## Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street Hartford, CT 06103-3597 Main (860) 275-8200 Fax (860) 275-8299 kbaldwin@rc.com Direct (860) 275-8345

Also admitted in Massachusetts and New York

August 16, 2023

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

Re: Notice of Exempt Modification – Facility Modification 482 Pigeon Hill Road, Windsor, Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above-referenced address (the "Property"). Cellco's facility consists of antennas and remote radio heads attached to a tower. Equipment associated with the facility is located on the ground adjacent to the tower. Cellco's facility was approved by the Siting Council ("Council") in July of 1986 (Docket No. 58). A copy of the Council's Docket No. 58 Decision and Order is included in <u>Attachment 1</u>.

Cellco's proposed modification involves the installation of four (4) interference mitigation filters ("Filters") on Cellco's existing antenna platform and mounting assembly. The Filter specification sheet is included in <u>Attachment 2</u>.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Windsor's Chief Elected Official and Land Use Officer. Cellco is the owner of the tower and Property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. The Filters will be installed on Cellco's existing antenna platform and mounting assembly.

## Robinson+Cole

Melanie A. Bachman, Esq. August 16, 2023 Page 2

- 2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
- 3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
- 4. The installation of Cellco's new Filters will not result in a change to radio frequency (RF) emissions from the facility. Therefore, no new RF emissions information is included in this filing.
- 5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
- 6. According to the attached Structural Analysis Report ("SA") and Antenna Mount Analysis Report ("MA"), the existing tower, foundation, antenna platform and mounting assembly can support Cellco's proposed modifications. A copy of the SA and MA are included in <u>Attachment 3</u>.

A copy of the parcel map and Property owner information is included in <u>Attachment 4</u>. A Certificate of Mailing verifying that this filing was sent to municipal officials and the property owner is included in <u>Attachment 5</u>.

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

Sincerely,

Kenneth C. Baldwin

Enclosures Copy to:

Peter Souza, Town Manager Eric Barz, AICP, Town Planner Daniel Fitzpatrick, Verizon Wireless

# **ATTACHMENT 1**

AN APPLICATION OF HARTFORD CELLULAR COPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN HARTFORD, TOLLAND AND MIDDLESEX COUNTIES.

CONNECTICUT SITING

COUNCIL

July 11, 1986.

#### DECISION AND ORDER

Pursuant to the foregoing opinion, the Connecticut Siting Council (Council) hereby directs that a Certificate of Environmental Compatibility and Public Need as provided by Section 16-50k of the General Statutes of Connecticut (CGS) be issued to the Hartford Cellular Company for the construction, maintenance, and operation of cellular mobile phone telecommunication towers and associated equipment in the towns of Glastonbury, Haddam, Hartford, Portland, Rocky Hill, Somers, Vernon, Windsor, and Willington subject to the conditions below.

- 1) The proposed Bloomfield and Middlefield sites are rejected without prejudice.
- 2) The antennas on the Glastonbury tower shall be mounted no higher than the 180' level of this existing tower.
  - 3) The Portland and Rocky Hill towers shall be monopoles.
- 4) The towers shall be no taller than necessary to provide the proposed service, and in no event shall exceed total heights, including antennas, of
  - a) 193' at the Haddam site;
  - b) 173' at the Portland site;

- c) 153' at the Rocky Hill site;
- d) 173' at the Somers site;
- e) 173' at the Vernon site;
- f) 153' at the Willington site;
- g) 173' at the Windsor site.
- 5) The Hartford site receive antennas shall be mounted below the top of the high point of the building to preclude visibility.
- 6) Any future actions requiring the removal of the existing Glastonbury tower to be shared by the certificate holder shall also apply to the equipment mounted on that tower by the certificate holder, regardless of that equipment's status under Chapter 277a of the CGS.
- management (D&M) plan for the Haddam, Portland, Rocky Hill, Somers, Vernon and Windsor sites pursuant to Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies (RSA), except that irrelevant items in Section 16-50j-76 need only be identified as such. In addition to the requirements of Section 16-50j-76, the D&M plan shall provide plans for evergreen screening around the fenced perimeter at the Haddam, Somers, Vernon, and Windsor sites. The D&M plan shall include a proposal for painting the approved monopole structures to blend with the sky. The D&M plan must be approved prior to facility construction. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
- 8) All certified facilities shall be constructed, operated, and maintained as specified in the Council's record and in the

site plan required by order number 7.

- 9) The certificate holder shall comply with any future radiofrequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facilities granted in this decison shall continue to be in compliance with such standards.
- 10) The certificate holder shall permit public or private entities to share space on the towers approved herein, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. In addition to complying with Section 16-50j-73 of the RSA, the certificate holder shall notify the Council of the addition of any equipment to any approved tower.
- 11) A fence not lower than 8' shall surround each tower and associated equipment.
- 12) Unless necessary to comply with order 13, no lights shall be installed on any of these towers.
- 13) The facilities' construction and any future tower sharing shall be in accordance with all applicable federal, state, and municipal laws and regulations. Shared uses by entities not subject to jurisdiction pursuant to Section 16-50k of the CGS shall be subject to all applicable federal, state, and municipal laws and regulations.
- 14) Construction activities shall take place during daylight working hours.

- 15) This decision and order shall be void and the towers and associate equipment shall be dismantled and removed, or reapplication for any new use shall be made to the Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.
- 16) This decision and order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of the decision and order shall be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, Middletown Press, Manchester Journal Inquirer, and the Willimantic Chronicle.

The parties to the proceeding are:

Metro Mobile 5 Eversley Avenue Norwalk, Connecticut 06855 ATTN: Armand Mascioli General Manager

Howard L. Slater, Esq. Scott A. Gursky, Esq. Byrne, Slater, Sandler, Shulman & Rouse, P.C. 111 Pearl Street Hartford, Connecticut 06103

Richard Rubin, Esq. Fleischman and Walsh, P.C. 1725 N Street, N.W. Washington, D. C. 20036 (its attorneys)

(applicant)

Mr. William Wamester 1225 Randolph Road Middletown, Connecticut 06457

The Southern New England Telephone Company 227 Church Street
New Haven, Connecticut 06506
ATIN: Peter J. Tyrrell, Esq.

Mr. James W. Tilney

represented by:
Patricia A. Ayars
Samuel Baily, Jr.
Robinson & Cole
One Commercial Plaza
Hartford, CT. 06103-3597

Mr. Samuel DuBosar, Chairman Bessie Bennett, Esq. Town Plan & Zoning Commission P.O. Box 337 Bloomfield, Connecticut 06002

Town of Somers

represented by:

Mr. Robert F. Peters
Town Counsel
Tatoian, Devline, Peters
& Davis
11 South Road
P.O. Box 415
Somers, CT. 06071

Town of Haddam represented by:

Lucy R. Petrella Chairperson Town Office Building Route 9A P.O. Box 87 Haddam, CT. 06438

Midstate Regional Planning Agency

represented by:

Thomas M.Gilligan Regional Planner P.O. Box 139 Middletown, CT. 06457 Dr. Donald P. IaSalle Director Talcott Mountain Science Center Montevideo Road Avon, Connecticut 06001

Barnard Tilson Secretary Avon Planning and Zoning 60 West Main Street Avon, Connecticut 06001 (service waived)

Alden Giddings 33 Privelege Road Bloomfield, Connecticut 06002

Town of Bloomfield

represented by:

Joseph M.Suggs, Jr.
Deputy Mayor
Town Hall
880 Bloomfield Avenue
P.O. Box 337
Bloomfield, CT. 06002
(service waived)

Town of Middlefield

represented by:

David Silverstone, Esq. Silverstone & Koontz 37 Lewis Street Hartford, CT. 06103

with a copy to:

Geoffrey Colegrove Midstate Regional Planning Agency 100 DeKoven Drive Middletown, CT. 06457

Zoning Commission Town of Somers represented by:

Joseph A. Paradis Chairman Town Hall 600 Main Street P.O. Box 803 Somers, CT. 06071 Barbara Sirwilo, Secretary (service waived)
Planning & Zoning Commission
Town of Rocky Hill
600 Old Main Street
P.O. Box 657
Rocky Hill, Connecticut 06067

H. Robert Goodrich (service waived) Goodrich Iane Portland, Connecticut 06480

The Honorable Richard P. Antonetti State Representative (service waived) 5 Sachem Circle Meriden, Connecticut 06450

John Hevrin R.D. #1 - Plains Road Haddam, Connecticut 06438

Norman and Darlene Manning (represented by)

Elizabeth Allen, Esq. P.O. Box 467 Higganum, CT. 06441 (service waived)

## <u>CERTIFICATION</u>

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 11th day of July, 1986.

Council Members	<u>Vote Cast</u>
Gloria Dibble Pond Chairperson	Absent
Patricia Shea  Commissioner John Downey  Designee: Patricia Shea	Yes
Commissioner Stanley Pac Designee: Christopher Cooper	Yes
Owen L. Clark	Yes
Jostmes G. Selstin ) Mortimer A. Gelston	Yes
James G. Horsfall	Yes
Pamela B. Katz	Absent
William H. Smith )	Yes
Colin C. Tait	Yes

STATE OF CONNECTICUT	)						
	:	SS.	New	Britain,	July	11,	1986
COUNTY OF HARTFORD	)						

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood, Executive Director Connecticut Siting Council

# **ATTACHMENT 2**



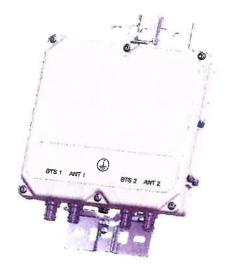
## BSF0020F3V1-1

### TWIN BANDSTOP 900MHZ INTERFERENCE MITIGATION FILTER

The BSF0020 is ideal for co-located 700, 850 and 900 networks. Utilising a 2.6MHz guardband the BSF0020 provides rejection of the 900 UL band while passing 700/850 UL and DL bands. Capable of being used in an outdoor environment the BSF0020 contains two identical bandstop filters, suitable for 2x2 MIMO configuration, offering excellent insertion loss, group delay and rejection.

#### **FEATURES**

- · Passes full 700 and 850 bands
- Low insertion loss
- Rejection of 900MHz uplink
- DC/AISG pass
- Twin unit
- Dual twin mounting available



TECHNICAL SPECIFICAT	IONS				
EAND NAME	700 PATH / STULPLINK PATH	SKO DOWNERK PATH			
Passband	698 - 849MHz	869 - 891 5MHz			
Insertion loss	0_1dB typical / 0_3dB maximum	0,5dB typical, 1,45dB maximum			
Return loss	24dB typical,	18dB minimum			
Maximum input power (Per Port)	100W average	200W average and 66W per 5MHz			
Rejection	53dB minimum @	) 894,1 - 896,5MHz			
ELECTRICAL					
Impedance		Ohms			
Intermodulation products	=160dBc maximum in UL Band (assumin -153dBc maximu	ig 20MHz Signal), with 2 x 43dBm carriers um with 2 x 43dBm			
DC / AISG					
Passband	0 - 1	3MHz			
Insertion loss	0.3dB	maximum			
Return loss	15dB :	minimum			
Input voltage range	± 33V				
DC current rating	2A continuous, 4A paak				
Compliance	3GPP T	S 25,461			
ENVIRONMENTAL					
For further details of environmental co	ompliance, please contact Kaelus.				
Temperature range	-20°C to +60°C	-4°F to +140°F			
Ingress protection	IF	267			
Altitude		8530ft			
Lightning protection	RF port: ±5kA maximum (8/20us), IEC 61000-4-5 = Unit	must be terminated with some lightning protection circuits			
MTBF	>1,000,	000 hours			
Compliance	ETSI EN 300 019 class 4.1H	, RoHS. NEBS GR-487-CORE			
MECHANICAL					
Dimensions H x D x W	269 x 277 x 80mm   10.60 x 10.90 x 3.	15in (Excluding brackets and connectors)			
Weight	8.0 kg   17.6	bs (no bracket)			
Finish	Powder coated. li	gint grey (RAL7035)			
Connectors		10 (F) x 4			
Mounting	Optional pole/wall bracket supplied with two metal clamps	45-178mm diameter poles or custom bracket. See orderi			

Mounting

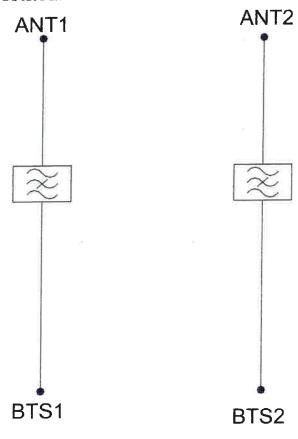


#### ORDERING INFORMATION

ORDERING INFORMA	CONFIGURATION	OPTIONAL FEATURES	SEMMESTORS	
PART NUMBER BSF0020F3V1	TWIN, 2 in / 2 out	DC/AISG PASS NO BRACKET	4.3-10 (F)	
	TWIN, 2 in / 2 out	DC/AISG PASS	4.3-10 (F)	
BSF0020F3V1-1 BSF0020F3V1-2	QUAD, 4 in / 4 out	DC/AISG PASS	4.3-10 (F)	

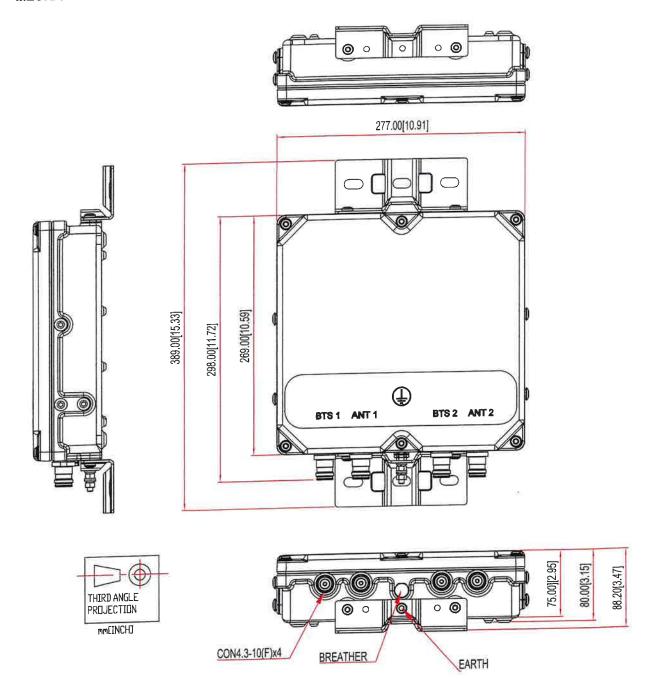


#### **ELECTRICAL BLOCK DIAGRAM**





### MECHANICAL BLOCK DIAGRAM



# **ATTACHMENT 3**



Report Date:

August 3, 2023

Client:

On Air Engineering, LLC 88 Foundry Pond Road Cold Spring, NY 10516 Attn: David Weinpahl, P.E.

