	0.022	0.002	0.004	0.015	0.000	0.001
M7	RIGID	0.4167	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M8	RIGID	0.410555	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M9	RIGID	0.4167	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M10	RIGID	0.410555	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M7A	Horizontal	12.08342	Flat	5.000	5.345	38.778	2.000	0.007	0.022	0.002	0.004	0.015	0.000	0.001
M10A	Horizontal	12.08344	Flat	5.000	5.345	38.778	2.000	0.007	0.022	0.002	0.004	0.015	0.000	0.001
M10B	Horizontal	5.333314	Flat	5.000	5.345	38.778	2.000	0.029	0.000	0.007	0.002	0.015	0.002	0.000
M11	Horizontal	5.333331135	Flat	5.000	5.345	38.778	2.000	0.007	0.022	0.002	0.004	0.015	0.000	0.001
M11A	RIGID	0.4167	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M12	RIGID	0.410555	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M13	RIGID	0.4167	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M14	RIGID	0.410555	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M15	RIGID	0.4167	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M16	RIGID	0.410555	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M17	RIGID	0.4167	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M18	RIGID	0.410555	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.005	0.005	0.004	0.000	0.000
M19	Standoff	1.833300107	Flat	4.000	5.657	40.483	2.000	0.001	0.022	0.000	0.004	0.016	0.000	0.001
M20	Standoff	1.833299178	Flat	4.000	5.657	40.483	2.000	0.021	0.002	0.006	0.003	0.016	0.001	0.000
M21	Standoff	1.833300345	Flat	4.000	5.657	40.483	2.000	0.013	0.010	0.004	0.003	0.016	0.001	0.001
A1	Mount Pipe	9.9997	Round	2.380	2.380	22.553	1.200	0.008	0.008	0.004	0.004	0.009	0.001	0.001
A2	Mount Pipe	6	Round	2.380	2.380	22.553	1.200	0.008	0.008	0.004	0.004	0.009	0.001	0.001
M24	RIGID	0.25	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000
M25	RIGID	0.25	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000
C1	Mount Pipe	9.9997	Round	2.380	2.380	22.553	1.200	0.008	0.008	0.004	0.004	0.009	0.001	0.001
C2	Mount Pipe	6	Round	2.380	2.380	22.553	1.200	0.008	0.008	0.004	0.004	0.009	0.001	0.001
M28	RIGID	0.249999696	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.003	0.003	0.004	0.000	0.000
M29	RIGID	0.249999696	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.003	0.003	0.004	0.000	0.000
B1	Mount Pipe	9.9997	Round	2.380	2.380	22.553	1.200	0.008	0.008	0.004	0.004	0.009	0.001	0.001
B2	Mount Pipe	6	Round	2.380	2.380	22.553	1.200	0.008	0.008	0.004	0.004	0.009	0.001	0.001
M32	RIGID	0.249999696	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.003	0.003	0.004	0.000	0.000
M33	RIGID	0.249999696	Flat	0.000	0.000	9.530	2.000	0.000	0.000	0.003	0.003	0.004	0.000	0.000