(201) 456-4624

dweinpahl@onaireng.com

Structure:

Existing 160-ft Self Support Tower

Site Name:

Windsor CT

Site Address:

482 Pigeon Hill Rd

City, County, State:

Windsor, Hartford County, CT

Latitude, Longitude:

41.86664°, -72.674778°

**PJF Project:** 

A42923-0005.001.8700

Paul J. Ford and Company is pleased to submit this "Structural Analysis Report" to determine the tower stress level.

Analysis Criteria:

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2022 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Proposed Appurtenance Loads:

The structure was analyzed with the proposed loading configuration shown in Table 1 combined with the other considered equipment shown in Table 2 of this report.

#### Summary of Analysis Results:

Existing Structure:

Pass - 88.5%

Existing Foundation:

Pass - 85.8%

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and On Air Engineering, LLC. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully Submitted by: Paul J. Ford and Company

Anna Trudo, El Structural Designer

atrudo@pauljford.com MT

#### **TABLE OF CONTENTS**

#### 1) INTRODUCTION

#### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration
Table 2 - Other Considered Equipment

#### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided 3.1) Analysis Method 3.2) Assumptions

#### 4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)
Table 5 - Tower Component Stresses vs. Capacity
4.1) Recommendations

#### 5) APPENDIX A

tnxTower Output

#### 6) APPENDIX B

Base Level Drawing

#### 7) APPENDIX C

Additional Calculations

#### 1) INTRODUCTION

This tower is a 168 ft Self Support tower designed by Rohn in April of 1987. The tower has been modified multiple times in the past.

#### 2) ANALYSIS CRITERIA

TIA-222 Revision:

TIA-222-H

Risk Category:

Wind Speed:

120 mph

Exposure Category:

В

Topographic Factor: Ice Thickness:

Wind Speed with Ice:

1.5 in

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)
	(1.5)	2	misc	OVP		
		3	tower mounts	VFA-12		
		3	andrew	LNX-6513DS-A1M w/ Mount Pipe		
		6	commscope	NNHH-65B-R4_ w/ Mount Pipe		
455.0	155.0	4	kaelus	BSF0020F3V1-1	9	1-5/8 6x12
155.0	155.0	3	samsung telecommunications	B2/B66A RRH-BR049	2	0.712
		3 samsung telecommunication	samsung telecommunications	B5/B13 RRH-BR04C		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	of Manufacturer Antenna Model		Manufacturer Antenna woder		Number of Feed Lines	Feed Line Size (in)
		3	ericsson	RADIO 4449 B5/B12		1-1/4 7/8 .39 .78		
		3	ericsson	RADIO 8843 B2/B66A	6 2 2			
		3	ericsson	RRUS 32 B30				
		1	kathrein	80010964 w/ Mount Pipe				
169.0	169.0	2	kathrein	80010965 w/ Mount Pipe				
100.0	100.0	3	quintel technology	QS66512-2 w/ Mount Pipe	2			
		1	raycap	DC6-48-60-18-8C				
			raycap	DC6-48-60-18-8F				
		1	tower mounts	T-Arm Mount				

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	165.0	1	generic	15 ft x 2" omni whip		_:-
100.0	160.0	1	tower mounts	Side Arm Mount	1	7/8
		6	generic	TMA (10" x 8" x 3")		
145.0	145.0	3	andrew	LNX-6515DS-A1M w/ Mount Pipe	10	1 = 10
140.0	3.0 143.0	3	celwave	Celwave APX16DWV-16DWV- S-E-A20 w/Mount Pipe	18	1-5/8
		1	tower mounts	Sector Mount		
118.0	128.0	1	generic	15 ft x 2" omni whip		
110.0	118.0	1	tower mounts	Side Arm Mount	1	7/8
99.0	108.0	1	generic	16 ft x 2" omni whip		
99.0	99.0	1	tower mounts	mounts Side Arm Mount		7/8
47.0	47.0	1	tower mounts	Side Arm Mount	-	-
38.0	46.0 1 generic 12 ft x 2" omni whip					
30.0	38.0	1	tower mounts Side Arm Mount		1	1/2

#### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided** 

Document	Remarks	Source	
TOWER STRUCTURAL ANALYSIS REPORTS	All-Points Technology Corporation 06/26/2017	On Air Engineering, LLC	
TOWER STRUCTURAL ANALYSIS REPORTS	Centek Engineering, 04/20/2017	On Air Engineering, LLC	
TOWER AND FOUNDATION DRAWINGS	Rohn #22282JC, 04/20/87	On Air Engineering, LLC	
GEOTECHNICAL REPORTS	DR. Clarence Welti, 09/20/2010	On Air Engineering, LLC	
MODIFICATION LETTER	Centek Engineering, 07/11/2011	On Air Engineering, LLC	
TOWER REINFORCEMENT DESIGN/DRAWINGS	PJF, 42918-0018.004.8800 04/11/2019	%=	
TOWER STRUCTURAL ANALYSIS REPORTS	Semaan Engineering solutions, 10,21,2020	On Air Engineering, LLC	
MOUNT ANALYSIS	Colliers Engineering and Design, 7/10/2023	On Air Engineering, LLC	
VERIZON CD's	Verizon, 07/19/2023	On Air Engineering, LLC	

#### 3.1) Analysis Method

tnxTower (version 8.1.1.0), 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

- Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- The modification dated 4/11/2019 does not have a post modification inspection. It was assumed the structure was modified in conformance with the referenced modification drawings.

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

#### 4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

able 4	- Section Ca	pacity (Summa	ary)			laces .u	1 o/ T	
Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	168 - 160	Pole	Pipe 8.625" x 0.322" (8 STD)	1	-3.29	396.87	35.2	Pass
T1	160 - 140	Leg	Pipe 2.875" x 0.203" (2.5 STD)	3	-25.08	60.05	41.8	Pass
T2	140 - 133.333	Leg	Pipe 2.875" x 0.276" (2.5 XS)	33	-34.10	61.44	55.5	Pass
Т3	133.333 - 126.667	Leg	Pipe 2.875" x 0.276" (2.5 XS)	45	-43.01	61.44	70.0	Pass
T4	126.667 - 120	Leg	Pipe 2.875" x 0.276" (2.5 XS)	54	-51.70	91.97	56.2	Pass
T5	120 - 100	Leg	Pipe 2.875" x 0.276" (2.5 XS)	69	-79.00	92.09	85.8	Pass
T6	100 - 80	Leg	Pipe 3.5" x 0.300" (3 XS)	99	-106.80	129.56	82.4	Pass
T7	80 - 60	Leg	Pipe 4.5" x 0.337" (4 XS)	129	-132.28	183.05	72.3	Pass
Т8	60 - 40	Leg	Pipe 5.563" x 0.375" (5 XS)	150	-160.19	211.31	75.8	Pass
Т9	40 - 20	Leg	Pipe 5.563" x 0.375" (5 XS)	165	-187.02	211.29	88.5	Pass
T10	20 - 1e-006	Leg	Pipe 6.625" x 0.340" (6 EHS)	180	-213.31	256.27	83.2	Pass
T1	160 - 140	Diagonal	L 1.75 x 1.75 x 3/16	11	-4.52	6.82	66.4 71.7 (b)	Pass
T2	140 - 133.333	Diagonal	L 2 x 2 x 3/16	41	-4.18	7.57	55.2 56.8 (b)	Pass
Т3	133.333 - 126.667	Diagonal	L 2 x 2 x 3/16	50	-4.24	6.88	61.6	Pass
T4	126.667 - 120	Diagonal	L 2.5 x 2.5 x 3/16	62	-4.51	12.01	37.5 39.0 (b)	Pass
T5	120 - 100	Diagonal	L 2.5 x 2.5 x 3/16	74	-4.94	9.22	53.6 58.3 (b)	Pass
Т6	100 - 80	Diagonal	L 3 x 3 x 3/16	102	-5.91	12.82	46.1 66.5 (b)	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 1/4	132	-6.96	11.36	61.3	Pass
Т8	60 - 40	Diagonal	L 3.5 x 3.5 x 1/4	153	-7.42	15.96	46.5 64.4 (b)	Pass
Т9	40 - 20	Diagonal	L 3.5 x 3.5 x 1/4	168	-7.64	13.43	56.9 65.2 (b)	Pass
T10	20 - 1e-006	Diagonal	L 4 x 4 x 1/4	183	-8.73	17.47	49.9 72.1 (b)	Pass
T4	126.667 - 120	Secondary Horizontal	L 2 x 2 x 1/4	65	-0.90	11.82	7.6 8.2 (b)	Pass
T5	120 - 100	Secondary Horizontal	L 2.5 x 2.5 x 3/16	77	-1.37	12.61	10.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
Т6	100 - 80	Secondary Horizontal	L 3 x 3 x 3/16	107	-1.85	16.36	11.3	Pass
T7	80 - 60	Secondary Horizontal	L 3 x 3 x 1/4	137	-2.29	16.74	13.7	Pass
T1	160 - 140	Top Girt	L 2.5 x 2.5 x 3/16	6	-1.54	6.92	22.3	Pass
T2	140 - 133.333	Top Girt	L 2 x 2 x 3/16	35	-0.59	5.18	11.4	Pass
T4	126.667 - 120	Top Girt	L 2.5 x 2.5 x 3/16	56	-0.90	4.86	18.4	Pass
T1	160 - 140	Pole Socket	Pipe 8.625" x 0.322" (8 STD)	197	-3.47	367.06	35.3	Pass
							Summary	
						Pole (L1)	35.2	Pass
						Leg (T9)	88.5	Pass
						Diagonal (T10)	72.1	Pass
				Secondary Horizontal (17)	13.7	Pass		
						Top Girt (T1)	22.3	Pass
						Pole Socket (T1)	35.3	Pass
						Bolt Checks	72.1	Pass
						Rating =	88.5	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	58.6	Pass
1	Base Foundation (Structure)	-	71.0	Pass
1	Base Foundation (Soil Interaction)	-	85.8	Pass

Structure Rating (max from all components) =	88.5%

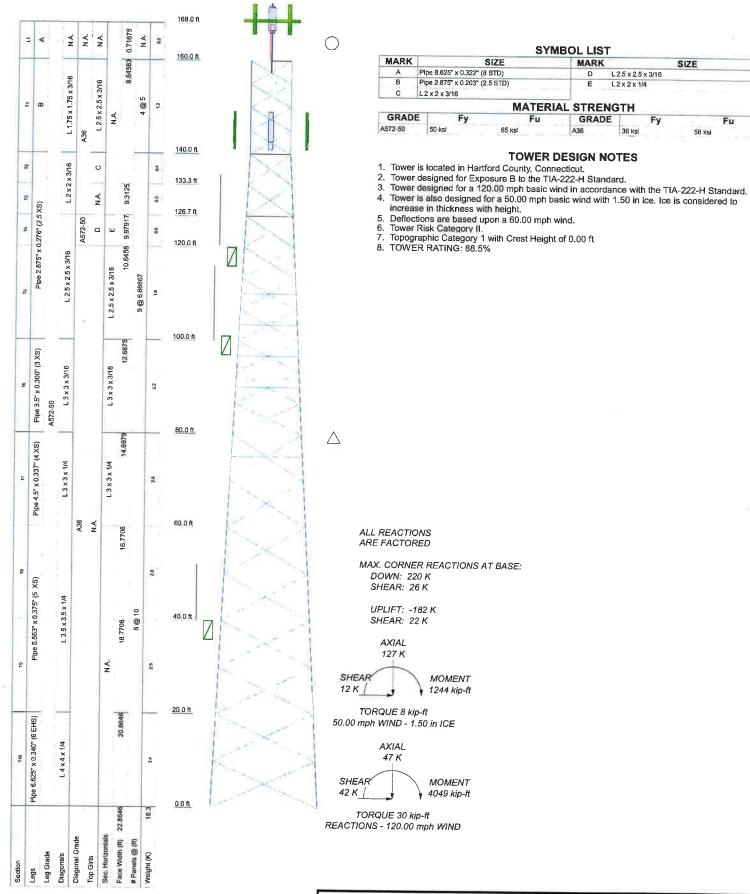
#### Notes:

#### 4.1) Recommendations

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

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

## APPENDIX A TNXTOWER OUTPUT





MARK

D

GRADE

L25 x 25 x 3/16

L2x2x1/4

SIZE

App'd:

Scale NTS

Dwg No. E-1

### **Tower Input Data**

The main tower is a 3x free standing tower with an overall height of 168.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 8.65 ft at the top and 22.86 ft at the base.

An index plate is provided at the 3x free standing -tower connection.

There is a pole section.

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

The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 167.00 ft.
- Basic wind speed of 120.00 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.50 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50.00 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60.00 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Stress ratio used in tower member design is 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

### Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios

- Use Code Safety Factors Guys Escalate Ice Always Use Max Kz Use Special Wind Profile
- √ Include Bolts In Member Capacity
- Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric

Distribute Leg Loads As Uniform Assume Legs Pinned Assume Rigid Index Plate

- Use Clear Spans For Wind Area Use Clear Spans For KL/r
- Retension Guys To Initial Tension Bypass Mast Stability Checks
- Use Azimuth Dish Coefficients
  - Project Wind Area of Appurt.

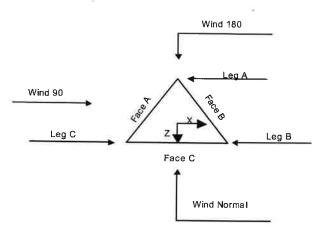
Autocalc Torque Arm Areas

Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs

- √ Use ASCE 10 X-Brace Ly Rules
- Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation
- Consider Feed Line Torque
- Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption

Poles

Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known



Triangular Tower

Pole Section Geometry									
Section	Elevation	Section Length	Pole	Pole	Socket Length				
	ft	ft	Size	Grade	π				
L1	168.00-160.00	8.00	Pipe 8.625" x 0.322" (8 STD)	A572-50 (50 ksi)	8.00				

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade Adjust. Factor Ar	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing	Double Angle Stitch Bolt Spacing	Double Angle Stitch Bolt Spacing
ft	ft²	in				Diagonals in	Horizontals	Redundants
L1 168.00- 160.00			1.03	1	1			In

		Tower	Section Geo	metry		
Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of	Section Length
	ft			ft	Sections	ft
T1	160.00-140.00		08N056	8.65	1	20.00
T2	140.00-133.33		09N115	8.65	1	6.67
T3	133.33-126.67		09N115	9.31	1	6.67
T4	126.67-120.00		09N115	9.98	i	6.67
T5	120.00-100.00		10N106	10.65	1	20.00
T6	100.00-80.00		11N076	12.69	1	20.00
T7	80.00-60.00		12N005	14.70	1	20.00
T8	60.00-40.00		13N011	16.77	1	20.00
T9	40.00-20.00		14N003	18.77	1	20.00
T10	20.00-0.00		15N023	20.86	1	20.00

	Tower Section Geometry (cont'd)											
Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace	Has Horizontals	Top Girt Offset	Bottom Gir Offset					
	ft	ft		End Panels		in	in					
T4	160.00-140.00	5.00	X Brace	No	No	0.00	0.00					
T1	140.00-133.33	6.67	X Brace	No	No	0.00	0.00					
T2	133.33-126.67	6.67	X Brace	No	No	0.00	0.00					
T3	126.67-120.00	6.67	X Brace	No	Yes	0.00	0.00					
T4	120.00-100.00	6.67	X Brace	No	Yes	0.00	0.00					
T5	100.00-100.00	6.67	X Brace	No	Yes	0.00	0.00					
T6		10.00	X Brace	No	Yes	0.00	0.00					
T7	80.00-60.00	10.00	X Brace	No	No	0.00	0.00					
T8	60.00-40.00		X Brace	No	No	0.00	0.00					
T9 T10	40.00-20.00 20.00-0.00	10.00 10.00	X Brace	No	No	0.00	0.00					

		Tower Secti	on Ge	ometry (c	ont'd)	
Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 160.00-	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A572-50 (50 ksi)	Single Angle	L 1.75 x 1.75 x 3/16	A36 (36 ksi)
140.00 T2 140.00-	Pipe	Pipe 2.875" x 0.276" (2.5 XS)	A572-50 (50 ksi)	Single Angle	L 2 x 2 x 3/16	A36 (36 ksi)
133.33 T3 133.33-	Pipe	Pipe 2.875" x 0.276" (2.5 XS)	A572-50 (50 ksi)	Single Angle	L 2 x 2 x 3/16	A36 (36 ksi)
126.67 T4 126.67-	Pipe	Pipe 2.875" x 0.276" (2.5 XS)	A572-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A572-50 (50 ksi)
120.00 T5 120.00-	Pipe	Pipe 2.875" x 0.276" (2.5 XS)	A572-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
100.00 T6 100.00-	Pipe	Pipe 3.5" x 0.300" (3 XS)	A572-50 (50 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
80.00 T7 80.00-60.00	Pipe	Pipe 4.5" x 0.337" (4 XS)	A572-50 (50 ksi)	Single Angle	L3 x 3 x 1/4	A36 (36 ksi)
T8 60.00-40.00	Pipe	Pipe 5.563" x 0.375" (5 XS)	A572-50 (50 ksi)	Single Angle	L 3.5 x 3.5 x 1/4	A36 (36 ksi)
T9 40.00-20.00	Pipe	Pipe 5.563" x 0.375" (5 XS)	A572-50 (50 ksi)	Single Angle	L 3.5 x 3.5 x 1/4	A36 (36 ksi)
T10 20.00-0.00	Pipe	Pipe 6.625" x 0.340" (6 EHS)	A572-50 (50 ksi)	Single Angle	L 4 x 4 x 1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)											
Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade					
ft T1 160.00-	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)					
140.00 T2 140.00-	Single Angle	L 2 x 2 x 3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)					
133.33 T4 126.67- 120.00	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)					

## Tower Section Geometry (cont'd)

Tower Elevation	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
ft						
T4 126.67- 120.00	Single Angle	L 2 x 2 x 1/4	A572-50 (50 ksi)	Single Angle		A36 (36 ksi)
T5 120.00- 100.00	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T6 100.00- 80.00	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
7 80.00-60.00	Single Angle	L 3 x 3 x 1/4	A36 (36 ksi)	Single Angle		(36 ksi) (36 ksi)

		1	Tower Se	ection Ge	omet	r <b>y</b> (cont'c	1)		
Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Honzontals	Stitch Bolt Spacing Redundants
T1 160.00-	0.00	0.25	A2C	4.02		4.05	in	in	in
140.00			A36 (36 ksi)	1.03	3	1.05	6.00	6.00	36.00
T2 140.00- 133.33	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T3 133.33- 126.67	0.00	0.25	`A36 ´ (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T4 126.67- 120.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T5 120.00- 100.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T6 100.00- 80.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T7 80.00- 60.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T8 60.00- 40.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T9 40.00- 20.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00
T10 20.00- 0.00	0.00	0.25	A36 (36 ksi)	1.03	1	1.05	6.00	6.00	36.00

			Towe	r Section	on Geo	metry	(cont'c	1)		
						K Fac	ctors <sup>1</sup>			
Tower Elevation	Calc K Single	Calc K Solid	Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
ft	Angles	Rounds		X	X	X	X	X	X	X
T1 160.00-	Yes	Yes	4	<u> </u>	<u> </u>	<del> Y</del>	<u> </u>	Y	Y	Y
140.00	163	165	1	1	1	930	1	1	1	1
T2 140.00-	Yes	Yes	4	1	1	1	1	1	1	1
133.33	163	162	240	1	1	1	3	1	1	1
T3 133.33-	Yes	Yes	140	1	1	1	1	1	1	1
126.67	168	res	10:	1	1	1	1	1	1	1
T4 126.67-	Ma	V	9	1	1	1	1	1	1	1
	No	Yes	1	1	1	1	1	1	1	1
120.00			1140	1	1	1	1	1	0.5	1
T5 120.00-	No	Yes	1	1	1	1	1	1	1	1
100.00				1	1	1	1	1	0.5	1
T6 100.00-	No	Yes	1	1	1	1	1	1	1	1
80.00				1	1	1	1	1	0.5	1
T7 80.00-	No	Yes	1	1	1	1	1	1	1	1
60.00				1	1	1	1	1	0.5	1

						K Fac	ctors <sup>1</sup>			
Tower Elevation	Calc K	Calc K	Legs	X Brace	K Brace	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
	Single Angles	Solid Rounds		Diags X Y	Diags X Y	X Y	X	X	X	X Y
T8 60.00-	Yes	Yes	1	1	1	1	1	1	1	1
40.00 T9 40.00-	Yes	Yes	1	į	į	1	1 1	1	1	1
20.00 10 20.00- 0.00	Yes	Yes	1	į	į	1	1	1	1	1

<sup>1</sup>Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower	Section	Geometry	(cont'd)
IOWEI	360000	Geometry	(OOIIE a)

Tower Elevation	Leg		Diago	nal	Тор G	irt	Botton	n Girt	Mid	Girt	Long Ho	rizontal	Short Ho	rizontal
ft	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 160.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
140.00 T2 140.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
133.33 T3 133.33-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
126.67 T4 126.67-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
120.00 T5 120.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
100.00 T6 100.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
80.00 T7 80.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
60.00 T8 60.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
40.00 T9 40.00-	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
20.00 T10 20.00- 0.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Elevation		Redundant Horizontal		dant nal	Redundan Diagor		Redunda Horizo		Redur Vert		Redundant Hip		Redundant Hip Diagonal	
ft	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 160.00-	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
140.00 T2 140.00-	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
133.33 T3 133.33-	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
126.67 T4 126.67-	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
120.00 T5 120.00-	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
100.00 T6 100.00-	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
80.00 T7 80.00- 60.00	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Elevation ft	Redundant Horizontal		Horizontal Diagonal		Redundar Diagoi		Redunda Horiza		Redui Vert		Redund	ant Hip	Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T8 60.00- 40.00	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T9 40.00- 20.00	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T10 20.00- 0.00	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

## **Tower Section Geometry** (cont'd)

Tower Elevation ft	Leg Connection Type	ection		Diagor	nal	Top G	irt	Bottom	Girt	Mid G	irt	Long Horizontal		Shoi Horizoi	-
2		Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.
T1 160.00-	Cl	in		in		in		in		in		in		in	
140.00	Flange	0.63 A325N	4	0.63 A325N	1	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T2 140.00- 133.33	Flange	0.63 A325N	0	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T3 133.33- 126.67	Flange	0.63 A325N	0	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0
T4 126.67- 120.00	Flange	0.63 A325N	4	0.63 A325N	1	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.00 A325N	0	0.63	1
T5 120.00- 100.00	Flange	0.75 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00	0	0.00	0	0.00	0	A325N 0.75	0
T6 100.00-	Flange	0.88 A325N	4	0.63 A325N	1	0.00	0	0.00	0	0.00	0	0.00	0	A325N 0.63	0
T7 80.00- 60.00	Flange	1.00 A325N	4	0.63 A325N	1	0.00	0	0.00	0	A325N 0.00	0	A325N 0.00	0	A325N 0.63	0
T8 60.00- 40.00	Flange	1.00 A325N	4	0.63 A325N	1	A325N 0.00 A325N	0	0.00	0	0.00	0	0.00	0	A325N 0.00	0
T9 40.00- 20.00	Flange	1.00 A325N	6	0.63 A325N	1	0.00 A325N	0	0.00	0	0.00	0	0.00	0	A325N 0.00	0
T10 20.00- 0.00	Flange	1.00 A325N	0	0.63 A325N	1	0.00 A325N	0	A325N 0.00 A325N	0	0.00 A325N	0	0.00 A325N A325N	0	A325N 0.00 A325N	0

## Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face		Exclude	Componen	Placement	Face	Lateral	#	#	Clear		Perimete	Weight
	or	Shield		_ t		Offset	Offset		Per	Spacin	Diameter	r	
	Leg		Torque	Type	ft	in	(Frac FW)		Row	g	in		plf
100000	-		Calculation							in		in	
LDF6-50 (1 1/4" foam)	Α	No	No	Ar (CaAa)	160.00 - 0.00	0.00	0.3	6	6	0.50 1.00	1.50		0.66
1.5" flat	Α	No	No	Af (CaAa)	160.00 -	0.00	0.3	2	2	24.00	1.50		1.80
Cable Ladder Rail				, ,	0.00				_	1.50			1.00
HFT1206- 24SVL- 210(1-5/8)	Α	No	No	Ar (CaAa)	145.00 - 0.00	0.00	-0.37	18	9	0.27 0.52	1.71		1.92
1.5" flat Cable Ladder Rail	Α	No	No	Af (CaAa)	145.00 - 0.00	0.00	-0.37	2	2	24.00 1.50	1.50		1.80
LDF5-50A (7/8" foam)	В	No	No	Ar (CaAa)	160.00 - 0.00	0.00	0.4	1	1	1.09	1.09		0.33
Fiber Trunk	В	No	No	Ar (CaAa)	160.00 - 0.00	0.00	-0.35	2	2	1.75	1.75		3.00

Description	Face or	Allow Shield	Exclude From	Componen t	Placement	Face Offset	Lateral Offset	#	# Per	Clear Spacin	Diameter	Perimete r	Weight
	Leg	Onleid	Torque Calculation	Туре	ft	in	(Frac FW)	*	Row	g in	in	in	plf
DC Trunk	В	No	No	Ar (CaAa)	160.00 - 0.00	0.00	-0.37	4	4	0.26	0.26		0.03
LDF5-50A	В	No	No	Ar (CaAa)	120.00 - 0.00	0.00	0.36	1	1	1.09	1.09		0.33
(7/8" foam) LDF4-50A	В	No	No	Ar (CaAa)	40.00 -	0.00	0.33	1	1	0.63	0.63		0.15
(1/2" foam) 1.5" flat Cable Ladder	В	No	No	Af (CaAa)	0.00 160.00 - 0.00	0.00	-0.4	2	2	20.00 1.50	1.50		1.80
Rail 1.5" flat Cable Ladder	В	No	No	Af (CaAa)	160.00 - 0.00	0.00	0.37	2	2	20.00 1.50	1.50		1.80
Rail ******** HFT1206- 24SVL-	С	No	No	Ar (CaAa)	155.00 - 0.00	0.00	-0.4	11	11	0.50 0.52	1.63		1.92
XXX(1-5/8) 1.5" flat Cable Ladder	С	No	No	Af (CaAa)	155.00 - 0.00	0.00	-0.4	2	2	24.00 1.50	1.50		1.80
Rail LDF5-50A (7/8" foam)	В	No	No	Ar (CaAa)	99.00 - 0.00	0.00	0.36	1	1	1.09	1.09		0.33

## Feed Line/Linear Appurtenances Section Areas

Tower	Tower	Face	AR	AF	$C_A A_A$	$C_A A_A$	Weight
Sectio	Elevation				In Face	Out Face	
n	ft		ft <sup>2</sup>	ft²	ft <sup>2</sup>	ft <sup>2</sup>	K
L1	168.00-160.00	A	0.000	0.000	0.000	0.000	0.00
L1	100.00	В	0.000	0.000	0.000	0.000	0.00
		Ċ	0.000	0.000	0.000	0.000	0.00
T1	160.00-140.00	Ä	0.000	0.000	45.890	0.000	0.34
1.1	100.00-140.00	В	0.000	0.000	31.228	0.000	0.27
		Č	0.000	0.000	34.313	0.000	0.37
T2	140.00-133.33	Ä	0.000	0.000	33.187	0.000	0.30
12	140.00-100.00	В	0.000	0.000	10.409	0.000	0.09
		č	0.000	0.000	15.250	0.000	0.16
то	133,33-126.67	Ä	0.000	0.000	33.187	0.000	0.30
T3	133,33-120.01	В	0.000	0.000	10.409	0.000	0.09
		Č	0.000	0.000	15.250	0.000	0.16
Τ4	126.67-120.00	Ä	0.000	0.000	33.187	0.000	0.30
T4	120.07-120.00	В	0.000	0.000	10.409	0.000	0.09
		č	0.000	0.000	15.250	0.000	0.16
TE	120.00-100.00	Ä	0.000	0.000	99.560	0.000	0.91
T5	120.00-100.00	В	0.000	0.000	33.408	0.000	0.28
		Č	0.000	0.000	45.750	0.000	0.49
	100.00-80.00	Ā	0.000	0.000	99.560	0.000	0.91
T6	100.00-00.00	B	0.000	0.000	35.479	0.000	0.29
		C	0.000	0.000	45.750	0.000	0.49
T-7	80.00-60.00	A	0.000	0.000	99.560	0.000	0.91
T7	80.00-00.00	B	0.000	0.000	35.588	0.000	0.29
		Č	0.000	0.000	45.750	0.000	0.49
To	60.00-40.00	Ä	0.000	0.000	99.560	0.000	0.91
T8	00.00-40.00	B	0.000	0.000	35.588	0.000	0.29
		C	0.000	0.000	45.750	0.000	0.49
то.	40.00.20.00	Ā	0.000	0.000	99.560	0.000	0.91
Т9	40.00-20.00	В	0.000	0.000	36.848	0.000	0.29
		C	0.000	0.000	45.750	0.000	0.49
T40	00.00.0.00	Ā	0.000	0.000	99.560	0.000	0.91
T10	20.00-0.00		0.000	0.000	36.848	0.000	0.29
		B C	0.000	0.000	45,750	0.000	0.49

Feed Line/Linear A	p	purtenances	<b>Section</b>	<b>Areas</b>	- With	lce
--------------------	---	-------------	----------------	--------------	--------	-----

Tower	Tower	Face	Ice	AR	$A_F$	$C_AA_A$	$C_AA_A$	Weight
Sectio	Elevation	or	Thickness			In Face	Out Face	
n	ft	Leg	in	ft <sup>2</sup>	ft <sup>2</sup>	ft²	ft <sup>2</sup>	K
L1	168.00-160.00	Α	1.761	0.000	0.000	0.000	0.000	0.00
		В		0.000	0.000	0.000	0.000	0.00
		С		0.000	0.000	0.000	0.000	0.00
T1	160.00-140.00	Α	1.745	0.000	0.000	83.397	0.000	1.44
		В		0.000	0.000	98.752	0.000	1.48
		С		0.000	0.000	68.328	0.000	1.25
T2	140.00-133.33	Α	1.729	0.000	0.000	47.581	0.000	0.96
		В		0.000	0.000	32.735	0.000	0.49
		С		0.000	0.000	30.293	0.000	0.55
Т3	133.33-126.67	Α	1.720	0.000	0.000	47,498	0.000	0.96
		В		0.000	0.000	32.638	0.000	0.49
		С		0.000	0.000	30.254	0.000	0.55
T4	126.67-120.00	Α	1.711	0.000	0.000	47.412	0.000	0.95
		В		0.000	0.000	32.536	0.000	0.48
		С		0.000	0.000	30.212	0.000	0.55
T5	120.00-100.00	Α	1.692	0.000	0.000	141.677	0.000	2.84
		₿		0.000	0.000	105.897	0.000	1.55
		С		0.000	0.000	90.366	0.000	1.62
T6	100.00-80.00	Α	1.658	0.000	0.000	140.713	0.000	2.80
		В		0.000	0.000	112.998	0.000	1.62
		С		0.000	0.000	89.901	0.000	1.60
T7	80.00-60.00	Α	1.617	0.000	0.000	139.534	0.000	2.74
		В		0.000	0.000	111.718	0.000	1.58
		С		0.000	0.000	89.331	0.000	1.57
T8	60.00-40.00	Α	1.564	0.000	0.000	138.002	0.000	2.68
		В		0.000	0.000	109.482	0.000	1.52
		С		0.000	0.000	88.592	0.000	1.53
T9	40.00-20.00	Α	1.486	0.000	0.000	135.774	0.000	2.58
		В		0.000	0.000	113.431	0.000	1.51
		С		0.000	0.000	87.516	0.000	1.47
T10	20.00-0.00	Α	1.331	0.000	0.000	131.361	0.000	2.40
		В		0.000	0.000	106.360	0.000	1.33
		C		0.000	0.000	85.386	0.000	1.37

## **Feed Line Center of Pressure**

Section	Elevation	CP <sub>x</sub>	CPz	CPx	CP <sub>2</sub>
				Ice	Ice
	ft	in	in	in	in
L1	168.00-160.00	0.00	0.00	0.00	0.00
T1	160.00-140.00	8.60	-9.73	10.01	-10.94
T2	140.00-133.33	4.88	-4.50	6.68	-6.57
Т3	133.33-126.67	5.62	-5.13	7.53	-7.39
T4	126.67-120.00	4.65	-4.29	6.77	-6.61
T5	120.00-100.00	5.86	-4.67	8.81	-6.99
T6	100.00-80.00	6.37	-4.46	10.40	-6.84
T7	80.00-60.00	7.76	-5.32	12.44	-8.07
T8	60.00-40.00	8.90	-6.03	14.27	-9.22
T9	40.00-20.00	9.87	-6.23	16.55	-9.24
T10	20.00-0.00	9.86	-6.22	16.87	-9.48

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

## **Shielding Factor Ka**

		Desertation 1	Feed Line	K <sub>a</sub>	K <sub>a</sub>
Tower Section	Feed Line Record No.	Description	Segment Elev.	No Ice	lce
T1	1	LDF6-50 (1 1/4" foam)	140.00 -	0.6000	0.6000
T1	2	1.5" flat Cable Ladder Rail	160.00 140.00 - 160.00	0.6000	0.6000
T1	3	HFT1206-24SVL-210(1-	140.00 - 145.00	0.6000	0.6000
T1	4	5/8) 1.5" flat Cable Ladder Rail	140.00 - 145.00	0.6000	0.6000
T1	7	LDF5-50A (7/8" foam)	140.00 - 160.00	0.6000	0.6000
T1	8	Fiber Trunk	140.00 - 160.00	0.6000	0.6000
T1	9	DC Trunk	140.00 - 160.00	0.6000	0.6000
T1	12	1.5" flat Cable Ladder Rail	140.00 - 160.00	0.6000	0.6000
T1	13	1.5" flat Cable Ladder Rail	140.00 - 160.00	0.6000	0.6000
T1	15	HFT1206-24SVL-XXX(1- 5/8)	140.00 - 155.00	0.6000	0.6000
T1	16	1.5" flat Cable Ladder Rail	140.00 - 155.00	0.6000	0.6000
T2	1	LDF6-50 (1 1/4" foam)	133.33 - 140.00	0.6000	0.6000
T2	2	1.5" flat Cable Ladder Rail	133.33 - 140.00	0.6000	0.6000
Т2	3	HFT1206-24SVL-210(1- 5/8)	133.33 - 140.00	0.6000	0.6000
Т2	4	1.5" flat Cable Ladder Rail	133.33 - 140.00	0.6000	0.6000
T2	7	LDF5-50A (7/8" foam)	140.00	0.6000	0.6000
T2		Fiber Trunk	140.00	0.6000	0.6000
T2		DC Trunk	140.00	0.6000	0.6000
T2		1.5" flat Cable Ladder Rail	140.00	0.6000	0.6000
T2		1.5" flat Cable Ladder Rail HFT1206-24SVL-XXX(1-	140.00	0.6000	0.6000
T2		5/8) 1.5" flat Cable Ladder Rail	140.00	0.6000	0.6000
T2		LDF6-50 (1 1/4" foam)	140.00	0.6000	0.6000
T			133.33		10110197202
TS TS			133.33		(COASTALL)
T3		5/8)	133.33		0.6000
T3		LDF5-50A (7/8" foam)	133.33		0.6000
T:	1	Fiber Trunk	133.33 126.67 -	0.6000	0.6000
T		DC Trunk	133.33 126.67 -	0.6000	0.6000
T:		1.5" flat Cable Ladder Rai	133.33 126.67	0.6000	0.6000
Т:			133.33 1 126.67	0.6000	0.6000
T:	1	HFT1206-24SVL-XXX(1-	133.33 126.67	0.6000	0.6000
T:		5/8] 1.5" flat Cable Ladder Rai	126.67 ·	- 0.6000	0.6000
Т		LDF6-50 (1 1/4" foam	133.33 120.00 -	- 0.6000	0.6000
1	1	Į.	126.67	1	