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horizontal	C5X9	Beam	Channel	A36 Gr.36	Typical	2.64	.624	8.89	.109
2	Standoff	HSS3X3X5	Beam	Tube	A500 Gr.B R...	Typical	2.94	3.45	3.45	5.94
3	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N3	6.0417	0	3.4882	0	
3	N4	-6.0417	0	3.4882	0	
4	N8	2.041702	0	1.1788	0	
5	N9	0.708369	0	3.4882	0	
6	N11	3.375043	0	-1.130615	0	
7	N11A	0.00002	0	-2.357566	0	
8	N14	-2.041722	0	1.178766	0	
9	N17	5.791765	0.230665	3.3439	0	
10	N18	5.875077	0.230665	3.199599	0	
11	N20	5.708453	0.230665	3.4882	0	
12	N20A	5.070106	0.230665	2.92725	0	
13	N21	5.393973	0.230665	2.366296	0	
14	N22	4.746241	0.230665	3.4882	0	
15	N23	5.599434	0.230665	3.232856	0	
16	N24	5.767576	0.230665	3.013401	0	
17	N25	5.358824	0.230665	3.09394	0	
18	N26	5.185972	0.230665	3.4882	0	
19	N27	5.613837	0.230665	2.747115	0	
20	N28	5.493451	0.230665	3.4882	0	
21	N31	5.791765	-0.186035	3.3439	0	
22	N32	5.875077	-0.186035	3.199599	0	
23	N33	5.708453	-0.186035	3.4882	0	
24	N34	5.070106	-0.186035	2.92725	0	
25	N35	5.393973	-0.186035	2.366296	0	
26	N36	4.746241	-0.186035	3.4882	0	
27	N37	5.599434	-0.186035	3.232856	0	
28	N38	5.767576	-0.186035	3.013401	0	
29	N39	5.358824	-0.186035	3.09394	0	
30	N40	5.185972	-0.186035	3.4882	0	
31	N41	5.613837	-0.186035	2.747115	0	
32	N42	5.493451	-0.186035	3.4882	0	
33	N105A	2.041722	0	-1.178766	0	
34	N106A	-2.041702	0	-1.1788	0	
35	N107A	-0.00002	0	2.357566	0	
36	N108A	2.357566	0	0.00002	0	
37	N109A	-1.178766	0	-2.041722	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
38	N110A	-1.1788	0	2.041702	0	
39	N111	1.1788	0	-2.041702	0	
40	N112	-2.357566	0	-0.00002	0	
41	N113	1.178766	0	2.041722	0	
42	N115	-0.409367	0	-2.321752	0	
43	N116	-1.806013	0	1.515399	0	
44	N117	1.806013	0	-1.515399	0	
45	N118	-2.21538	0	-0.806354	0	
46	N119	0.409367	0	2.321752	0	
47	N120	2.321752	0	-0.409367	0	
48	N121	-1.515399	0	-1.806013	0	
49	N122	-0.806354	0	2.21538	0	
50	N123	0.806354	0	-2.21538	0	
51	N124	-2.321752	0	0.409367	0	
52	N125	1.515399	0	1.806013	0	
53	N126	2.321746	0	0.409406	0	
54	N127	-0.806316	0	-2.215394	0	
55	N128	-1.515429	0	1.805987	0	
56	N129	1.515429	0	-1.805987	0	
57	N130	-2.321746	0	-0.409406	0	
58	N131	0.806316	0	2.215394	0	
59	N132	2.215394	0	-0.806316	0	
60	N133	-1.805987	0	-1.515429	0	
61	N134	-0.409406	0	2.321746	0	
62	N135	0.409406	0	-2.321746	0	
63	N136	-2.215394	0	0.806316	0	
64	N137	1.805987	0	1.515429	0	
65	N138	1.608689	0	0.9288	0	
66	N139	0.00002	0	-1.857566	0	
67	N140	-1.608709	0	0.928766	0	
68	N141	1.608709	0	-0.928766	0	
69	N142	-1.608689	0	-0.9288	0	
70	N143	-0.00002	0	1.857566	0	
71	N144	1.857566	0	0.00002	0	
72	N145	-0.928766	0	-1.608709	0	
73	N146	-0.9288	0	1.608689	0	
74	N147	0.9288	0	-1.608689	0	
75	N148	-1.857566	0	-0.00002	0	
76	N149	0.928766	0	1.608709	0	
77	N150	1.745534	0	0.635343	0	
78	N151	-0.322543	0	-1.829349	0	
79	N152	-1.422991	0	1.194005	0	
80	N153	1.422991	0	-1.194005	0	
81	N154	-1.745534	0	-0.635343	0	
82	N155	0.322543	0	1.829349	0	
83	N156	1.829349	0	-0.322543	0	
84	N157	-1.194005	0	-1.422991	0	
85	N158	-0.635343	0	1.745534	0	
86	N159	0.635343	0	-1.745534	0	
87	N160	-1.829349	0	0.322543	0	
88	N161	1.194005	0	1.422991	0	
89	N162	1.829342	0	0.322582	0	
90	N163	-0.635306	0	-1.745548	0	
91	N164	-1.194035	0	1.422965	0	
92	N165	1.194035	0	-1.422965	0	
93	N166	-1.829342	0	-0.322582	0	
94	N167	0.635306	0	1.745548	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
95	N168	1.745548	0	-0.635306	0	
96	N169	-1.422965	0	-1.194035	0	
97	N170	-0.322582	0	1.829342	0	
98	N171	0.322582	0	-1.829342	0	
99	N172	-1.745548	0	0.635306	0	
100	N173	1.422965	0	1.194035	0	
101	N107	0.00002	0	-6.976366	0	
102	N105	2.666668	0	-2.357566	0	
103	N106	-2.666646	0	-2.357566	0	
104	N107B	-3.375035	0	-1.1306	0	
105	N108	-0.708369	0	3.4882	0	
106	N109	4.746241	0	3.4882	0	
107	N110	5.708453	0	3.4882	0	
108	N111A	5.393973	0	2.366296	0	
109	N112A	5.875077	0	3.199599	0	
110	N111B	0.00002	0.230665	-6.687766	0	
111	N112B	-0.166605	0.230665	-6.687766	0	
112	N113A	0.166643	0.230665	-6.687766	0	
113	N114A	0.00002	0.230665	-5.854466	0	
114	N115A	-0.647714	0.230665	-5.854466	0	
115	N116A	0.647749	0.230665	-5.854466	0	
116	N117A	0.000019	0.230665	-6.46568	0	
117	N118A	-0.274107	0.230665	-6.501568	0	
118	N119A	0.000019	0.230665	-6.187847	0	
119	N120A	0.427884	0.230665	-6.235284	0	
120	N121A	-0.427847	0.230665	-6.235283	0	
121	N122A	0.274144	0.230665	-6.501568	0	
122	N123A	0.00002	-0.186035	-6.687766	0	
123	N124A	-0.166605	-0.186035	-6.687766	0	
124	N125A	0.166643	-0.186035	-6.687766	0	
125	N126A	0.00002	-0.186035	-5.854466	0	
126	N127A	-0.647714	-0.186035	-5.854466	0	
127	N128A	0.647749	-0.186035	-5.854466	0	
128	N129A	0.000019	-0.186035	-6.46568	0	
129	N130A	-0.274107	-0.186035	-6.501568	0	
130	N131A	0.000019	-0.186035	-6.187847	0	
131	N132A	0.427884	-0.186035	-6.235284	0	
132	N133A	-0.427847	-0.186035	-6.235283	0	
133	N134A	0.274144	-0.186035	-6.501568	0	
134	N135A	0.647749	0	-5.854466	0	
135	N136A	0.166643	0	-6.687766	0	
136	N137A	-0.647714	0	-5.854466	0	
137	N138A	-0.166605	0	-6.687766	0	
138	N139A	-5.791785	0.230665	3.343866	0	
139	N140A	-5.708473	0.230665	3.488167	0	
140	N141A	-5.875097	0.230665	3.199566	0	
141	N142A	-5.070126	0.230665	2.927216	0	
142	N143A	-4.746259	0.230665	3.488169	0	
143	N144A	-5.393991	0.230665	2.366266	0	
144	N145A	-5.599452	0.230665	3.232824	0	
145	N146A	-5.49347	0.230665	3.488167	0	
146	N147A	-5.358842	0.230665	3.093908	0	
147	N148A	-5.613856	0.230665	2.747084	0	
148	N149A	-5.18599	0.230665	3.488168	0	
149	N150A	-5.767595	0.230665	3.013368	0	
150	N151A	-5.791785	-0.186035	3.343866	0	
151	N152A	-5.708473	-0.186035	3.488167	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
152	N153A	-5.875097	-0.186035	3.199566	0	
153	N154A	-5.070126	-0.186035	2.927216	0	
154	N155A	-4.746259	-0.186035	3.488169	0	
155	N156A	-5.393991	-0.186035	2.366266	0	
156	N157A	-5.599452	-0.186035	3.232824	0	
157	N158A	-5.49347	-0.186035	3.488167	0	
158	N159A	-5.358842	-0.186035	3.093908	0	
159	N160A	-5.613856	-0.186035	2.747084	0	
160	N161A	-5.18599	-0.186035	3.488168	0	
161	N162A	-5.767595	-0.186035	3.013368	0	
162	N163A	-5.393991	0	2.366266	0	
163	N164A	-5.875097	0	3.199566	0	
164	N165A	-4.746259	0	3.488169	0	
165	N166A	-5.708473	0	3.488167	0	
166	N171A	1.716942	0	0.9913	0	
167	N197	2.216697	0	0.801441	0	
168	N257	-1.834572	0	1.53756	0	
169	N272A	-0.	0	3.4882	0	
170	N273A	-0.253526	-0.166667	1.437819	0	
171	N273B	-0.571876	-0.166667	3.243267	0	
172	N274A	1.371951	-0.166667	-0.499349	0	
173	N275A	3.09469	-0.166667	-1.126375	0	
174	N276A	-1.118425	-0.166667	-0.93847	0	
175	N277	-2.522814	-0.166667	-2.116892	0	
176	N284	2.2084	-6.083	3.7382	0	
177	N285	-2.2084	-4.1667	3.7382	0	
178	N286	2.2084	3.9167	3.7382	0	
179	N287	-2.2084	1.8333	3.7382	0	
180	N288	2.2084	0	3.7382	0	
181	N289	-2.2084	0	3.7382	0	
182	N290	2.2084	0	3.4882	0	
183	N291	-2.2084	0	3.4882	0	
184	N292	2.133176	-6.083	-3.781631	0	
185	N293	4.341576	-4.1667	0.043431	0	
186	N294	2.133176	3.9167	-3.781631	0	
187	N295	4.341576	1.8333	0.043431	0	
188	N296	2.133176	0	-3.781631	0	
189	N297	4.341576	0	0.043431	0	
190	N298	1.91666	0	-3.656625	0	
191	N299	4.12505	0	0.168442	0	
192	N300	-4.341576	-6.083	0.043431	0	
193	N301	-2.133176	-4.1667	-3.781631	0	
194	N302	-4.341576	3.9167	0.043431	0	
195	N303	-2.133176	1.8333	-3.781631	0	
196	N304	-4.341576	0	0.043431	0	
197	N305	-2.133176	0	-3.781631	0	
198	N306	-4.12504	0	0.168448	0	
199	N307	-1.91664	0	-3.656614	0	
200	N308	2.2084	-1.08315	3.7382	0	
201	N309	-2.2084	-1.1667	3.7382	0	
202	N202	-1.178766	0	-2.357566	0	
203	N203	-0.409367	0	-2.357566	0	
204	N204	-1.515399	0	-2.357566	0	
205	N205	-0.806316	0	-2.357566	0	
206	N211	1.178766	0	-2.357566	0	
207	N212	0.409367	0	-2.357566	0	
208	N213	1.515399	0	-2.357566	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
209	N214	0.806316	0	-2.357566	0	
210	N219	-1.452329	0	2.199624	0	
211	N221	-1.284012	0	2.491157	0	
212	N222	-1.638554	0	1.877073	0	
213	N223	-2.631095	0	0.157942	0	
214	N224	-2.246396	0	0.82426	0	
215	N225	-2.799411	0	-0.133591	0	
216	N226	-2.44487	0	0.480492	0	
217	N236	2.631095	0	0.157942	0	
218	N237	2.246396	0	0.82426	0	
219	N238	2.799411	0	-0.133591	0	
220	N239	2.44487	0	0.480492	0	
221	N240	1.452329	0	2.199624	0	
222	N241	1.837028	0	1.533305	0	
223	N242	1.284012	0	2.491157	0	
224	N243	1.638554	0	1.877073	0	
225	N225A	2.215394	-0.166667	-0.806316	0	
226	N226A	-1.805987	-0.166667	-1.515429	0	
227	N227	-0.409406	-0.166667	2.321746	0	
228	N228	1.745548	-0.166667	-0.635306	0	
229	N229	-1.422965	-0.166667	-1.194035	0	
230	N230	-0.322582	-0.166667	1.829342	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N273A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N274A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N276A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N4			Horizontal	Beam	Channel	A36 Gr.36	Typical
2	M4	N9	N11			Horizontal	Beam	Channel	A36 Gr.36	Typical
3	M7	N21	N35			RIGID	None	None	RIGID	Typical
4	M8	N18	N32			RIGID	None	None	RIGID	Typical
5	M9	N22	N36			RIGID	None	None	RIGID	Typical
6	M10	N20	N33			RIGID	None	None	RIGID	Typical
7	M7A	N107	N3			Horizontal	Beam	Channel	A36 Gr.36	Typical
8	M10A	N4	N107			Horizontal	Beam	Channel	A36 Gr.36	Typical
9	M10B	N105	N106			Horizontal	Beam	Channel	A36 Gr.36	Typical
10	M11	N107B	N108			Horizontal	Beam	Channel	A36 Gr.36	Typical
11	M11A	N115A	N127A			RIGID	None	None	RIGID	Typical
12	M12	N112B	N124A			RIGID	None	None	RIGID	Typical
13	M13	N116A	N128A			RIGID	None	None	RIGID	Typical
14	M14	N113A	N125A			RIGID	None	None	RIGID	Typical
15	M15	N143A	N155A			RIGID	None	None	RIGID	Typical
16	M16	N140A	N152A			RIGID	None	None	RIGID	Typical
17	M17	N144A	N156A			RIGID	None	None	RIGID	Typical
18	M18	N141A	N153A			RIGID	None	None	RIGID	Typical
19	M19	N273A	N273B			Standoff	Beam	Tube	A500 Gr.B...	Typical
20	M20	N274A	N275A			Standoff	Beam	Tube	A500 Gr.B...	Typical
21	M21	N276A	N277			Standoff	Beam	Tube	A500 Gr.B...	Typical
22	A1	N286	N284			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
23	A2	N287	N285			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
24	M24	N290	N288			RIGID	None	None	RIGID	Typical
25	M25	N291	N289			RIGID	None	None	RIGID	Typical
26	C1	N294	N292			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
27	C2	N295	N293			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
28	M28	N298	N296			RIGID	None	None	RIGID	Typical
29	M29	N299	N297			RIGID	None	None	RIGID	Typical
30	B1	N302	N300			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
31	B2	N303	N301			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
32	M32	N306	N304			RIGID	None	None	RIGID	Typical
33	M33	N307	N305			RIGID	None	None	RIGID	Typical
34	M34	N134	N227			RIGID	None	None	RIGID	Typical
35	M35	N170	N230			RIGID	None	None	RIGID	Typical
36	M36	N169	N229			RIGID	None	None	RIGID	Typical
37	M37	N133	N226A			RIGID	None	None	RIGID	Typical
38	M38	N168	N228			RIGID	None	None	RIGID	Typical
39	M39	N132	N225A			RIGID	None	None	RIGID	Typical

Joint Loads and Enforced Displacements (BLC 42 : Man 1 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N290	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 43 : Man 2 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N306	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 44 : Man 3 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N298	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 45 : Man 4 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N3	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 46 : Man 5 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N4	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 47 : Man 6 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N107	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Y	-.128	%34.6
2	A1	Y	-.075	%29.2
3	A1	Y	-.011	%59.2
4	A2	Y	-.092	%26.3
5	A2	Y	-.051	%80.5
6	B1	Y	-.128	%34.6
7	B1	Y	-.075	%29.2
8	B1	Y	-.011	%59.2

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
9	B2	Y	-.092	%26.3
10	B2	Y	-.051	%80.5
11	C1	Y	-.128	%34.6
12	C1	Y	-.075	%29.2
13	C1	Y	-.011	%59.2
14	C2	Y	-.092	%26.3
15	C2	Y	-.051	%80.5

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Y	-.464	%34.6
2	A1	Y	-.047	%29.2
3	A1	Y	-.01	%59.2
4	A2	Y	-.16	%26.3
5	A2	Y	-.071	%80.5
6	B1	Y	-.464	%34.6
7	B1	Y	-.047	%29.2
8	B1	Y	-.01	%59.2
9	B2	Y	-.16	%26.3
10	B2	Y	-.071	%80.5
11	C1	Y	-.464	%34.6
12	C1	Y	-.047	%29.2
13	C1	Y	-.01	%59.2
14	C2	Y	-.16	%26.3
15	C2	Y	-.071	%80.5

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.355	0
2	A2	Z	-.107	0
3	A2	Z	-.099	%80.5
4	B1	Z	-.206	0
5	B2	Z	-.083	0
6	B2	Z	-.099	%80.5
7	C1	Z	-.206	0
8	C2	Z	-.083	0
9	C2	Z	-.099	%80.5
10	A1	Z	-.355	%69.2
11	A2	Z	-.107	%52.7
12	B1	Z	-.206	%69.2
13	B2	Z	-.083	%52.7
14	C1	Z	-.206	%69.2
15	C2	Z	-.083	%52.7

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.264	0
2	A2	Z	-.085	0
3	A2	Z	-.073	%80.5
4	B1	Z	-.135	0
5	B2	Z	-.065	0
6	B2	Z	-.073	%80.5
7	C1	Z	-.264	0
8	C2	Z	-.085	0
9	C2	Z	-.073	%80.5

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	A1	Z	-.264	%69.2
11	A2	Z	-.085	%52.7
12	B1	Z	-.135	%69.2
13	B2	Z	-.065	%52.7
14	C1	Z	-.264	%69.2
15	C2	Z	-.085	%52.7
16	A1	X	.153	0
17	A1	X	.005	%29.2
18	A1	X	.001	%59.2
19	A2	X	.049	0
20	A2	X	.042	%80.5
21	B1	X	.078	0
22	B1	X	.02	%29.2
23	B1	X	.003	%59.2
24	B2	X	.038	0
25	B2	X	.042	%80.5
26	C1	X	.153	0
27	C1	X	.005	%29.2
28	C1	X	.001	%59.2
29	C2	X	.049	0
30	C2	X	.042	%80.5
31	A1	X	.153	%69.2
32	A2	X	.049	%52.7
33	B1	X	.078	%69.2
34	B2	X	.038	%52.7
35	C1	X	.153	%69.2
36	C2	X	.049	%52.7

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.103	0
2	A2	Z	-.041	0
3	A2	Z	-.028	%80.5
4	B1	Z	-.103	0
5	B2	Z	-.041	0
6	B2	Z	-.028	%80.5
7	C1	Z	-.177	0
8	C2	Z	-.053	0
9	C2	Z	-.028	%80.5
10	A1	Z	-.103	%69.2
11	A2	Z	-.041	%52.7
12	B1	Z	-.103	%69.2
13	B2	Z	-.041	%52.7
14	C1	Z	-.177	%69.2
15	C2	Z	-.053	%52.7
16	A1	X	.178	0
17	A1	X	.026	%29.2
18	A1	X	.004	%59.2
19	A2	X	.072	0
20	A2	X	.048	%80.5
21	B1	X	.178	0
22	B1	X	.026	%29.2
23	B1	X	.004	%59.2
24	B2	X	.072	0
25	B2	X	.048	%80.5
26	C1	X	.307	0

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
27	C1	X	0	%29.2
28	C1	X	0	%59.2
29	C2	X	.092	0
30	C2	X	.048	%80.5
31	A1	X	.178	%69.2
32	A2	X	.072	%52.7
33	B1	X	.178	%69.2
34	B2	X	.072	%52.7
35	C1	X	.307	%69.2
36	C2	X	.092	%52.7

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	0	0
2	A2	Z	0	0
3	A2	Z	0	%80.5
4	B1	Z	0	0
5	B2	Z	0	0
6	B2	Z	0	%80.5
7	C1	Z	0	0
8	C2	Z	0	0
9	C2	Z	0	%80.5
10	A1	Z	0	%69.2
11	A2	Z	0	%52.7
12	B1	Z	0	%69.2
13	B2	Z	0	%52.7
14	C1	Z	0	%69.2
15	C2	Z	0	%52.7
16	A1	X	.156	0
17	A1	X	.04	%29.2
18	A1	X	.006	%59.2
19	A2	X	.075	0
20	A2	X	.041	%80.5
21	B1	X	.305	0
22	B1	X	.01	%29.2
23	B1	X	.002	%59.2
24	B2	X	.099	0
25	B2	X	.041	%80.5
26	C1	X	.305	0
27	C1	X	.01	%29.2
28	C1	X	.002	%59.2
29	C2	X	.099	0
30	C2	X	.041	%80.5
31	A1	X	.156	%69.2
32	A2	X	.075	%52.7
33	B1	X	.305	%69.2
34	B2	X	.099	%52.7
35	C1	X	.305	%69.2
36	C2	X	.099	%52.7

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	.103	0
2	A2	Z	.041	0
3	A2	Z	.028	%80.5
4	B1	Z	.177	0

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	B2	Z	.053	0
6	B2	Z	.028	%80.5
7	C1	Z	.103	0
8	C2	Z	.041	0
9	C2	Z	.028	%80.5
10	A1	Z	.103	%69.2
11	A2	Z	.041	%52.7
12	B1	Z	.177	%69.2
13	B2	Z	.053	%52.7
14	C1	Z	.103	%69.2
15	C2	Z	.041	%52.7
16	A1	X	.178	0
17	A1	X	.026	%29.2
18	A1	X	.004	%59.2
19	A2	X	.072	0
20	A2	X	.048	%80.5
21	B1	X	.307	0
22	B2	X	.092	0
23	B2	X	.048	%80.5
24	C1	X	.178	0
25	C1	X	.026	%29.2
26	C1	X	.004	%59.2
27	C2	X	.072	0
28	C2	X	.048	%80.5
29	A1	X	.178	%69.2
30	A2	X	.072	%52.7
31	B1	X	.307	%69.2
32	B2	X	.092	%52.7
33	C1	X	.178	%69.2
34	C2	X	.072	%52.7

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	.264	0
2	A2	Z	.085	0
3	A2	Z	.073	%80.5
4	B1	Z	.264	0
5	B2	Z	.085	0
6	B2	Z	.073	%80.5
7	C1	Z	.135	0
8	C2	Z	.065	0
9	C2	Z	.073	%80.5
10	A1	Z	.264	%69.2
11	A2	Z	.085	%52.7
12	B1	Z	.264	%69.2
13	B2	Z	.085	%52.7
14	C1	Z	.135	%69.2
15	C2	Z	.065	%52.7
16	A1	X	.153	0
17	A1	X	.005	%29.2
18	A1	X	.001	%59.2
19	A2	X	.049	0
20	A2	X	.042	%80.5
21	B1	X	.153	0
22	B1	X	.005	%29.2
23	B1	X	.001	%59.2

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
24	B2	X	.049	0
25	B2	X	.042	%80.5
26	C1	X	.078	0
27	C1	X	.02	%29.2
28	C1	X	.003	%59.2
29	C2	X	.038	0
30	C2	X	.042	%80.5
31	A1	X	.153	%69.2
32	A2	X	.049	%52.7
33	B1	X	.153	%69.2
34	B2	X	.049	%52.7
35	C1	X	.078	%69.2
36	C2	X	.038	%52.7

Member Point Loads (BLC 15 : Ice Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.071	0
2	A2	Z	-.024	0
3	A2	Z	-.024	%80.5
4	B1	Z	-.045	0
5	B2	Z	-.02	0
6	B2	Z	-.024	%80.5
7	C1	Z	-.045	0
8	C2	Z	-.02	0
9	C2	Z	-.024	%80.5
10	A1	Z	-.071	%69.2
11	A2	Z	-.024	%52.7
12	B1	Z	-.045	%69.2
13	B2	Z	-.02	%52.7
14	C1	Z	-.045	%69.2
15	C2	Z	-.02	%52.7

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.054	0
2	A2	Z	-.02	0
3	A2	Z	-.018	%80.5
4	B1	Z	-.031	0
5	B2	Z	-.016	0
6	B2	Z	-.018	%80.5
7	C1	Z	-.054	0
8	C2	Z	-.02	0
9	C2	Z	-.018	%80.5
10	A1	Z	-.054	%69.2
11	A2	Z	-.02	%52.7
12	B1	Z	-.031	%69.2
13	B2	Z	-.016	%52.7
14	C1	Z	-.054	%69.2
15	C2	Z	-.02	%52.7
16	A1	X	.031	0
17	A1	X	.001	%29.2
18	A1	X	0	%59.2
19	A2	X	.011	0
20	A2	X	.011	%80.5
21	B1	X	.018	0
22	B1	X	.006	%29.2

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
23	B1	X	.002	%59.2
24	B2	X	.009	0
25	B2	X	.011	%80.5
26	C1	X	.031	0
27	C1	X	.001	%29.2
28	C1	X	0	%59.2
29	C2	X	.011	0
30	C2	X	.011	%80.5
31	A1	X	.031	%69.2
32	A2	X	.011	%52.7
33	B1	X	.018	%69.2
34	B2	X	.009	%52.7
35	C1	X	.031	%69.2
36	C2	X	.011	%52.7

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.022	0
2	A2	Z	-.01	0
3	A2	Z	-.008	%80.5
4	B1	Z	-.022	0
5	B2	Z	-.01	0
6	B2	Z	-.008	%80.5
7	C1	Z	-.035	0
8	C2	Z	-.012	0
9	C2	Z	-.008	%80.5
10	A1	Z	-.022	%69.2
11	A2	Z	-.01	%52.7
12	B1	Z	-.022	%69.2
13	B2	Z	-.01	%52.7
14	C1	Z	-.035	%69.2
15	C2	Z	-.012	%52.7
16	A1	X	.039	0
17	A1	X	.008	%29.2
18	A1	X	.002	%59.2
19	A2	X	.017	0
20	A2	X	.013	%80.5
21	B1	X	.039	0
22	B1	X	.008	%29.2
23	B1	X	.002	%59.2
24	B2	X	.017	0
25	B2	X	.013	%80.5
26	C1	X	.061	0
27	C1	X	0	%29.2
28	C1	X	0	%59.2
29	C2	X	.021	0
30	C2	X	.013	%80.5
31	A1	X	.039	%69.2
32	A2	X	.017	%52.7
33	B1	X	.039	%69.2
34	B2	X	.017	%52.7
35	C1	X	.061	%69.2
36	C2	X	.021	%52.7

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	0	0
2	A2	Z	0	0
3	A2	Z	0	%80.5
4	B1	Z	0	0
5	B2	Z	0	0
6	B2	Z	0	%80.5
7	C1	Z	0	0
8	C2	Z	0	0
9	C2	Z	0	%80.5
10	A1	Z	0	%69.2
11	A2	Z	0	%52.7
12	B1	Z	0	%69.2
13	B2	Z	0	%52.7
14	C1	Z	0	%69.2
15	C2	Z	0	%52.7
16	A1	X	.036	0
17	A1	X	.012	%29.2
18	A1	X	.003	%59.2
19	A2	X	.019	0
20	A2	X	.012	%80.5
21	B1	X	.062	0
22	B1	X	.003	%29.2
23	B1	X	.001	%59.2
24	B2	X	.023	0
25	B2	X	.012	%80.5
26	C1	X	.062	0
27	C1	X	.003	%29.2
28	C1	X	.001	%59.2
29	C2	X	.023	0
30	C2	X	.012	%80.5
31	A1	X	.036	%69.2
32	A2	X	.019	%52.7
33	B1	X	.062	%69.2
34	B2	X	.023	%52.7
35	C1	X	.062	%69.2
36	C2	X	.023	%52.7

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	.022	0
2	A2	Z	.01	0
3	A2	Z	.008	%80.5
4	B1	Z	.035	0
5	B2	Z	.012	0
6	B2	Z	.008	%80.5
7	C1	Z	.022	0
8	C2	Z	.01	0
9	C2	Z	.008	%80.5
10	A1	Z	.022	%69.2
11	A2	Z	.01	%52.7
12	B1	Z	.035	%69.2
13	B2	Z	.012	%52.7
14	C1	Z	.022	%69.2
15	C2	Z	.01	%52.7
16	A1	X	.039	0
17	A1	X	.008	%29.2