Tower	Feed Line	Description	Feed Line	K <sub>s</sub>	V
Section	Record No.	Description	Segment	∧ <sub>e</sub> No lce	K₌ lce
T4	2	1.5" flat Cable Ladder Rail	Elev.	0.0000	
	-		120.00 - 126.67	0.6000	0.6000
T4	3	5/8)	120.00 - 126.67	0.6000	0.6000
T4	4		120.00 - 126.67	0.6000	0.6000
T4	7	LDF5-50A (7/8" foam)	120.00 - 126.67	0.6000	0.6000
T4	8	Fiber Trunk	120.00 - 126.67	0.6000	0.6000
T4	9	DC Trunk	120.00 - 126.67	0.6000	0.6000
T4	12	1,5" flat Cable Ladder Rail	120.00 - 126.67	0.6000	0.6000
T4	13	1.5" flat Cable Ladder Rail	120.00 - 126.67	0.6000	0.6000
T4	15	HFT1206-24SVL-XXX(1- 5/8)	120.00 - 126.67	0.6000	0.6000
T4	16	1.5" flat Cable Ladder Rail	120.00 - 126.67	0.6000	0.6000
T5	1	LDF6-50 (1 1/4" foam)	100.00 - 120.00	0.6000	0.6000
T5 T5	2	1.5" flat Cable Ladder Rail	100.00 - 120.00	0.6000	0.6000
T5	3	HFT1206-24SVL-210(1-5/8)	100.00 - 120.00	0.6000	0.6000
T5	4 7	1.5" flat Cable Ladder Rail	100.00 - 120.00	0.6000	0.6000
T5	8	LDF5-50A (7/8" foam)	100.00 - 120.00	0.6000	0.6000
T5	9	Fiber Trunk	100.00 - 120.00	0.6000	0.6000
T5	10	DC Trunk	100.00 - 120.00	0.6000	0.6000
T5	12	LDF5-50A (7/8" foam) 1.5" flat Cable Ladder Rail	100.00 - 120.00	0.6000	0.6000
T5	13	1.5" flat Cable Ladder Rail	100.00 - 120.00	0.6000	0.6000
T5	15	HFT1206-24SVL-XXX(1-	100.00 - 120.00	0.6000	0.6000
- 8	1	5/8)	100.00 - 120.00	0.6000	0.6000
T5	16	1.5" flat Cable Ladder Rail	100.00 - 120.00	0.6000	0.6000
T6	1	LDF6-50 (1 1/4" foam)	80.00 - 100.00	0.6000	0.6000
T6	2	1.5" flat Cable Ladder Rail	80.00 - 100.00	0.6000	0.6000
T6	3	HFT1206-24SVL-210(1- 5/8)	80.00 - 100.00	0.6000	0.6000
T6	4	1.5" flat Cable Ladder Rail	80.00 - 100.00	0.6000	0.6000
T6	7	LDF5-50A (7/8" foam)	80.00 - 100.00	0.6000	0.6000
T6	8	Fiber Trunk	80.00 <b>-</b> 100.00	0.6000	0.6000
T6	9	DC Trunk	80.00 - 100.00	0.6000	0.6000
T6	10	LDF5-50A (7/8" foam)	80.00 - 100.00	0.6000	0.6000
T6	12	1.5" flat Cable Ladder Rail	80.00 - 100.00	0.6000	0.6000
T6	13	1.5" flat Cable Ladder Rail	80.00 <b>-</b> 100.00	0.6000	0.6000
T6	15	HFT1206-24SVL-XXX(1- 5/8)	80.00 <b>-</b> 100.00	0.6000	0.6000
T6	16	1.5" flat Cable Ladder Rail	80.00 - 100.00	0.6000	0.6000
				- 8	

Tower	Feed Line	Description	Feed Line Segment	K <sub>a</sub> No Ice	K, Ice
Section	Record No.		Elev.		
Т6	17	LDF5-50A (7/8" foam)	80.00 - 99.00	0.6000	0.6000
Т7	1	LDF6-50 (1 1/4" foam)	60.00 - 80.00	0.6000	0.6000
Т7	2	1.5" flat Cable Ladder Rail	60.00 - 80.00	0.6000	0.6000
Т7	3	HFT1206-24SVL-210(1- 5/8)	60.00 - 80.00	0.6000	0.6000
T7	4	1.5" flat Cable Ladder Rail	60.00 - 80.00	0.6000	0.6000
T7	7	LDF5-50A (7/8" foam)	60.00 - 80.00	0.6000	0.6000
Т7	8	Fiber Trunk	60.00 - 80.00	0.6000	0.6000
Т7	9	DC Trunk	60.00 - 80.00	0.6000	0.6000
T7	10	LDF5-50A (7/8" foam)	60.00 - 80.00	0.6000	0.6000
Т7	12	1.5" flat Cable Ladder Rail	60.00 - 80.00	0.6000	0.6000
Т7	13	1.5" flat Cable Ladder Rail	60.00 - 80.00	0.6000	0.6000
T7	15	HFT1206-24SVL-XXX(1- 5/8)	60.00 - 80.00	0.6000	0.6000
Т7	16	1.5" flat Cable Ladder Rail	60.00 - 80.00	0.6000	0.6000
17	17	LDF5-50A (7/8" foam)	60.00 - 80.00	0.6000	0.6000
Т8	1	LDF6-50 (1 1/4" foam)	40.00 - 60.00	0.6000	0.6000
Т8	2	1.5" flat Cable Ladder Rail	40.00 <b>-</b> 60.00	0.6000	0.6000
Т8	3	HFT1206-24SVL-210(1- 5/8)	40.00 - 60.00	0.6000	0.6000
Т8	4	1.5" flat Cable Ladder Rail	40.00 <b>-</b> 60.00	0.6000	0.6000
Т8	7	LDF5-50A (7/8" foam)	40.00 - 60.00	0.6000	0.6000
Т8	8	Fiber Trunk	40.00 - 60.00	0.6000	0.6000
Т8	9	DC Trunk	40.00 - 60.00	0.6000	0.6000
Т8	10	LDF5-50A (7/8" foam)	40.00 - 60.00	0.6000	0.6000
Т8	12	1.5" flat Cable Ladder Rail	40.00 - 60.00	0.6000	0.6000
Т8	13	1.5" flat Cable Ladder Rail	40.00 <b>-</b> 60.00	0.6000	(1)
Т8	15	HFT1206-24SVL-XXX(1- 5/8)	40.00 -		2774 545
Т8	16	1.5" flat Cable Ladder Rail	40.00 - 60.00		31000000
Т8	17	LDF5-50A (7/8" foam)	40.00 - 60.00		
Т9	1	LDF6-50 (1 1/4" foam)		0.6000	
TS	2	1.5" flat Cable Ladder Rail		0.6000	0.6000
TS	3	HFT1206-24SVL-210(1- 5/8)	20.00 -	0.6000	
TS	4			0.6000	1
TS	7	LDF5-50A (7/8" foam)		0.6000	
TS	8	Fiber Trunk		0.6000	
TS	9	DC Trunk		0.6000	0.6000