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
18	A1	X	.002	%59.2
19	A2	X	.017	0
20	A2	X	.013	%80.5
21	B1	X	.061	0
22	B2	X	.021	0
23	B2	X	.013	%80.5
24	C1	X	.039	0
25	C1	X	.008	%29.2
26	C1	X	.002	%59.2
27	C2	X	.017	0
28	C2	X	.013	%80.5
29	A1	X	.039	%69.2
30	A2	X	.017	%52.7
31	B1	X	.061	%69.2
32	B2	X	.021	%52.7
33	C1	X	.039	%69.2
34	C2	X	.017	%52.7

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	.054	0
2	A2	Z	.01	0
3	A2	Z	.008	%80.5
4	B1	Z	.035	0
5	B2	Z	.012	0
6	B2	Z	.008	%80.5
7	C1	Z	.022	0
8	C2	Z	.01	0
9	C2	Z	.008	%80.5
10	A1	Z	.054	%69.2
11	A2	Z	.01	%52.7
12	B1	Z	.035	%69.2
13	B2	Z	.012	%52.7
14	C1	Z	.022	%69.2
15	C2	Z	.01	%52.7
16	A1	X	.031	0
17	A1	X	.008	%29.2
18	A1	X	.002	%59.2
19	A2	X	.017	0
20	A2	X	.013	%80.5
21	B1	X	.061	0
22	B2	X	.021	0
23	B2	X	.013	%80.5
24	C1	X	.039	0
25	C1	X	.008	%29.2
26	C1	X	.002	%59.2
27	C2	X	.017	0
28	C2	X	.013	%80.5
29	A1	X	.031	%69.2
30	A2	X	.017	%52.7
31	B1	X	.061	%69.2
32	B2	X	.021	%52.7
33	C1	X	.039	%69.2
34	C2	X	.017	%52.7

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Z	-.014	%34.6
2	A1	Z	-.008	%29.2
3	A1	Z	-.001	%59.2
4	A2	Z	-.01	%26.3
5	A2	Z	-.006	%80.5
6	B1	Z	-.014	%34.6
7	B1	Z	-.008	%29.2
8	B1	Z	-.001	%59.2
9	B2	Z	-.01	%26.3
10	B2	Z	-.006	%80.5
11	C1	Z	-.014	%34.6
12	C1	Z	-.008	%29.2
13	C1	Z	-.001	%59.2
14	C2	Z	-.01	%26.3
15	C2	Z	-.006	%80.5

Member Point Loads (BLC 28 : Seismic Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	X	.014	%34.6
2	A1	X	.008	%29.2
3	A1	X	.001	%59.2
4	A2	X	.01	%26.3
5	A2	X	.006	%80.5
6	B1	X	.014	%34.6
7	B1	X	.008	%29.2
8	B1	X	.001	%59.2
9	B2	X	.01	%26.3
10	B2	X	.006	%80.5
11	C1	X	.014	%34.6
12	C1	X	.008	%29.2
13	C1	X	.001	%59.2
14	C2	X	.01	%26.3
15	C2	X	.006	%80.5

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A1	Y	-.026	%34.6
2	A1	Y	-.015	%29.2
3	A1	Y	-.002	%59.2
4	A2	Y	-.018	%26.3
5	A2	Y	-.01	%80.5
6	B1	Y	-.026	%34.6
7	B1	Y	-.015	%29.2
8	B1	Y	-.002	%59.2
9	B2	Y	-.018	%26.3
10	B2	Y	-.01	%80.5
11	C1	Y	-.026	%34.6
12	C1	Y	-.015	%29.2
13	C1	Y	-.002	%59.2
14	C2	Y	-.018	%26.3
15	C2	Y	-.01	%80.5

Member Distributed Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.015	-.015	0	%100
2	M4	Y	-.015	-.015	0	%100
3	M7	Y	-.004	-.004	0	%100
4	M8	Y	-.004	-.004	0	%100
5	M9	Y	-.004	-.004	0	%100
6	M10	Y	-.004	-.004	0	%100
7	M7A	Y	-.015	-.015	0	%100
8	M10A	Y	-.015	-.015	0	%100
9	M10B	Y	-.015	-.015	0	%100
10	M11	Y	-.015	-.015	0	%100
11	M11A	Y	-.004	-.004	0	%100
12	M12	Y	-.004	-.004	0	%100
13	M13	Y	-.004	-.004	0	%100
14	M14	Y	-.004	-.004	0	%100
15	M15	Y	-.004	-.004	0	%100
16	M16	Y	-.004	-.004	0	%100
17	M17	Y	-.004	-.004	0	%100
18	M18	Y	-.004	-.004	0	%100
19	M19	Y	-.016	-.016	0	%100
20	M20	Y	-.016	-.016	0	%100
21	M21	Y	-.016	-.016	0	%100
22	A1	Y	-.009	-.009	0	%100
23	A2	Y	-.009	-.009	0	%100
24	M24	Y	-.004	-.004	0	%100
25	M25	Y	-.004	-.004	0	%100
26	C1	Y	-.009	-.009	0	%100
27	C2	Y	-.009	-.009	0	%100
28	M28	Y	-.004	-.004	0	%100
29	M29	Y	-.004	-.004	0	%100
30	B1	Y	-.009	-.009	0	%100
31	B2	Y	-.009	-.009	0	%100
32	M32	Y	-.004	-.004	0	%100
33	M33	Y	-.004	-.004	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.029	-.029	0	%100
2	M4	Z	-.007	-.007	0	%100
3	M7A	Z	-.007	-.007	0	%100
4	M10A	Z	-.007	-.007	0	%100
5	M10B	Z	-.029	-.029	0	%100
6	M11	Z	-.007	-.007	0	%100
7	M19	Z	-.001	-.001	0	%100
8	M20	Z	-.021	-.021	0	%100
9	M21	Z	-.013	-.013	0	%100
10	A1	Z	-.008	-.008	%69.2	%100
11	A2	Z	-.008	-.008	%94.4	%100
12	C1	Z	-.008	-.008	%69.2	%100
13	C2	Z	-.008	-.008	%94.4	%100
14	B1	Z	-.008	-.008	%69.2	%100
15	B2	Z	-.008	-.008	%94.4	%100
16	M1	X	0	0	0	%100
17	M4	X	0	0	0	%100
18	M7A	X	0	0	0	%100
19	M10A	X	0	0	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
20	M10B	X	0	0	0	%100
21	M11	X	0	0	0	%100
22	M19	X	0	0	0	%100
23	M20	X	0	0	0	%100
24	M21	X	0	0	0	%100
25	A1	X	0	0	0	%100
26	A2	X	0	0	0	%100
27	C1	X	0	0	%69.2	%100
28	C2	X	0	0	%94.4	%100
29	B1	X	0	0	%69.2	%100
30	B2	X	0	0	%94.4	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.019	-.019	0	%100
2	M4	Z	0	0	0	%100
3	M7A	Z	-.019	-.019	0	%100
4	M10A	Z	0	0	0	%100
5	M10B	Z	-.019	-.019	0	%100
6	M11	Z	-.019	-.019	0	%100
7	M19	Z	-.002	-.002	0	%100
8	M20	Z	-.009	-.009	0	%100
9	M21	Z	-.019	-.019	0	%100
10	A1	Z	-.007	-.007	%69.2	%100
11	A2	Z	-.007	-.007	%94.4	%100
12	C1	Z	-.007	-.007	%69.2	%100
13	C2	Z	-.007	-.007	%94.4	%100
14	B1	Z	-.007	-.007	%69.2	%100
15	B2	Z	-.007	-.007	%94.4	%100
16	M1	X	.011	.011	0	%100
17	M4	X	0	0	0	%100
18	M7A	X	.011	.011	0	%100
19	M10A	X	0	0	0	%100
20	M10B	X	.011	.011	0	%100
21	M11	X	.011	.011	0	%100
22	M19	X	.001	.001	0	%100
23	M20	X	.005	.005	0	%100
24	M21	X	.011	.011	0	%100
25	A1	X	.004	.004	0	%100
26	A2	X	.004	.004	0	%100
27	C1	X	.004	.004	%69.2	%100
28	C2	X	.004	.004	%94.4	%100
29	B1	X	.004	.004	%69.2	%100
30	B2	X	.004	.004	%94.4	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.004	-.004	0	%100
2	M4	Z	-.004	-.004	0	%100
3	M7A	Z	-.015	-.015	0	%100
4	M10A	Z	-.004	-.004	0	%100
5	M10B	Z	-.004	-.004	0	%100
6	M11	Z	-.015	-.015	0	%100
7	M19	Z	-.006	-.006	0	%100
8	M20	Z	-.001	-.001	0	%100
9	M21	Z	-.011	-.011	0	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
10	A1	Z	-.004	-.004	%69.2	%100
11	A2	Z	-.004	-.004	%94.4	%100
12	C1	Z	-.004	-.004	%69.2	%100
13	C2	Z	-.004	-.004	%94.4	%100
14	B1	Z	-.004	-.004	%69.2	%100
15	B2	Z	-.004	-.004	%94.4	%100
16	M1	X	.006	.006	0	%100
17	M4	X	.006	.006	0	%100
18	M7A	X	.025	.025	0	%100
19	M10A	X	.006	.006	0	%100
20	M10B	X	.006	.006	0	%100
21	M11	X	.025	.025	0	%100
22	M19	X	.011	.011	0	%100
23	M20	X	.001	.001	0	%100
24	M21	X	.018	.018	0	%100
25	A1	X	.007	.007	0	%100
26	A2	X	.007	.007	0	%100
27	C1	X	.007	.007	%69.2	%100
28	C2	X	.007	.007	%94.4	%100
29	B1	X	.007	.007	%69.2	%100
30	B2	X	.007	.007	%94.4	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M4	Z	0	0	0	%100
3	M7A	Z	0	0	0	%100
4	M10A	Z	0	0	0	%100
5	M10B	Z	0	0	0	%100
6	M11	Z	0	0	0	%100
7	M19	Z	0	0	0	%100
8	M20	Z	0	0	0	%100
9	M21	Z	0	0	0	%100
10	A1	Z	0	0	%69.2	%100
11	A2	Z	0	0	%94.4	%100
12	C1	Z	0	0	%69.2	%100
13	C2	Z	0	0	%94.4	%100
14	B1	Z	0	0	%69.2	%100
15	B2	Z	0	0	%94.4	%100
16	M1	X	0	0	0	%100
17	M4	X	.022	.022	0	%100
18	M7A	X	.022	.022	0	%100
19	M10A	X	.022	.022	0	%100
20	M10B	X	0	0	0	%100
21	M11	X	.022	.022	0	%100
22	M19	X	.022	.022	0	%100
23	M20	X	.002	.002	0	%100
24	M21	X	.01	.01	0	%100
25	A1	X	.008	.008	0	%100
26	A2	X	.008	.008	0	%100
27	C1	X	.008	.008	%69.2	%100
28	C2	X	.008	.008	%94.4	%100
29	B1	X	.008	.008	%69.2	%100
30	B2	X	.008	.008	%94.4	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.004	.004	0	%100
2	M4	Z	.015	.015	0	%100
3	M7A	Z	.004	.004	0	%100
4	M10A	Z	.015	.015	0	%100
5	M10B	Z	.004	.004	0	%100
6	M11	Z	.004	.004	0	%100
7	M19	Z	.011	.011	0	%100
8	M20	Z	.006	.006	0	%100
9	M21	Z	.001	.001	0	%100
10	A1	Z	.004	.004	%69.2	%100
11	A2	Z	.004	.004	%94.4	%100
12	C1	Z	.004	.004	%69.2	%100
13	C2	Z	.004	.004	%94.4	%100
14	B1	Z	.004	.004	%69.2	%100
15	B2	Z	.004	.004	%94.4	%100
16	M1	X	.006	.006	0	%100
17	M4	X	.025	.025	0	%100
18	M7A	X	.006	.006	0	%100
19	M10A	X	.025	.025	0	%100
20	M10B	X	.006	.006	0	%100
21	M11	X	.006	.006	0	%100
22	M19	X	.018	.018	0	%100
23	M20	X	.011	.011	0	%100
24	M21	X	.001	.001	0	%100
25	A1	X	.007	.007	0	%100
26	A2	X	.007	.007	0	%100
27	C1	X	.007	.007	%69.2	%100
28	C2	X	.007	.007	%94.4	%100
29	B1	X	.007	.007	%69.2	%100
30	B2	X	.007	.007	%94.4	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.019	.019	0	%100
2	M4	Z	.019	.019	0	%100
3	M7A	Z	0	0	0	%100
4	M10A	Z	.019	.019	0	%100
5	M10B	Z	.019	.019	0	%100
6	M11	Z	0	0	0	%100
7	M19	Z	.009	.009	0	%100
8	M20	Z	.019	.019	0	%100
9	M21	Z	.002	.002	0	%100
10	A1	Z	.007	.007	%69.2	%100
11	A2	Z	.007	.007	%94.4	%100
12	C1	Z	.007	.007	%69.2	%100
13	C2	Z	.007	.007	%94.4	%100
14	B1	Z	.007	.007	%69.2	%100
15	B2	Z	.007	.007	%94.4	%100
16	M1	X	.011	.011	0	%100
17	M4	X	.011	.011	0	%100
18	M7A	X	0	0	0	%100
19	M10A	X	.011	.011	0	%100
20	M10B	X	.011	.011	0	%100
21	M11	X	0	0	0	%100
22	M19	X	.005	.005	0	%100
23	M20	X	.011	.011	0	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
24	M21	X	.001	.001	0	%100
25	A1	X	.004	.004	0	%100
26	A2	X	.004	.004	0	%100
27	C1	X	.004	.004	%69.2	%100
28	C2	X	.004	.004	%94.4	%100
29	B1	X	.004	.004	%69.2	%100
30	B2	X	.004	.004	%94.4	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.007	-.007	0	%100
2	M4	Z	-.002	-.002	0	%100
3	M7	Z	-.005	-.005	0	%100
4	M8	Z	-.005	-.005	0	%100
5	M9	Z	-.005	-.005	0	%100
6	M10	Z	-.005	-.005	0	%100
7	M7A	Z	-.002	-.002	0	%100
8	M10A	Z	-.002	-.002	0	%100
9	M10B	Z	-.007	-.007	0	%100
10	M11	Z	-.002	-.002	0	%100
11	M11A	Z	-.005	-.005	0	%100
12	M12	Z	-.005	-.005	0	%100
13	M13	Z	-.005	-.005	0	%100
14	M14	Z	-.005	-.005	0	%100
15	M15	Z	-.005	-.005	0	%100
16	M16	Z	-.005	-.005	0	%100
17	M17	Z	-.005	-.005	0	%100
18	M18	Z	-.005	-.005	0	%100
19	M19	Z	0	0	0	%100
20	M20	Z	-.006	-.006	0	%100
21	M21	Z	-.004	-.004	0	%100
22	M24	Z	0	0	0	%100
23	M25	Z	0	0	0	%100
24	M28	Z	-.003	-.003	0	%100
25	M29	Z	-.003	-.003	0	%100
26	M32	Z	-.003	-.003	0	%100
27	M33	Z	-.003	-.003	0	%100
28	A1	Z	-.004	-.004	%69.2	%100
29	A2	Z	-.004	-.004	%94.4	%100
30	C1	Z	-.004	-.004	%69.2	%100
31	C2	Z	-.004	-.004	%94.4	%100
32	B1	Z	-.004	-.004	%69.2	%100
33	B2	Z	-.004	-.004	%94.4	%100
34	M1	X	0	0	0	%100
35	M4	X	0	0	0	%100
36	M7	X	0	0	0	%100
37	M8	X	0	0	0	%100
38	M9	X	0	0	0	%100
39	M10	X	0	0	0	%100
40	M7A	X	0	0	0	%100
41	M10A	X	0	0	0	%100
42	M10B	X	0	0	0	%100
43	M11	X	0	0	0	%100
44	M11A	X	0	0	0	%100
45	M12	X	0	0	0	%100
46	M13	X	0	0	0	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
47	M14	X	0	0	0	%100
48	M15	X	0	0	0	%100
49	M16	X	0	0	0	%100
50	M17	X	0	0	0	%100
51	M18	X	0	0	0	%100
52	M19	X	0	0	0	%100
53	M20	X	0	0	0	%100
54	M21	X	0	0	0	%100
55	A1	X	0	0	0	%100
56	A2	X	0	0	0	%100
57	M24	X	0	0	0	%100
58	M25	X	0	0	0	%100
59	M28	X	0	0	0	%100
60	M29	X	0	0	0	%100
61	M32	X	0	0	0	%100
62	M33	X	0	0	0	%100
63	C1	X	0	0	%69.2	%100
64	C2	X	0	0	%94.4	%100
65	B1	X	0	0	%69.2	%100
66	B2	X	0	0	%94.4	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.005	-.005	0	%100
2	M4	Z	-.001	-.001	0	%100
3	M7	Z	-.004	-.004	0	%100
4	M8	Z	-.004	-.004	0	%100
5	M9	Z	-.004	-.004	0	%100
6	M10	Z	-.004	-.004	0	%100
7	M7A	Z	-.004	-.004	0	%100
8	M10A	Z	0	0	0	%100
9	M10B	Z	-.005	-.005	0	%100
10	M11	Z	-.004	-.004	0	%100
11	M11A	Z	-.004	-.004	0	%100
12	M12	Z	-.004	-.004	0	%100
13	M13	Z	-.004	-.004	0	%100
14	M14	Z	-.004	-.004	0	%100
15	M15	Z	-.004	-.004	0	%100
16	M16	Z	-.004	-.004	0	%100
17	M17	Z	-.004	-.004	0	%100
18	M18	Z	-.004	-.004	0	%100
19	M19	Z	0	0	0	%100
20	M20	Z	-.004	-.004	0	%100
21	M21	Z	-.005	-.005	0	%100
22	M24	Z	0	0	0	%100
23	M25	Z	0	0	0	%100
24	M28	Z	-.003	-.003	0	%100
25	M29	Z	-.003	-.003	0	%100
26	M32	Z	-.003	-.003	0	%100
27	M33	Z	-.003	-.003	0	%100
28	A1	Z	-.003	-.003	%69.2	%100
29	A2	Z	-.003	-.003	%94.4	%100
30	C1	Z	-.003	-.003	%69.2	%100
31	C2	Z	-.003	-.003	%94.4	%100
32	B1	Z	-.003	-.003	%69.2	%100
33	B2	Z	-.003	-.003	%94.4	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
34	M1	X	.003	.003	0	%100
35	M4	X	0	0	0	%100
36	M7	X	.002	.002	0	%100
37	M8	X	.003	.003	0	%100
38	M9	X	.002	.002	0	%100
39	M10	X	.003	.003	0	%100
40	M7A	X	.002	.002	0	%100
41	M10A	X	0	0	0	%100
42	M10B	X	.003	.003	0	%100
43	M11	X	.002	.002	0	%100
44	M11A	X	.002	.002	0	%100
45	M12	X	.003	.003	0	%100
46	M13	X	.002	.002	0	%100
47	M14	X	.003	.003	0	%100
48	M15	X	.002	.002	0	%100
49	M16	X	.003	.003	0	%100
50	M17	X	.002	.002	0	%100
51	M18	X	.003	.003	0	%100
52	M19	X	0	0	0	%100
53	M20	X	.002	.002	0	%100
54	M21	X	.003	.003	0	%100
55	A1	X	.002	.002	0	%100
56	A2	X	.002	.002	0	%100
57	M24	X	0	0	0	%100
58	M25	X	0	0	0	%100
59	M28	X	.002	.002	0	%100
60	M29	X	.002	.002	0	%100
61	M32	X	.002	.002	0	%100
62	M33	X	.002	.002	0	%100
63	C1	X	.002	.002	%69.2	%100
64	C2	X	.002	.002	%94.4	%100
65	B1	X	.002	.002	%69.2	%100
66	B2	X	.002	.002	%94.4	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.002	-.002	0	%100
2	M4	Z	-.001	-.001	0	%100
3	M7	Z	-.002	-.002	0	%100
4	M8	Z	-.003	-.003	0	%100
5	M9	Z	-.002	-.002	0	%100
6	M10	Z	-.003	-.003	0	%100
7	M7A	Z	-.003	-.003	0	%100
8	M10A	Z	-.001	-.001	0	%100
9	M10B	Z	-.002	-.002	0	%100
10	M11	Z	-.003	-.003	0	%100
11	M11A	Z	-.002	-.002	0	%100
12	M12	Z	-.003	-.003	0	%100
13	M13	Z	-.002	-.002	0	%100
14	M14	Z	-.003	-.003	0	%100
15	M15	Z	-.002	-.002	0	%100
16	M16	Z	-.003	-.003	0	%100
17	M17	Z	-.002	-.002	0	%100
18	M18	Z	-.003	-.003	0	%100
19	M19	Z	-.001	-.001	0	%100
20	M20	Z	-.001	-.001	0	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
21	M21	Z	-.003	-.003	0	%100
22	M24	Z	0	0	0	%100
23	M25	Z	0	0	0	%100
24	M28	Z	-.002	-.002	0	%100
25	M29	Z	-.002	-.002	0	%100
26	M32	Z	-.002	-.002	0	%100
27	M33	Z	-.002	-.002	0	%100
28	A1	Z	-.002	-.002	%69.2	%100
29	A2	Z	-.002	-.002	%94.4	%100
30	C1	Z	-.002	-.002	%69.2	%100
31	C2	Z	-.002	-.002	%94.4	%100
32	B1	Z	-.002	-.002	%69.2	%100
33	B2	Z	-.002	-.002	%94.4	%100
34	M1	X	.003	.003	0	%100
35	M4	X	.002	.002	0	%100
36	M7	X	.004	.004	0	%100
37	M8	X	.004	.004	0	%100
38	M9	X	.004	.004	0	%100
39	M10	X	.004	.004	0	%100
40	M7A	X	.005	.005	0	%100
41	M10A	X	.002	.002	0	%100
42	M10B	X	.003	.003	0	%100
43	M11	X	.005	.005	0	%100
44	M11A	X	.004	.004	0	%100
45	M12	X	.004	.004	0	%100
46	M13	X	.004	.004	0	%100
47	M14	X	.004	.004	0	%100
48	M15	X	.004	.004	0	%100
49	M16	X	.004	.004	0	%100
50	M17	X	.004	.004	0	%100
51	M18	X	.004	.004	0	%100
52	M19	X	.002	.002	0	%100
53	M20	X	.002	.002	0	%100
54	M21	X	.004	.004	0	%100
55	A1	X	.003	.003	0	%100
56	A2	X	.003	.003	0	%100
57	M24	X	0	0	0	%100
58	M25	X	0	0	0	%100
59	M28	X	.003	.003	0	%100
60	M29	X	.003	.003	0	%100
61	M32	X	.003	.003	0	%100
62	M33	X	.003	.003	0	%100
63	C1	X	.003	.003	%69.2	%100
64	C2	X	.003	.003	%94.4	%100
65	B1	X	.003	.003	%69.2	%100
66	B2	X	.003	.003	%94.4	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M4	Z	0	0	0	%100
3	M7	Z	0	0	0	%100
4	M8	Z	0	0	0	%100
5	M9	Z	0	0	0	%100
6	M10	Z	0	0	0	%100
7	M7A	Z	0	0	0	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
8	M10A	Z	0	0	0	%100
9	M10B	Z	0	0	0	%100
10	M11	Z	0	0	0	%100
11	M11A	Z	0	0	0	%100
12	M12	Z	0	0	0	%100
13	M13	Z	0	0	0	%100
14	M14	Z	0	0	0	%100
15	M15	Z	0	0	0	%100
16	M16	Z	0	0	0	%100
17	M17	Z	0	0	0	%100
18	M18	Z	0	0	0	%100
19	M19	Z	0	0	0	%100
20	M20	Z	0	0	0	%100
21	M21	Z	0	0	0	%100
22	M24	Z	0	0	0	%100
23	M25	Z	0	0	0	%100
24	M28	Z	0	0	0	%100
25	M29	Z	0	0	0	%100
26	M32	Z	0	0	0	%100
27	M33	Z	0	0	0	%100
28	A1	Z	0	0	%69.2	%100
29	A2	Z	0	0	%94.4	%100
30	C1	Z	0	0	%69.2	%100
31	C2	Z	0	0	%94.4	%100
32	B1	Z	0	0	%69.2	%100
33	B2	Z	0	0	%94.4	%100
34	M1	X	.002	.002	0	%100
35	M4	X	.004	.004	0	%100
36	M7	X	.005	.005	0	%100
37	M8	X	.005	.005	0	%100
38	M9	X	.005	.005	0	%100
39	M10	X	.005	.005	0	%100
40	M7A	X	.004	.004	0	%100
41	M10A	X	.004	.004	0	%100
42	M10B	X	.002	.002	0	%100
43	M11	X	.004	.004	0	%100
44	M11A	X	.005	.005	0	%100
45	M12	X	.005	.005	0	%100
46	M13	X	.005	.005	0	%100
47	M14	X	.005	.005	0	%100
48	M15	X	.005	.005	0	%100
49	M16	X	.005	.005	0	%100
50	M17	X	.005	.005	0	%100
51	M18	X	.005	.005	0	%100
52	M19	X	.004	.004	0	%100
53	M20	X	.003	.003	0	%100
54	M21	X	.003	.003	0	%100
55	A1	X	.004	.004	0	%100
56	A2	X	.004	.004	0	%100
57	M24	X	0	0	0	%100
58	M25	X	0	0	0	%100
59	M28	X	.003	.003	0	%100
60	M29	X	.003	.003	0	%100
61	M32	X	.003	.003	0	%100
62	M33	X	.003	.003	0	%100
63	C1	X	.004	.004	%69.2	%100
64	C2	X	.004	.004	%94.4	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
65	B1	X	.004	.004	%69.2	%100
66	B2	X	.004	.004	%94.4	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.002	.002	0	%100
2	M4	Z	.003	.003	0	%100
3	M7	Z	.002	.002	0	%100
4	M8	Z	.003	.003	0	%100
5	M9	Z	.002	.002	0	%100
6	M10	Z	.003	.003	0	%100
7	M7A	Z	.001	.001	0	%100
8	M10A	Z	.003	.003	0	%100
9	M10B	Z	.002	.002	0	%100
10	M11	Z	.001	.001	0	%100
11	M11A	Z	.002	.002	0	%100
12	M12	Z	.003	.003	0	%100
13	M13	Z	.002	.002	0	%100
14	M14	Z	.003	.003	0	%100
15	M15	Z	.002	.002	0	%100
16	M16	Z	.003	.003	0	%100
17	M17	Z	.002	.002	0	%100
18	M18	Z	.003	.003	0	%100
19	M19	Z	.002	.002	0	%100
20	M20	Z	.002	.002	0	%100
21	M21	Z	.001	.001	0	%100
22	M24	Z	0	0	0	%100
23	M25	Z	0	0	0	%100
24	M28	Z	.002	.002	0	%100
25	M29	Z	.002	.002	0	%100
26	M32	Z	.002	.002	0	%100
27	M33	Z	.002	.002	0	%100
28	A1	Z	.002	.002	%69.2	%100
29	A2	Z	.002	.002	%94.4	%100
30	C1	Z	.002	.002	%69.2	%100
31	C2	Z	.002	.002	%94.4	%100
32	B1	Z	.002	.002	%69.2	%100
33	B2	Z	.002	.002	%94.4	%100
34	M1	X	.003	.003	0	%100
35	M4	X	.005	.005	0	%100
36	M7	X	.004	.004	0	%100
37	M8	X	.004	.004	0	%100
38	M9	X	.004	.004	0	%100
39	M10	X	.004	.004	0	%100
40	M7A	X	.002	.002	0	%100
41	M10A	X	.005	.005	0	%100
42	M10B	X	.003	.003	0	%100
43	M11	X	.002	.002	0	%100
44	M11A	X	.004	.004	0	%100
45	M12	X	.004	.004	0	%100
46	M13	X	.004	.004	0	%100
47	M14	X	.004	.004	0	%100
48	M15	X	.004	.004	0	%100
49	M16	X	.004	.004	0	%100
50	M17	X	.004	.004	0	%100
51	M18	X	.004	.004	0	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
52	M19	X	.003	.003	0	%100
53	M20	X	.004	.004	0	%100
54	M21	X	.001	.001	0	%100
55	A1	X	.003	.003	0	%100
56	A2	X	.003	.003	0	%100
57	M24	X	0	0	0	%100
58	M25	X	0	0	0	%100
59	M28	X	.003	.003	0	%100
60	M29	X	.003	.003	0	%100
61	M32	X	.003	.003	0	%100
62	M33	X	.003	.003	0	%100
63	C1	X	.003	.003	%69.2	%100
64	C2	X	.003	.003	%94.4	%100
65	B1	X	.003	.003	%69.2	%100
66	B2	X	.003	.003	%94.4	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.005	.005	0	%100
2	M4	Z	.004	.004	0	%100
3	M7	Z	.004	.004	0	%100
4	M8	Z	.004	.004	0	%100
5	M9	Z	.004	.004	0	%100
6	M10	Z	.004	.004	0	%100
7	M7A	Z	0	0	0	%100
8	M10A	Z	.004	.004	0	%100
9	M10B	Z	.005	.005	0	%100
10	M11	Z	.001	.001	0	%100
11	M11A	Z	.004	.004	0	%100
12	M12	Z	.004	.004	0	%100
13	M13	Z	.004	.004	0	%100
14	M14	Z	.004	.004	0	%100
15	M15	Z	.004	.004	0	%100
16	M16	Z	.004	.004	0	%100
17	M17	Z	.004	.004	0	%100
18	M18	Z	.004	.004	0	%100
19	M19	Z	.002	.002	0	%100
20	M20	Z	.005	.005	0	%100
21	M21	Z	.002	.002	0	%100
22	M24	Z	0	0	0	%100
23	M25	Z	0	0	0	%100
24	M28	Z	.003	.003	0	%100
25	M29	Z	.003	.003	0	%100
26	M32	Z	.003	.003	0	%100
27	M33	Z	.003	.003	0	%100
28	A1	Z	.003	.003	%69.2	%100
29	A2	Z	.003	.003	%94.4	%100
30	C1	Z	.003	.003	%69.2	%100
31	C2	Z	.003	.003	%94.4	%100
32	B1	Z	.003	.003	%69.2	%100
33	B2	Z	.003	.003	%94.4	%100
34	M1	X	.003	.003	0	%100
35	M4	X	.002	.002	0	%100
36	M7	X	.002	.002	0	%100
37	M8	X	.003	.003	0	%100
38	M9	X	.002	.002	0	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
39	M10	X	.003	.003	0	%100
40	M7A	X	0	0	0	%100
41	M10A	X	.002	.002	0	%100
42	M10B	X	.003	.003	0	%100
43	M11	X	0	0	0	%100
44	M11A	X	.002	.002	0	%100
45	M12	X	.003	.003	0	%100
46	M13	X	.002	.002	0	%100
47	M14	X	.003	.003	0	%100
48	M15	X	.002	.002	0	%100
49	M16	X	.003	.003	0	%100
50	M17	X	.002	.002	0	%100
51	M18	X	.003	.003	0	%100
52	M19	X	.001	.001	0	%100
53	M20	X	.003	.003	0	%100
54	M21	X	.001	.001	0	%100
55	A1	X	.002	.002	0	%100
56	A2	X	.002	.002	0	%100
57	M24	X	0	0	0	%100
58	M25	X	0	0	0	%100
59	M28	X	.002	.002	0	%100
60	M29	X	.002	.002	0	%100
61	M32	X	.002	.002	0	%100
62	M33	X	.002	.002	0	%100
63	C1	X	.002	.002	%69.2	%100
64	C2	X	.002	.002	%94.4	%100
65	B1	X	.002	.002	%69.2	%100
66	B2	X	.002	.002	%94.4	%100