Tower	Feed Line	Description	Feed Line	K <sub>a</sub>	Ka
Section	Record No.		Segment Elev.	No Ice	Ice
T9	10	LDF5-50A (7/8" foam)	20.00 -	0.6000	0.6000
Т9	11	LDF4-50A (1/2" foam)	40.00 20.00 -	0.6000	0.6000
			40.00	0.0000	0.0000
Т9	12	1.5" flat Cable Ladder Rail		0.6000	0.6000
Т9	13	1.5" flat Cable Ladder Rail	40.00	0.0000	
"	13	1.5 Hat Gable Ladder Rail	20.00 - 40.00	0.6000	0.6000
Т9	15	HFT1206-24SVL-XXX(1-	20.00 -	0.6000	0.6000
Т9	40	5/8)	40.00		5 8 75 6 000 2
19	16	1.5" flat Cable Ladder Rail	20.00 - 40.00	0.6000	0.6000
Т9	17	LDF5-50A (7/8" foam)		0.6000	0.6000
T40			40.00		1.500 mm mm m
T10	1	LDF6-50 (1 1/4" foam)	0.00 - 20.00	0.6000	0.6000
T10	2	1.5" flat Cable Ladder Rail	0.00 - 20.00	0.6000	0.6000
T10	3	HFT1206-24SVL-210(1- 5/8)	0.00 - 20.00	0.6000	0.6000
T10	4	1.5" flat Cable Ladder Rail	0.00 - 20.00	0.6000	0.6000
T10	7	LDF5-50A (7/8" foam)		0.6000	0.6000
T10	8	Fiber Trunk	0.00 - 20.00	0.6000	0.6000
T10	9	DC Trunk	0.00 - 20.00	0.6000	0.6000
T10	10	LDF5-50A (7/8" foam)		0.6000	0.6000
T10	11	LDF4-50A (1/2" foam)	0.00 - 20.00	0.6000	0.6000
T10	12	1.5" flat Cable Ladder Rail	0.00 - 20.00	0.6000	0.6000
T10	13	1.5" flat Cable Ladder Rail	0.00 - 20.00	0.6000	0.6000
T10	15	HFT1206-24SVL-XXX(1-	0.00 - 20.00	0.6000	0.6000
T10	16	5/8) 1.5" flat Cable Ladder Rail	0.00 - 20.00	0.6000	0.0000
T10	17	LDF5-50A (7/8" foam)	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads											
Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustmen t	Placement		C₄A₄ Front	C <sub>A</sub> A <sub>A</sub> Side	Weight		
			ft ft ft	9	ft		ft²	ft²	K		
****											
15 ft x 2" omni whip	Α	From Leg	1.00 0 5	0.000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.00 4.53 6.07 9.20	3.00 4.53 6.07 9.20	0.03 0.05 0.09 0.18		
Side Arm Mount [SO 302- 1]	А	From Leg	3.00 0 0	0.000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.81 1.30 1.81 2.91	3.31 5.00 6.80 10.99	0.06 0.08 0.12 0.23		
RADIO 4449 B5/B12	А	From Leg	4.00 0 0	0.000	169.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97 2.33	1.30 1.45 1.60 1.92	0.07 0.09 0.11 0.16		
RADIO 4449 B5/B12	В	From Leg	4.00 0 0	0.000	169.00	2" Ice No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.30 1.45 1.60 1.92	0.07 0.09 0.11 0.16		
RADIO 4449 B5/B12 axTower Report - version	C	From Leg	4.00	0.000	169.00	No Ice	1.64	1.30	0.07		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
	5		Vert ft ft	@ <b>@</b> ()	ft		ft <sup>2</sup>	ft²	К
			ft			77720	4.00	- 4.45	0.09
			0			1/2"	1.80 1.97	1.45 1.60	0.03
			0			Ice 1" Ice 2" Ice	2.33	1.92	0.16
RADIO 8843 B2/B66A	Α	From Leg	4.00	0.000	169.00	No Ice	1.64	1.38	0.08
RADIO 6643 B2/B00A		110111 209	0			1/2"	1.80	1.53	0.09
			0			lce 1" lce 2" lce	1.97 2.33	1.69 2.02	0.11 0.16
			4.00	0.000	169.00	No Ice	1.64	1.38	0.08
RADIO 8843 B2/B66A	В	From Leg	4.00	0.000	109.00	1/2"	1.80	1.53	0.09
			0 0			ice	1.97	1.69	0.11
			U			1" Ice 2" Ice	2.33	2.02	0.16
RADIO 8843 B2/B66A	С	From Leg	4.00	0.000	169.00	No Ice	1.64	1.38	0.08
IMDIO 0073 DZIDOOM	_		0			1/2"	1.80	1.53	0.09 0.11
			0			ice 1" ice	1.97 2.33	1.69 2.02	0.11
						2" Ice			
annual Till w/ Mount	Α	From Leg	4.00	0.000	169.00	No Ice	10.23	5.51	0.12
80010964_TIA w/ Mount Pipe	^	1 Tom Log	0			1/2"	10.74	6.37	0.19
Pipe			Ō			Ice	11.24	7.12	0.27
						1" Ice 2" Ice	12.25	8.64	0.46
DODAGOS TIA w/ Mount	В	From Leg	4.00	0.000	169.00	No Ice	14.05	7.63	0.14
80010965_TIA w/ Mount Pipe	В	i Tom Log	0			1/2"	14.69	8.90	0.23
Pipe			Ō			Ice	15.30	9.96	0.34
						1" Ice 2" Ice	16.53	11.92	0.58
	_	E	4.00	0.000	169.00	No Ice	14.05	7.63	0.14
80010965_TIA w/ Mount	С	From Leg	0	0.000	100.00	1/2"	14.69	8.90	0.23
Pipe			0			lce	15.30	9.96	0.34
			Ü			1" Ice 2" Ice	16.53	11.92	0.58
			4.00	0.000	169.00	No Ice	2.74	1.67	0.05
RRUS 32 B30	Α	From Leg	4.00 0	0.000	105.00	1/2"	2.96	1.86	0.07
			0			lce	3.19	2.05	0.10
			O			1" lce 2" lce	3.68	2.46	0.16
RRUS 32 B30	В	From Leg	4.00	0.000	169.00	No Ice	2.74	1.67	0.05
KK03 32 B30	_		0			1/2"	2.96	1.86	0.07
			0			Ice	3.19	2.05	0.10 0.16
						1" lce 2" lce	3.68	2.46	0.10
	0	From Leg	4.00	0.000	169.00	No Ice	2.74	1.67	0.05
RRUS 32 B30	С	From Leg	0	0.000		1/2"	2.96	1.86	0.07
			ŏ			Ice	3.19	2.05	0.10
			J			1" lce 2" lce	3.68	2.46	0.16
DC6-48-60-18-8C	С	From Leg	4.00	0.000	169.00	No Ice	1.14	1.14	0.03
DO0-40-10-00	_		0			1/2"	1.79	1.79	0.05 0.07
			0			Ice	2.00	2.00 2.45	0.07
						1" lce 2" lce	2.45	2.40	
CONTRACTOR TIME AND ADDRESS OF THE PARTY OF	۸	From Leg	4.00	0.000	169.00	No Ice	8.37	8.46	0.14
QS66512-2_TIA w/ Mount	Α	From Leg	0	0.000		1/2"	8.93	9.66	0.21
Pipe			Ő			Ice	9.46	10.55	0.30
			-			1" lce 2" lce	10.53	12.35	0.49
OCCCETO O TIA w/ Mount	В	From Leg	4.00	0.000	169.00	No Ice	8.37	8.46	0.14
QS66512-2_TIA w/ Mount Pipe	0	, .o Log	0			1/2"	8.93	9.66	0.21
Lihe			Ō			Ice	9.46	10.55	0.30 0.49
						1" lce	10.53	12.35	0.49
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
	Ŭ		Vert	-					
			ft ft	0	ft		ft <sup>2</sup>	ft²	κ
QS66512-2_TIA w/ Mount	С	C 1	ft	0.000					
Pipe	C	From Leg	4.00 0	0.000	169.00	No Ice	8.37	8.46	0.14
			0			1/2" Ice	8.93	9.66	0.21
			Ü			1" Ice 2" Ice	9.46 10.53	10.55 12.35	0.30 0.49
DC6-48-60-18-8F	Α	From Leg	4.00	0.000	169.00	No Ice	1.21	1.21	0.03
			0			1/2"	1.89	1.89	0.05
			0			Ice	2.11	2.11	0.08
						1" Ice 2" Ice	2.57	2.57	0.14
T-Arm Mount [TA 701-3]	С	From	2.00	0.000	169.00	No Ice	23.94	23.94	1.09
		Centroid-	0			1/2"	30.04	30.04	1.48
		Face	0			Ice	36.16	36.16	1.95
						1" Ice	48.72	48.72	3.16
****						2" Ice			
LNX-6513DS-A1M_TIA w/	Α	From Leg	4.00	0.000	155.00	Madaa	0.00	E 40	2.00
Mount Pipe		i ioni Leg	0	0.000	155.00	No Ice	6.08	5.16	0.06
			Ö			1/2"	6.52	5.92	0.12
			Ū			lce 1" lce	6.95 7.84	6.62 8.04	0.18
						2" Ice	7.04	0.04	0.32
LNX-6513DS-A1M_TIA w/	В	From Leg	4.00	0.000	155.00	No Ice	6.08	5.16	0.06
Mount Pipe		_	0			1/2"	6.52	5.92	0.12
			0			Ice	6.95	6.62	0.18
						1" Ice	7.84	8.04	0.32
INV SE12DS A4M TIA/	_					2" Ice			
LNX-6513DS-A1M_TIA w/ Mount Pipe	С	From Leg	4.00	0.000	155.00	No Ice	6.08	5.16	0.06
Would Fibe			0			1/2"	6.52	5.92	0.12
			U			ice	6.95	6.62	0.18
						1" lce 2" lce	7.84	8.04	0.32
MT6407-77A_TIA w/	Α	From Leg	4.00	0.000	155.00	No Ice	4.91	2.68	0.10
Mount Pipe		3	0	0.000	100.00	1/2"	5.26	3.14	0.10
			0			lce	5.61	3.62	0.14
						1" Ice	6.36	4.63	0.29
1470405						2" Ice		-	
MT6407-77A_TIA w/	В	From Leg	4.00	0.000	155.00	No Ice	4.91	2.68	0.10
Mount Pipe			0			1/2"	5.26	3.14	0.14
			0			Ice	5.61	3.62	0.18
						1" ice	6.36	4.63	0.29
MT6407-77A_TIA_w/	С	From Leg	4.00	0.000	155.00	2" ice	4.04	0.00	0.40
Mount Pipe	•	r rom Log	0	0.000	155.00	No Ice 1/2"	4.91 5.26	2.68 3.14	0.10 0.14
			Ö			ice	5.61	3.62	0.14
						1" ice	6.36	4.63	0.29
(O) NIN II II I I I I I I I I I I I I I I						2" Ice			4.20
(2) NNHH-65B-R4_TIA w/	Α	From Leg	4.00	0.000	155.00	No Ice	12.51	7.41	0.10
Mount Pipe			0			1/2"	13.11	8.60	0.19
			0			lce	13.67	9.50	0.29
						1" Ice	14.82	11.33	0.52
(2) NNHH-65B-R4_TIA w/	В	From Leg	4.00	0.000	155.00	2" Ice	40.54	7 44	0.40
Mount Pipe	_	r rom Log	0	0.000	155.00	No Ice 1/2"	12.51 13.11	7.41 8.60	0.10 0.19
·			Ö			Ice	13.67	9.50	0.19
						1" Ice	14.82	11.33	0.52
(0) NAME OF THE STATE OF THE STA	_					2" Ice			J.J.
NINIUU 650 D/ TIA/	С	From Leg	4.00	0.000	155.00	No Ice	12.51	7.41	0.10
(2) NNHH-65B-R4_TIA w/			0			1/2"	13.11	8.60	0.19
Mount Pipe			0			Ice	13.67	9.50	0.29
						411.4			
						1" Ice	14.82	11.33	0.52
Mount Pipe	Δ	From Lea	4.00	0.000	1EE 00	2" Ice			
	Α	From Leg	4.00	0.000	155.00	2" Ice No Ice	1.88	1.01	0.07
Mount Pipe	Α	From Leg	4.00 0 0	0.000	155.00	2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
			Vert ft ft ft		ft		ft²	ft²	Κ
B5/B13 RRH-BR04C	В	From Leg	4.00 0 0	0.000	155.00	2" Ice No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
B5/B13 RRH-BR04C	С	From Leg	4.00 0 0	0.000	155.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
B2/B66A RRH-BR049	Α	From Leg	4.00 0 0	0.000	155.00	2" Ice No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
B2/B66A RRH-BR049	В	From Leg	4.00 0 0	0.000	155.00	2" Ice No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
B2/B66A RRH-BR049	С	From Leg	4.00 0 0	0.000	155.00	2" Ice No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
OVP	В	From Leg	4.00 0 0	0.000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
OVP	С	From Leg	4.00 0 0	0.000	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
(2) BSF0020F3V1-1	В	From Leg	4.00 0 0	0.000	155.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.22 1.50	0.29 0.36 0.45 0.64	0.02 0.02 0.03 0.06
(2) BSF0020F3V1-1	С	From Leg	4.00 0 0	0.000	155.00	2" Ice No Ice 1/2" Ice 1" Ice	0.96 1.09 1.22 1.50	0.29 0.36 0.45 0.64	0.02 0.02 0.03 0.06
VFA-12	С	None		0.000	155.00	2" Ice No Ice 1/2" Ice 1" Ice 2" Ice	33.64 48.17 62.70 91.76	33.64 48.17 62.70 91.76	1.69 2.26 2.82 3.95
**************************************	Α	From Leg	4.00 0 0	0.000	145.00	No Ice 1/2" Ice 1" Ice	0.67 0.77 0.88 1.13	0.33 0.41 0.50 0.70	0.02 0.03 0.03 0.05
(2) TMA (10" x 8" x 3")	В	From Leg	4.00 0 0	0.000	145.00	2" Ice No Ice 1/2" Ice 1" Ice	0.67 0.77 0.88 1.13	0.33 0.41 0.50 0.70	0.02 0.03 0.03 0.05
(2) TMA (10" x 8" x 3")	С	From Leg	4.00 0 0	0.000	145.00	2" Ice No Ice 1/2" Ice	0.67 0.77 0.88	0.33 0.41 0.50	0.02 0.03 0.03

	or Leg	Туре	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C₄A₄ Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
		380	Vert					- 0	
			ft ft		ft		ft <sup>2</sup>	ft²	Κ
			ft			1" Ice	1.13	0.70	0.05
Celwave APX16DWV-	Α	From Leg	4.00	0.000	445.00	2" Ice	0.07		
16DWV-S-E-A20 w/Mount		i ioiii Leg	0	0.000	145.00	No Ice	6.67	3.34	0.06
Pipe			0			1/2" Ice	7.06 7.47	3.99	0.11
			O			1" lce	8.30	4.64 6.01	0.16
						2" Ice	0.30	0.01	0.29
Celwave APX16DWV-	В	From Leg	4.00	0.000	145.00	No Ice	6.67	3.34	0.06
16DWV-S-E-A20 w/Mount		Ü	0		110.00	1/2"	7.06	3.99	0.00
Pipe			0			Ice	7.47	4.64	0.16
						1" Ice	8.30	6.01	0.29
						2" Ice			0.20
Celwave APX16DWV-	С	From Leg	4.00	0.000	145.00	No Ice	6.67	3.34	0.06
16DWV-S-E-A20 w/Mount			0			1/2"	7.06	3.99	0.11
Pipe			0			Ice	7.47	4.64	0.16
						1" Ice	8.30	6.01	0.29
LNX-6515DS-A1M_TIA w/	٨	F !	4.00			2" Ice			
Mount Pipe	Α	From Leg	4.00	0.000	145.00	No Ice	11.68	9.84	0.09
Modifi Tipe			0 0			1/2"	12.40	11.37	0.18
			U			Ice	13.14	12.91	0.28
						1" lce	14.51	15.27	0.51
LNX-6515DS-A1M TIA w/	В	From Leg	4.00	0.000	145.00	2" Ice	11 60	0.04	0.00
Mount Pipe	_		0	0.000	145.00	No Ice 1/2"	11.68 12.40	9.84 11.37	0.09
'			Ö			lce	13.14	12.91	0.18 0.28
			•			1" Ice	14.51	15.27	0.28
						2" lce	14.01	13.21	0.51
LNX-6515DS-A1M_TIA w/	С	From Leg	4.00	0.000	145.00	No Ice	11.68	9.84	0.09
Mount Pipe			0			1/2"	12.40	11.37	0.18
			0			lce	13.14	12.91	0.28
						1" lce	14.51	15.27	0.51
Sector Mount [SM 408-3]	С	Non-		0.000		2" Ice			
Occion Modrit [SIM 408-3]	C	None		0.000	145.00	No Ice	22.38	22.38	1.02
						1/2"	33.31	33.31	1.46
						ice	44.35	44.35	2.06
						1" lce 2" lce	67.76	67.76	3.75
*******						2 100			
15 ft x 2" omni whip	С	From Leg	6.00	0.000	118.00	No Ice	3.00	3.00	0.03
		· ·	0			1/2"	4.53	4.53	0.05
			10			Ice	6.07	6.07	0.09
						1" Ice	9.20	9.20	0.18
Side Arm Manuat (SO 200						2" lce			
Side Arm Mount [SO 302-	С	From Leg	3.00	0.000	118.00	No Ice	0.81	3.31	0.06
1]			0			1/2"	1.30	5.00	80.0
			0			Ice	1.81	6.80	0.12
						1" Ice	2.91	10.99	0.23
*****						2" Ice			
16 ft x 2" omni whip	С	From Leg	6.00	0.000	99.00	No Ice	2.20	2.20	0.03
•			0	0.000	33.00	1/2"	3.20 4.83	3.20 4.83	0.03 0.06
			9			Ice	6.47	6.47	0.00
						1" Ice	9.80	9.80	0.19
						2" lce	5.00	5.00	J. 13
Side Arm Mount [SO 302-	С	From Leg	3.00	0.000	99.00	No Ice	0.81	3.31	0.06
1]			0			1/2"	1.30	5.00	0.08
			0			Ice	1.81	6.80	0.12
						1" Ice	2.91	10.99	0.23
****						2" lce			
Side Arm Mount [SO 302-	Α	From Log	2.00	0.000	47.00				
1]	$\overline{}$	From Leg	3.00 0	0.000	47.00	No Ice	0.81	3.31	0.06
•3			0			1/2"	1.30	5.00	0.08
			U			ice 1" ice	1.81 2.91	6.80	0.12
						2" Ice	2.51	10.99	0.23
						2 100			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C <sub>A</sub> A <sub>A</sub> Front	C <sub>A</sub> A <sub>A</sub> Side	Weight
	Ü		Vert ft ft ft		ft		ft²	ft²	κ
12 ft x 2" omni whip	С	From Leg	6.00 0 8	0.000	38.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.40 3.63 4.87 7.35	2.40 3.63 4.87 7.35	0.02 0.04 0.07 0.14
Side Arm Mount [SO 302- 1]	С	From Leg	3.00 0 0	0.000	38.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.81 1.30 1.81 2.91	3.31 5.00 6.80 10.99	0.06 0.08 0.12 0.23

# **Load Combinations**

	Description
Comb.	Description
No.	Pood Only
1 2	Dead Only 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 0.9 Dead+1.0 Wind 180 deg - No Ice
15	1.2 Dead+1.0 Wind 210 deg - No Ice
16 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 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
29 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 dea+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 Dead+Wind 90 deg - Service
42 43	Dead+Wind 120 deg - Service
43	Dodg. Hilling 184 3 - 4 - 4 - 4

Comb. No.	Descript	tion
44	Dead+Wind 150 deg - Service	
45	Dead+Wind 180 deg - Service	
46	Dead+Wind 210 deg - Service	
47	Dead+Wind 240 deg - Service	
48	Dead+Wind 270 deg - Service	
49	Dead+Wind 300 deg - Service	
50	Dead+Wind 330 deg - Service	

# **Maximum Reactions**

Location	Condition	Gov.	Vertical	Horizontal, X	Horizontal, 2
		Load	K	K	K
		Comb.			
Leg C	Max. Vert	18	206.76	20.63	-11.83
	Max. H <sub>x</sub>	18	206.76	20.63	-11.83
	Max. H <sub>z</sub>	7	-166.60	-17.43	10.01
	Min. Vert	7	-166.60	-17.43	10.01
	Min. H <sub>x</sub>	7	-166.60	-17.43	10.01
	$Min. H_z$	18	206.76	20.63	-11.83
Leg B	Max. Vert	10	220.10	-22.46	-12.67
	Max. H <sub>x</sub>	23	-182.36	19.31	10.89
	Max. H₂	23	-182.36	19.31	10.89
	Min. Vert	23	-182.36	19.31	10.89
	Min. H <sub>x</sub>	10	220.10	-22.46	-12.67
	$Min. H_z$	10	220.10	-22.46	-12.67
Leg A	Max. Vert	2	212.05	0.37	24.81
	Max. H <sub>x</sub>	21	11.21	3.09	0.92
	Max. H <sub>z</sub>	2	212.05	0.37	24.81
	Min. Vert	15	-176.11	-0.41	-21.22
	Min. H <sub>x</sub>	9	10.49	-3.11	0.83
	Min. H <sub>z</sub>	15	-176.11	-0.41	-21.22

# **Tower Mast Reaction Summary**

Load Combination	Vertical	Shearx	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	39.03	0.00	0.00	19	13	0
1.2 Dead+1.0 Wind 0 deg - No Ice	46.84	-0.08	-40.16	-3890	23	15
0.9 Dead+1.0 Wind 0 deg - No Ice	35.13	-0.08	-40.16	-3890	19	15
1.2 Dead+1.0 Wind 30 deg - No Ice	46.84	17.68	-30.58	-3023	-1751	30
0.9 Dead+1.0 Wind 30 deg - No Ice	35.13	17.68	-30.58	-3024	-1752	30
1.2 Dead+1.0 Wind 60 deg - No Ice	46.84	30.93	-17.73	-1742	-3070	2
0.9 Dead+1.0 Wind 60 deg - No Ice	35.13	30.93	-17.73	-1745	-3069	2
1.2 Dead+1.0 Wind 90 deg - No Ice	46.84	36.90	0.08	30	-3637	-10
0.9 Dead+1.0 Wind 90 deg - No Ice	35.13	36.90	0.08	24	-3636	-10
1.2 Dead+1.0 Wind 120 deg - No Ice	46.84	36.24	20.89	2042	-3496	10
0.9 Dead+1.0 Wind 120 deg - No Ice	35.13	36.24	20.89	2034	-3495	10
1.2 Dead+1.0 Wind 150 deg - No Ice	46.84	19.67	33.86	3334	-1912	10
0.9 Dead+1.0 Wind 150 deg - No Ice	35.13	19.67	33.86	3324	-1914	10

Combination  1.2 Dead+1.0 Wind 180 deg  No Ice 1.9 Dead+1.0 Wind 180 deg  No Ice 1.2 Dead+1.0 Wind 210 deg  No Ice 1.2 Dead+1.0 Wind 210 deg  No Ice 1.2 Dead+1.0 Wind 240 deg  No Ice 1.2 Dead+1.0 Wind 240 deg  No Ice 1.2 Dead+1.0 Wind 270 deg  No Ice 1.2 Dead+1.0 Wind 270 deg  No Ice 1.2 Dead+1.0 Wind 300 deg  No Ice 1.2 Dead+1.0 Wind 300 deg  No Ice 1.2 Dead+1.0 Wind 300 deg  No Ice 1.2 Dead+1.0 Wind 330 deg  No Ice 1.2 Dead+1.0 Wind 300 deg  No Ice 1.2 Dead+1.0 Wind 300 deg  No Ice 1.2 Dead+1.0 Wind 300 deg  No Ice 1.2 Dead+1.0 Vind 300 deg  No Ice 1.2 Dead+1.0 Vind 300 deg  No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Vind 30	46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13	***  0.08  0.08  -17.68  -17.68  -33.19  -36.90  -36.90  -36.90  -397  -19.67	37.54 37.54 30.58 30.58 19.04 19.04 -0.08 -0.08 -19.58 -19.58	3730 3719 3069 3058 1890 1882 16 10 -1894	5 1783 1776 3279 3270 3669 3660 3351 3342	-15 -15 -30 -30 -2 -2 -10 -10
No Ice 0.9 Dead+1.0 Wind 180 deg 1.0 Dead+1.0 Wind 210 deg 1.10 Dead+1.0 Wind 210 deg 1.2 Dead+1.0 Wind 210 deg 1.3 Dead+1.0 Wind 210 deg 1.4 Dead+1.0 Wind 240 deg 1.5 Dead+1.0 Wind 240 deg 1.6 No Ice 1.7 Dead+1.0 Wind 270 deg 1.7 Dead+1.0 Wind 270 deg 1.8 Dead+1.0 Wind 270 deg 1.9 Dead+1.0 Wind 300 deg 1.0 Dead+1.0 Wind 300 deg 1.0 Dead+1.0 Wind 330 deg 1.1 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 0 deg+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp	35.13 46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13 127.24	0.08 -17.68 -17.68 -33.19 -33.19 -36.90 -36.90 -33.97 -33.97	37.54 30.58 30.58 19.04 19.04 -0.08 -0.08 -19.58	3719 3069 3058 1890 1882 16 10	5 1783 1776 3279 3270 3669 3660 3351	-15 -30 -30 -2 -2 10
1.9 Dead+1.0 Wind 180 deg 1.0 No Ice 1.2 Dead+1.0 Wind 210 deg 1.2 Dead+1.0 Wind 210 deg 1.2 Dead+1.0 Wind 210 deg 1.2 Dead+1.0 Wind 240 deg 1.2 Dead+1.0 Wind 240 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Wind 330 deg 1.0 Ice 1.2 Dead+1.0 Wind 330 deg 1.0 Ice 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp	46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13 127.24	-17.68 -17.68 -33.19 -33.19 -36.90 -36.90 -33.97 -33.97 -19.67	30.58 30.58 19.04 19.04 -0.08 -0.08 -19.58	3069 3058 1890 1882 16 10	1783 1776 3279 3270 3669 3660 3351	-30 -30 -2 -2 10
No Ice 1.2 Dead+1.0 Wind 210 deg No Ice 0.9 Dead+1.0 Wind 210 deg No Ice 1.2 Dead+1.0 Wind 240 deg No Ice 1.2 Dead+1.0 Wind 240 deg No Ice 0.9 Dead+1.0 Wind 270 deg No Ice 0.9 Dead+1.0 Wind 270 deg No Ice 1.2 Dead+1.0 Wind 270 deg No Ice 1.2 Dead+1.0 Wind 300 deg No Ice 1.2 Dead+1.0 Wind 300 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 0.9 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 0 ded+1.0 Temp	46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13 127.24	-17.68 -17.68 -33.19 -33.19 -36.90 -36.90 -33.97 -33.97 -19.67	30.58 19.04 19.04 -0.08 -0.08 -19.58	3058 1890 1882 16 10 -1894	1776 3279 3270 3669 3660 3351	-30 -2 -2 10
1.2 Dead+1.0 Wind 210 deg No Ice D.9 Dead+1.0 Wind 210 deg No Ice 1.2 Dead+1.0 Wind 240 deg No Ice D.9 Dead+1.0 Wind 240 deg No Ice D.9 Dead+1.0 Wind 270 deg No Ice D.9 Dead+1.0 Wind 270 deg No Ice D.9 Dead+1.0 Wind 300 deg No Ice D.9 Dead+1.0 Wind 300 deg No Ice D.9 Dead+1.0 Wind 300 deg No Ice D.9 Dead+1.0 Wind 330 deg	35.13 46.84 35.13 46.84 35.13 46.84 35.13 127.24	-17.68 -33.19 -33.19 -36.90 -36.90 -33.97 -33.97	30.58 19.04 19.04 -0.08 -0.08 -19.58	3058 1890 1882 16 10 -1894	1776 3279 3270 3669 3660 3351	-30 -2 -2 10
No Ice 0.9 Dead+1.0 Wind 210 deg 1.0 Dead+1.0 Wind 240 deg 1.2 Dead+1.0 Wind 240 deg 1.2 Dead+1.0 Wind 240 deg 1.0 Dead+1.0 Wind 270 deg 1.1 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Wind 300 deg 1.2 Dead+1.0 Wind 330 deg 1.0 Ice 1.2 Dead+1.0 Wind 330 deg 1.0 Ice 1.1 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 0 ded+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp	46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13	-33.19 -33.19 -36.90 -36.90 -33.97 -33.97 -19.67	19.04 19.04 -0.08 -0.08 -19.58	1890 1882 16 10 -1894	3279 3270 3669 3660 3351	-2 -2 10
No Ice 1.2 Dead+1.0 Wind 240 deg 1.0 Dead+1.0 Wind 240 deg 1.0 Dead+1.0 Wind 240 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 270 deg 1.2 Dead+1.0 Wind 300 deg 1.0 Ice 1.2 Dead+1.0 Wind 300 deg 1.0 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Wind 0 ded+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp	46.84 35.13 46.84 35.13 46.84 35.13 46.84 35.13	-33.19 -33.19 -36.90 -36.90 -33.97 -33.97 -19.67	19.04 19.04 -0.08 -0.08 -19.58	1890 1882 16 10 -1894	3270 3669 3660 3351	-2 10 10
1.2 Dead+1.0 Wind 240 deg - No Ice 0.9 Dead+1.0 Wind 240 deg - No Ice 1.2 Dead+1.0 Wind 270 deg - No Ice 0.9 Dead+1.0 Wind 270 deg - No Ice 1.2 Dead+1.0 Wind 300 deg - No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Wind 0 ded+1.0 Temp 1.2 Dead+1.0 Wind 0 ded+1.0 Temp	35.13 46.84 35.13 46.84 35.13 46.84 35.13	-33.19 -36.90 -36.90 -33.97 -33.97 -19.67	19.04 -0.08 -0.08 -19.58	1882 16 10 -1894	3270 3669 3660 3351	-2 10 10
No Ice 0.9 Dead+1.0 Wind 240 deg No Ice 1.2 Dead+1.0 Wind 270 deg No Ice 0.9 Dead+1.0 Wind 270 deg No Ice 1.2 Dead+1.0 Wind 300 deg No Ice 0.9 Dead+1.0 Wind 300 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 0.9 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp	46.84 35.13 46.84 35.13 46.84 35.13 127.24	-36.90 -36.90 -33.97 -33.97 -19.67	-0.08 -0.08 -19.58 -19.58	16 10 -1894	3669 3660 3351	10 10
- No Ice 1.2 Dead+1.0 Wind 270 deg - No Ice 0.9 Dead+1.0 Wind 270 deg - No Ice 1.2 Dead+1.0 Wind 300 deg - No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Wind 370 deg - No Ice 1.2 Dead+1.0 Wind 370 deg - No Ice 1.2 Dead+1.0 Wind 0 ded+1.0 Ice+1.0 Temp	46.84 35.13 46.84 35.13 46.84 35.13 127.24	-36.90 -36.90 -33.97 -33.97 -19.67	-0.08 -0.08 -19.58 -19.58	16 10 -1894	3669 3660 3351	10 10
1.2 Dead+1.0 Wind 270 deg - No Ice 0.9 Dead+1.0 Wind 270 deg - No Ice 1.2 Dead+1.0 Wind 300 deg - No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Wind 370 deg - No Ice 1.2 Dead+1.0 Wind 370 deg 1.2 Dead+1.0 Wind 0 ded+1.0 Ice+1.0 Temp	35.13 46.84 35.13 46.84 35.13 127.24	-36.90 -33.97 -33.97 -19.67	-0.08 -19.58 -19.58	10 -1894	3660 3351	10
No Ice 0.9 Dead+1.0 Wind 270 deg No Ice 1.2 Dead+1.0 Wind 300 deg No Ice No Ice 0.9 Dead+1.0 Wind 300 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 0.9 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg No Ice 1.2 Dead+1.0 Wind 330 deg 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Ice+1.0 Temp	35.13 46.84 35.13 46.84 35.13 127.24	-33.97 -33.97 -19.67	-19.58 -19.58	-1894	3351	
0.9 Dead+1.0 Wind 270 deg - No Ice 1.2 Dead+1.0 Wind 300 deg - No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Lee+1.0 Temp 1.2 Dead+1.0 Wind 0 ded+1.0 Ice+1.0 Temp	46.84 35.13 46.84 35.13 127.24	-33.97 -33.97 -19.67	-19.58 -19.58	-1894	3351	
1.2 Dead+1.0 Wind 300 deg - No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	35,13 46.84 35.13 127.24	-33.97 -19.67	-19.58			-10
- No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	35,13 46.84 35.13 127.24	-33.97 -19.67	-19.58	-1897	22/12	
0.9 Dead+1.0 Wind 300 deg - No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	46.84 35.13 127.24	-19.67		-1897	22/10	
- No Ice 1.2 Dead+1.0 Wind 330 deg - No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 ded+1.0 Ice+1.0 Temp	35.13 127.24		-33.86		3342	-10
- No Ice 0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 ded+1.0 Ice+1.0 Temp	35.13 127.24		-33.00	-3289	1944	-10
0.9 Dead+1.0 Wind 330 deg - No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	127.24	-19.67		-5203		
- No Ice 1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	127.24		-33.86	-3290	1938	-10
1.2 Dead+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp				20	3	(
deg+1.0 lce+1.0 Temp		0.00	-0.00 -12.22	29 -1191	6	-
deg+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 30	127.24	-0.04	-12.22	-1131	_	
1.2 Deau 1.0 Willia oo	127.24	5.54	-9.60	-946	-561	8
deg+1.0 lce+1.0 Temp			= 00	F20	-989	
1.2 Dead+1.0 Wind 60	127.24	9.76	-5.60	-538	-909	_
deg+1.0 Ice+1.0 Temp	127.24	11.41	0.04	33	-1152	-4
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	121.24	11.41				
1.2 Dead+1.0 Wind 120	127.24	10.69	6.17	644	-1064	
deg+1.0 Ice+1.0 Temp		5.04	10.17	1050	-592	
1.2 Dead+1.0 Wind 150	127.24	5.91	10.17	1000		
deg+1.0 lce+1.0 Temp 1.2 Dead+1.0 Wind 180	127.24	0.04	11.84	1219	-1	-
deg+1.0 lce+1.0 Temp				4004	566	-4
1.2 Dead+1.0 Wind 210	127.24	-5.54	9.60	1004	500	_
deg+1.0 ice+1.0 Temp	127.24	-10.10	5.79	611	1020	١.
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	121.24	10.10				
1.2 Dead+1.0 Wind 270	127.24	-11.41	-0.04	25	1157	:
deg+1.0 Ice+1.0 Temp		40.05	-5.98	-571	1044	I,
1.2 Dead+1.0 Wind 300	127.24	-10.35	-5.96	-51 1	1011	
deg+1.0 Ice+1.0 Temp 1.2 Dead+1.0 Wind 330	127.24	-5.91	-10.17	-992	597	
deg+1.0 lce+1.0 Temp			40.44	060	15	
Dead+Wind 0 deg - Service	39.03	-0.02	-10.11	-963 -746	-430	
Dead+Wind 30 deg - Service	39.03	4.45	-7.70	-424	-762	
Dead+Wind 60 deg - Service	39.03	7.79	-4.47 0.02	21	-904	-
Dead+Wind 90 deg - Service	39.03	9.29 9.12	5.26	526	-868	
Dead+Wind 120 deg -	39.03	9.12	0.20			
Service Dead+Wind 150 deg -	39.03	4.95	8.52	850	-471	
Service			0.45	950	11	_
Dead+Wind 180 deg -	39.03	0.02	9.45	950	11	
Service	39.03	-4.45	7.70	784	457	-
Dead+Wind 210 deg - Service	38.03	4,.10				
Dead+Wind 240 deg -	39.03	-8.36	4.79	488	832	_
Service		0.00	0.03	17	930	
Dead+Wind 270 deg -	39.03	-9.29	-0.02	17	330	
Service	39.03	-8.55	-4.93	-462	850	
Dead+Wind 300 deg - Service	55.55			=	407	
Dead+Wind 330 deg -	39.03	-4.95	-8.52	-812	497	