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1			15			
2	Ice Dead	None					15	33		
3	Full Wind Antenna (0 Deg)	None					15			
4	Full Wind Antenna (30 Deg)	None					36			
5	Full Wind Antenna (60 Deg)	None					36			
6	Full Wind Antenna (90 Deg)	None					36			
7	Full Wind Antenna (120 Deg)	None					34			
8	Full Wind Antenna (150 Deg)	None					36			
9	Full Wind Members (0 Deg)	None						30		
10	Full Wind Members (30 Deg)	None						30		
11	Full Wind Members (60 Deg)	None						30		
12	Full Wind Members (90 Deg)	None						30		
13	Full Wind Members (120 Deg)	None						30		
14	Full Wind Members (150 Deg)	None						30		
15	Ice Wind Antenna (0 Deg)	None					15			
16	Ice Wind Antenna (30 Deg)	None					36			
17	Ice Wind Antenna (60 Deg)	None					36			
18	Ice Wind Antenna (90 Deg)	None					36			
19	Ice Wind Antenna (120 Deg)	None					34			
20	Ice Wind Antenna (150 Deg)	None					34			
21	Ice Wind Members (0 Deg)	None						66		
22	Ice Wind Members (30 Deg)	None						66		
23	Ice Wind Members (60 Deg)	None						66		
24	Ice Wind Members (90 Deg)	None						66		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
25	Ice Wind Members (120 Deg)	None						66		
26	Ice Wind Members (150 Deg)	None						66		
27	Seismic Antenna (0 Deg)	None					15			
28	Seismic Antenna (90 Deg)	None					15			
29	Seismic Members (0 Deg)	None		-.044	-.111					
30	Seismic Members (30 Deg)	None	.055	-.044	-.096					
31	Seismic Members (60 Deg)	None	.096	-.044	-.055					
32	Seismic Members (90 Deg)	None	.111	-.044	-6.769e-...					
33	Seismic Members (120 Deg)	None	.096	-.044	.055					
34	Seismic Members (150 Deg)	None	.055	-.044	.096					
35	Seismic Members (180 Deg)	None	1.354e-17	-.044	.111					
36	Seismic Members (210 Deg)	None	-.055	-.044	.096					
37	Seismic Members (240 Deg)	None	-.096	-.044	.055					
38	Seismic Members (270 Deg)	None	-.111	-.044	2.031e-17					
39	Seismic Members (300 Deg)	None	-.096	-.044	-.055					
40	Seismic Members (330 Deg)	None	-.055	-.044	-.096					
41	Seismic Vertical Antennas	None					15			
42	Man 1 (500 lbs)	None				1				
43	Man 2 (500 lbs)	None				1				
44	Man 3 (500 lbs)	None				1				
45	Man 4 (250 lbs)	None				1				
46	Man 5 (250 lbs)	None				1				
47	Man 6 (250 lbs)	None				1				

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D + 1.0..	Yes	Y		1	1.2	3	1	9	1														
3	1.2D + 1.0..	Yes	Y		1	1.2	4	1	10	1														
4	1.2D + 1.0..	Yes	Y		1	1.2	5	1	11	1														
5	1.2D + 1.0..	Yes	Y		1	1.2	6	1	12	1														
6	1.2D + 1.0..	Yes	Y		1	1.2	7	1	13	1														
7	1.2D + 1.0..	Yes	Y		1	1.2	8	1	14	1														
8	1.2D + 1.0..	Yes	Y		1	1.2	3	-1	9	-1														
9	1.2D + 1.0..	Yes	Y		1	1.2	4	-1	10	-1														
10	1.2D + 1.0..	Yes	Y		1	1.2	5	-1	11	-1														
11	1.2D + 1.0..	Yes	Y		1	1.2	6	-1	12	-1														
12	1.2D + 1.0..	Yes	Y		1	1.2	7	-1	13	-1														
13	1.2D + 1.0..	Yes	Y		1	1.2	8	-1	14	-1														
14	1.2D + 1.0..	Yes	Y		1	1.2	2	1	15	1	21	1												
15	1.2D + 1.0..	Yes	Y		1	1.2	2	1	16	1	22	1												
16	1.2D + 1.0..	Yes	Y		1	1.2	2	1	17	1	23	1												
17	1.2D + 1.0..	Yes	Y		1	1.2	2	1	18	1	24	1												
18	1.2D + 1.0..	Yes	Y		1	1.2	2	1	19	1	25	1												
19	1.2D + 1.0..	Yes	Y		1	1.2	2	1	20	1	26	1												
20	1.2D + 1.0..	Yes	Y		1	1.2	2	1	15	-1	21	-1												
21	1.2D + 1.0..	Yes	Y		1	1.2	2	1	16	-1	22	-1												
22	1.2D + 1.0..	Yes	Y		1	1.2	2	1	17	-1	23	-1												
23	1.2D + 1.0..	Yes	Y		1	1.2	2	1	18	-1	24	-1												
24	1.2D + 1.0..	Yes	Y		1	1.2	2	1	19	-1	25	-1												
25	1.2D + 1.0..	Yes	Y		1	1.2	2	1	20	-1	26	-1												
26	1.2D + 1.5..	Yes	Y		1	1.2	3	.062	9	.062	42	1.5												
27	1.2D + 1.5..	Yes	Y		1	1.2	4	.062	10	.062	42	1.5												
28	1.2D + 1.5..	Yes	Y		1	1.2	5	.062	11	.062	42	1.5												
29	1.2D + 1.5..	Yes	Y		1	1.2	6	.062	12	.062	42	1.5												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
30	1.2D + 1.5..	Yes	Y		1	1.2	7	.062	13	.062	42	1.5												
31	1.2D + 1.5..	Yes	Y		1	1.2	8	.062	14	.062	42	1.5												
32	1.2D + 1.5..	Yes	Y		1	1.2	3	-.062	9	-.062	42	1.5												
33	1.2D + 1.5..	Yes	Y		1	1.2	4	-.062	10	-.062	42	1.5												
34	1.2D + 1.5..	Yes	Y		1	1.2	5	-.062	11	-.062	42	1.5												
35	1.2D + 1.5..	Yes	Y		1	1.2	6	-.062	12	-.062	42	1.5												
36	1.2D + 1.5..	Yes	Y		1	1.2	7	-.062	13	-.062	42	1.5												
37	1.2D + 1.5..	Yes	Y		1	1.2	8	-.062	14	-.062	42	1.5												
38	1.2D + 1.5..	Yes	Y		1	1.2	3	.062	9	.062	43	1.5												
39	1.2D + 1.5..	Yes	Y		1	1.2	4	.062	10	.062	43	1.5												
40	1.2D + 1.5..	Yes	Y		1	1.2	5	.062	11	.062	43	1.5												
41	1.2D + 1.5..	Yes	Y		1	1.2	6	.062	12	.062	43	1.5												
42	1.2D + 1.5..	Yes	Y		1	1.2	7	.062	13	.062	43	1.5												
43	1.2D + 1.5..	Yes	Y		1	1.2	8	.062	14	.062	43	1.5												
44	1.2D + 1.5..	Yes	Y		1	1.2	3	-.062	9	-.062	43	1.5												
45	1.2D + 1.5..	Yes	Y		1	1.2	4	-.062	10	-.062	43	1.5												
46	1.2D + 1.5..	Yes	Y		1	1.2	5	-.062	11	-.062	43	1.5												
47	1.2D + 1.5..	Yes	Y		1	1.2	6	-.062	12	-.062	43	1.5												
48	1.2D + 1.5..	Yes	Y		1	1.2	7	-.062	13	-.062	43	1.5												
49	1.2D + 1.5..	Yes	Y		1	1.2	8	-.062	14	-.062	43	1.5												
50	1.2D + 1.5..	Yes	Y		1	1.2	3	.062	9	.062	44	1.5												
51	1.2D + 1.5..	Yes	Y		1	1.2	4	.062	10	.062	44	1.5												
52	1.2D + 1.5..	Yes	Y		1	1.2	5	.062	11	.062	44	1.5												
53	1.2D + 1.5..	Yes	Y		1	1.2	6	.062	12	.062	44	1.5												
54	1.2D + 1.5..	Yes	Y		1	1.2	7	.062	13	.062	44	1.5												
55	1.2D + 1.5..	Yes	Y		1	1.2	8	.062	14	.062	44	1.5												
56	1.2D + 1.5..	Yes	Y		1	1.2	3	-.062	9	-.062	44	1.5												
57	1.2D + 1.5..	Yes	Y		1	1.2	4	-.062	10	-.062	44	1.5												
58	1.2D + 1.5..	Yes	Y		1	1.2	5	-.062	11	-.062	44	1.5												
59	1.2D + 1.5..	Yes	Y		1	1.2	6	-.062	12	-.062	44	1.5												
60	1.2D + 1.5..	Yes	Y		1	1.2	7	-.062	13	-.062	44	1.5												
61	1.2D + 1.5..	Yes	Y		1	1.2	8	-.062	14	-.062	44	1.5												
62	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
63	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
64	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
65	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
66	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
67	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
68	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
69	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
70	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
71	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
72	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
73	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																
74	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
75	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
76	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
77	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
78	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
79	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
80	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
81	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
82	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
83	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
84	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
85	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																
86	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
87	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
88	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
89	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
90	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
91	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
92	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
93	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
94	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
95	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
96	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
97	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																
98	1.2D + 1.0..	Yes	Y		1	1.2	27	1	28		29	1	40	1										
99	1.2D + 1.0..	Yes	Y		1	1.2	27	.866	28	.5	30	1	40	1										
100	1.2D + 1.0..	Yes	Y		1	1.2	27	.5	28	.866	31	1	40	1										
101	1.2D + 1.0..	Yes	Y		1	1.2	27		28	1	32	1	40	1										
102	1.2D + 1.0..	Yes	Y		1	1.2	27	-.5	28	.866	33	1	40	1										
103	1.2D + 1.0..	Yes	Y		1	1.2	27	-.866	28	.5	34	1	40	1										
104	1.2D + 1.0..	Yes	Y		1	1.2	27	-1	28		35	1	40	1										
105	1.2D + 1.0..	Yes	Y		1	1.2	27	-.866	28	-.5	36	1	40	1										
106	1.2D + 1.0..	Yes	Y		1	1.2	27	-.5	28	-.866	37	1	40	1										
107	1.2D + 1.0..	Yes	Y		1	1.2	27		28	-1	38	1	40	1										
108	1.2D + 1.0..	Yes	Y		1	1.2	27	.5	28	-.866	39	1	40	1										
109	1.2D + 1.0..	Yes	Y		1	1.2	27	.866	28	-.5	40	1	40	1										

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N273A	max	.806	12	2.089	14	3.494	14	-.17	61	.323	13	-.08	73
2		min	-1.23	6	.417	56	.016	8	-1.479	19	-.361	7	-.819	74
3	N274A	max	3.305	23	2.073	21	.933	3	.451	51	.316	9	1.659	17
4		min	.039	5	.418	47	-1.844	9	-.255	33	-.355	3	.218	47
5	N276A	max	.442	11	2.079	20	.307	13	1.386	25	.286	5	-.064	29
6		min	-2.813	17	.418	26	-2.269	20	.215	31	-.324	11	-1.013	47
7	Totals:	max	3.282	11	6.143	21	3.272	2						
8		min	-3.282	5	2.557	2	-3.272	8						

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

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M1	C5X9	.354	5.286	2	.382	5.286	z	8	59.3	85.536	1.909	11.853	1....	H1-1b
2	M4	C5X9	.280	0	13	.174	4.222	y	21	34.351	85.536	1.909	11.853	1....	H1-1b
3	M7A	C5X9	.344	5.286	10	.382	5.286	z	4	59.3	85.536	1.909	11.853	1....	H1-1b
4	M10A	C5X9	.346	5.287	6	.382	5.287	z	12	59.3	85.536	1.909	11.853	1....	H1-1b
5	M10B	C5X9	.276	0	9	.174	4.222	y	20	34.352	85.536	1.909	11.853	1....	H1-1b
6	M11	C5X9	.273	0	5	.175	4.222	y	14	34.352	85.536	1.909	11.853	1....	H1-1b
7	M19	HSS3X3X5	.185	0	18	.125	0	y	25	107.699	121.716	10.005	10.005	4....	H1-1b
8	M20	HSS3X3X5	.184	0	15	.125	0	y	21	107.699	121.716	10.005	10.005	4....	H1-1b
9	M21	HSS3X3X5	.184	0	22	.124	0	y	17	107.699	121.716	10.005	10.005	4....	H1-1b
10	A1	PIPE_2.0	.753	3.854	8	.039	3.958		8	14.277	32.13	1.872	1.872	2....	H1-1b
11	A2	PIPE_2.0	.234	1.875	8	.022	3		8	29.899	32.13	1.872	1.872	1....	H1-1b
12	C1	PIPE_2.0	.752	3.854	4	.039	3.958		4	14.277	32.13	1.872	1.872	1....	H1-1b
13	C2	PIPE_2.0	.220	1.875	2	.019	1.875		3	12.83	32.13	1.872	1.872	1....	H1-1b
14	B1	PIPE_2.0	.752	3.854	12	.039	3.958		12	14.277	32.13	1.872	1.872	1....	H1-1b
15	B2	PIPE_2.0	.220	1.875	2	.019	1.875		13	12.83	32.13	1.872	1.872	1....	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

Reactions		
Vu_x (k)	3.542	(k)
Vu_y (k)	2.091	(k)
Vu_z (k)	1.148	(k)
Mu_x	0.633	(k-ft)
Mu_y	0.361	(k-ft)
Mu_z	1.595	(k-ft)

Weld Group Properties		
Weld Group	7	(in)
Weld Size, a	0.25	(in)
b	3	(in)
d	3	(in)
L_{Total}	*12*	(in)
Sz	*12*	(in^3/in of throat)
Sy	*12*	(in^3/in of throat)
Ip	*36*	(in^4/in of throat)

Weld Shear due to Shear Reactions		
Rux1	*0.295167*	(k/in)
Ruy1	*0.17425*	(k/in)
Ruz1	*0.095667*	(k/in)

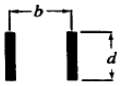
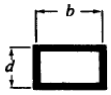
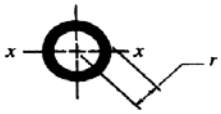
Weld Shear due to Moments		
Rux2	*1.595*	(k/in)
Rux3	*0.361*	(k/in)
Ruy2	*0.3165*	(k/in)
Ruz2	*0.3165*	(k/in)

Required Weld Strength		
Ru	*2.340613*	(k/in)

Weld Strength Strength		
ϕ	0.75	
F_{EXX}	70	ksi
ϕRn	*5.568466*	k/in
Ru/ϕRn	42.0%	PASS

Base Metal Shear		
ϕ	0.75	
Fu, Base Metal	60	ksi
ϕRn	*6.75*	k/in
Ru/ϕRn	34.7%	PASS

*NOTES:
This tool is only applicable for the weld groups shown below.
This tool assumes the Local y-Axis is Vertical.
1/4" welds were considered for all welded connections.

Section *b* = width; *d* = depth	Section modulus $I_x/\bar{y}$	Polar moment of inertia, I_p about center of gravity
1. 	$S = \frac{d^2}{6}$	$I_p = \frac{d^3}{12}$
2. 	$S = \frac{d^2}{3}$	$I_p = \frac{d(3b^2 + d^2)}{6}$
3. 	$S = bd$	$I_p = \frac{b(3d^2 + b^2)}{6}$
7. 	$S = bd + \frac{d^2}{3}$	$I_p = \frac{(b + d)^3}{6}$
10. 	$S = \pi r^2$	$I_p = 2\pi r^3$

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 322.51 ft (NAVD 88)
Latitude: 41.2733
Longitude: -73.2131

Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 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: Mon Jun 03 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.

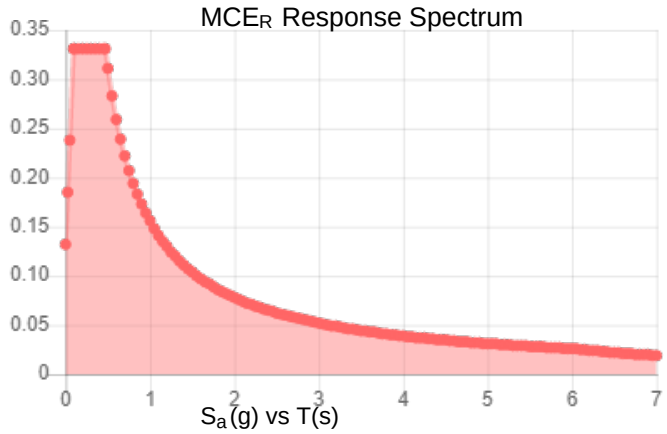
Seismic

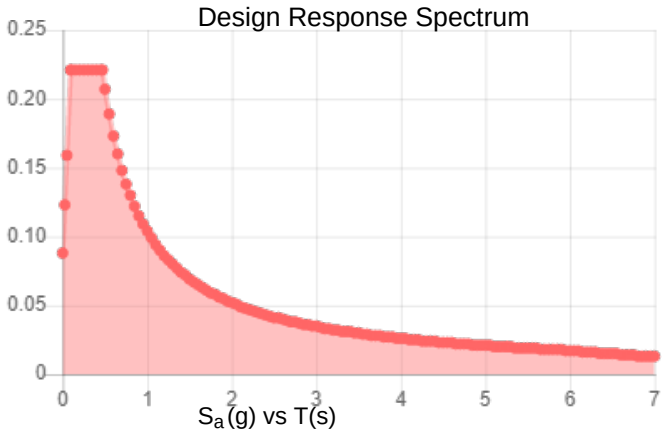
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.207	S_{DS} :	0.221
S_1 :	0.065	S_{D1} :	0.104
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.112
S_{MS} :	0.331	PGA_M :	0.176
S_{M1} :	0.156	F_{PGA} :	1.577
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Jun 03 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:	Mon Jun 03 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.

Exhibit F

Power Density/RF Emissions Report

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11961A

CT961_Indian Ledge Prk
Indian Ledge Park Road
Trumbull, CT 06611

July 16, 2019

Transcom Engineering Project Number: 737001-0156

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**18.21 %**

July 16, 2019

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

Emissions Analysis for Site: **CT11961A – CT961_Indian Ledge Prk**

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

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

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

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

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

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

Table 1: Channel Data Table

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

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR21 B4A/B2P	145
A	2	RFS APXVAARR24_43-U-NA20	145
B	1	Ericsson AIR21 B4A/B2P	145
B	2	RFS APXVAARR24_43-U-NA20	145
C	1	Ericsson AIR21 B4A/B2P	145
C	2	RFS APXVAARR24_43-U-NA20	145

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **1.80 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **170 feet** of **1-5/8”** coax.

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR21 B4A/B2P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	6	280	10,893.26	2.03
Antenna A2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 2100 MHz (AWS)	12.95 / 13.35 / 16.35	5	160	3,583.43	1.28
						Sector A Composite MPE%	**3.31**
Antenna B1	Ericsson AIR21 B4A/B2P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	6	280	10,893.26	2.03
Antenna B2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 2100 MHz (AWS)	12.95 / 13.35 / 16.35	5	160	3,583.43	1.28
						Sector B Composite MPE%	**3.31**
Antenna C1	Ericsson AIR21 B4A/B2P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	6	280	10,893.26	2.03
Antenna C2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 2100 MHz (AWS)	12.95 / 13.35 / 16.35	5	160	3,583.43	1.28
						Sector C Composite MPE%	**3.31**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**3.31 %**
Town Antennas (Cumulative)	4.80 %
AT&T	5.01 %
Sprint	2.07 %
Clearwire	0.07 %
Verizon Wireless	2.95 %
Site Total MPE %:	**18.21 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.31 %
T-MOBILE Sector B Total:	3.31 %
T-MOBILE Sector C Total:	3.31 %
Site Total:	18.21 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,556.18	145	11.58	1900 MHz (PCS)	1000	1.16%
T-Mobile 2100 MHz (AWS) LTE	2	2,334.27	145	8.69	2100 MHz (AWS)	1000	0.87%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	145	2.94	600 MHz	400	0.73%
T-Mobile 700 MHz LTE	2	432.54	145	1.61	700 MHz	467	0.34%
T-Mobile 2100 MHz (AWS) UMTS	1	1,140.41	145	2.12	2100 MHz (AWS)	1000	0.21%
						Total:	**3.31%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	3.31 %
Sector B:	3.31 %
Sector C:	3.31 %
T-MOBILE Maximum Total (per sector):	3.31 %
Site Total:	18.21 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.21 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director
Transcom Engineering, Inc
PO Box 1048
Sterling, MA 01564