Solution Summary	Sc	luti	on	Su	mm	an
------------------	----	------	----	----	----	----

	Su	m of Applied Forc	es		Sum of Reaction	ons	
Load	PX	PY	PZ	PX	PY	PZ	% Erro
Comb.	K	K	- K	K	ĸ	K	70 2.70
1	0.00	-39.03	0.00	0.00	39.03	0.00	0.000%
2	-0.08	-46.84	-40.16	0.08	46.84	40.16	0.000%
3	-0.08	-35.13	-40.16	0.08	35.13	40.16	0.000%
4	17.68	-46.84	-30.58	-17.68	46.84	30.58	0.000%
5	17.68	-35.13	-30.58	-17.68	35.13	30.58	0.000%
6	30.93	-46.84	-17.73	-30.93	46.84	17.73	0.000%
7	30.93	-35.13	-17.73	-30.93	35.13	17.73	0.000%
8	36.90	-46.84	0.08	-36.90	46.84	-0.08	0.000%
9	36.90	-35.13	0.08	-36.90	35.13	-0.08	0.000%
10	36.24	-46.84	20.89	-36.24	46.84	-20.89	0.000%
11	36.24	-35.13	20.89	-36.24	35.13	-20.89	0.000%
12	19.67	-46.84	33.86	-19.67	46.84	-33.86	0.000%
13	19.67	-35.13	33.86	-19.67	35.13	-33.86	0.000%
14	0.08	-46.84	37.54	-0.08	46.84	-37.54	
15	0.08	-35.13	37.54	-0.08	35.13	-37.54 -37.54	0.000%
16	-17.68	-46.84	30.58	17.68	46.84	-37.54	0.000%
17	-17.68	-35.13	30.58	17.68	35.13	-30.58	0.000%
18	-33.19	-46.84	19.04	33.19			0.000%
19	-33.19	-35.13	19.04	33.19	46.84	-19.04	0.000%
20	-36.90	-46.84	-0.08	36.90	<b>35.1</b> 3	-19.04	0.000%
21	-36.90	-35.13	-0.08	36.90	46.84	0.08	0.000%
22	-33.97	-46.84	-19.58	33.97	35.13	0.08	0.000%
23	-33.97	-35.13	-19.58		46.84	19.58	0.000%
24	-19.67	-46.84	-33.86	33.97	35.13	19.58	0.000%
25	-19.67	-35.13	-33.86	19.67	46.84	33.86	0.000%
26	0.00	-127.24		19.67	35.13	33.86	0.000%
27	-0.04	-127.24	0.00 -12.22	0.00	127.24	0.00	0.000%
28	5.54	-127.24	-12.22 -9.60	0.04	127.24	12.22	0.000%
29	9.76	-127.24	-5.60	-5.54	127.24	9.60	0.000%
30	11.41	-127.24		-9.76	127.24	5.60	0.000%
31	10.69	-127.24	0.04	-11.41	127.24	-0.04	0.000%
32	5.91		6.17	-10.69	127.24	-6.17	0.000%
33	0.04	-127.24 -127.24	10.17	-5.91	127.24	-10.17	0.000%
34	-5.54		11.84	-0.04	127.24	-11.84	0.000%
35	-10.10	-127.24	9.60	5.54	127.24	-9.60	0.000%
36	-10.10	-127.24	5.79	10.10	127.24	-5.79	0.000%
37		-127.24	-0.04	11.41	127.24	0.04	0.000%
38	-10.35 -5.91	-127.24	-5.98	10.35	127.24	5.98	0.000%
39		-127.24	-10.17	5.91	127.24	10.17	0.000%
39 40	-0.02	-39.03	-10.11	0.02	39.03	10.11	0.000%
40	4.45	-39.03	-7.70	-4.45	39.03	7.70	0.000%
41	7.79	-39.03	-4.47	-7.79	39.03	4.47	0.000%
	9.29	-39.03	0.02	-9.29	39.03	-0.02	0.000%
43	9.12	-39.03	5.26	-9.12	39.03	-5.26	0.000%
44	4.95	-39.03	8.52	-4.95	39.03	-8.52	0.000%
45	0.02	-39.03	9.45	-0.02	39.03	-9.45	0.000%
46	-4.45	-39.03	7.70	4.45	39.03	-7.70	0.000%
47	-8.36	-39.03	4.79	8.36	39.03	-4.79	0.000%
48	-9.29	-39.03	-0.02	9.29	39.03	0.02	0.000%
49	-8.55	-39.03	-4.93	8.55	39.03	4.93	0.000%
50	-4.95	-39.03	-8.52	4.95	39.03	8.52	0.000%

# Non-Linear Convergence Results

Load	Converged?	Number	Displacement	Force
Combination		of Cycles	Tolerance	Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.0000001	0.00000289
3	Yes	4	0.00000001	0.00000197
4	Yes	4	0.0000001	0.00001158
	Yes	4	0.0000001	0.00000667
5	Yes	4	0.0000001	0.00000860
6	Yes	4	0.00000001	0.00000499
7	Yes	4	0.0000001	0.00000886
8	Yes	4	0.00000001	0.00000503
9		4	0,00000001	0.00001244
10	Yes	4	0.00000001	0.00000707
11	Yes	4	0.00000001	0.00000755
12	Yes	4	0.00000001	0.00000458
13	Yes	4	0.00000001	0.00000395
14	Yes		0.00000001	0.00000294
15	Yes	4	0.00000001	0.00001101
16	Yes	4	0.00000001	0.00000634
17	Yes	4		0.0000000
18	Yes	4	0.00000001	0.00001100
19	Yes	4	0.00000001	0.00000887
20	Yes	4	0.00000001	
21	Yes	4	0.00000001	0.00000504
22	Yes	4	0.00000001	0.00000977
23	Yes	4	0.00000001	0.00000571
24	Yes	4	0.00000001	0.00000835
25	Yes	4	0.00000001	0.00000499
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00001595
28	Yes	4	0.00000001	0.00001852
29	Yes	4	0.00000001	0.00001919
30	Yes	4	0.0000001	0.00002043
31	Yes	4	0.00000001	0.00002283
32	Yes	4	0.00000001	0.00002080
	Yes	4	0.0000001	0.00001984
33	Yes	4	0.0000001	0.00002386
34	Yes	4	0.00000001	0.00002272
35	Yes	4	0.0000001	0.00002068
36	Yes	4	0.0000001	0.00001980
37	Yes	4	0.00000001	0.00001702
38		4	0.0000001	0.00000001
39	Yes	4	0.0000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes		0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.0000001	0.00000001
46	Yes	4		0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	****
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.0000001	0.00000001

# **Maximum Tower Deflections - Service Wind**

Section	Flevation	Horz.	Gov.	Tilt	Twist
No.	ft	Deflection in	Load Comb.	•	٠
14	168 - 160	4.45	43	0.513	0.038
LI T4	160 - 140	3.76	43	0.217	0.019
T1	140 - 133.333	2.85	43	0.203	0.017
T2 T3	133.333 -	2.56	43	0.194	0.016
T4	126.667 126.667 - 120	2.29	43 43	0.185 0.173	0.015 0.014
T5	120 - 100	2.03	43	0.132	0.011
T6	100 - 80	1.36	43	0.095	0.008
T7 T8	80 - 60 60 - 40	0.85 0.49	43	0.067	0.006

tnxTower Report - version 8.1.1.0

Section No.	Elevation	Horz. Deflection	Gov. Load	Tilt	Twist
	ft	in	Comb.		
T9	40 - 20	0.23	43	0.045	0.004
T10	20 - 1e-006	0.07	43	0.022	0.002

# Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in		•	Curvature ft
169.00	RADIO 4449 B5/B12	43	4.45	0.513	0.038	3430
160.00	15 ft x 2" omni whip	43	3.76	0.217	0.019	2510
155.00	LNX-6513DS-A1M_TIA w/ Mount Pipe	43	3.45	0.175	0.015	3172
145.00	(2) TMA (10" x 8" x 3")	43	3.03	0.183	0.016	213160
118.00	15 ft x 2" omni whip	43	1.95	0.169	0.013	26993
99.00	16 ft x 2" omni whip	43	1.33	0.130	0.010	30479
47.00	Side Arm Mount [SO 302-1]	43	0.31	0.053	0.004	53545
38.00	12 ft x 2" omni whip	43	0.21	0.043	0.003	53545 54414

# **Maximum Tower Deflections - Design Wind**

Section	Elevation	Horz.	Gov.	Tilt	Twist
No.		Deflection	Load		
	ft	in	Comb.	0	
L1	168 - 160	17.56	10	1.748	0.152
T1	160 - 140	14.97	10	0.860	0.077
T2	140 - 133.333	11.33	10	0.805	0.069
Т3	133.333 - 126.667	10.19	10	0.772	0.065
T4	126.667 - 120	9.11	10	0.734	0.060
T5	120 - 100	8.08	10	0.689	0.055
<b>T</b> 6	100 - 80	5.42	10	0.526	0.042
T7	80 - 60	3.40	10	0.381	0.031
T8	60 - 40	1.96	10	0.268	0.022
T9	40 - 20	0.93	10	0.181	0.015
T10	20 - 1e-006	0.27	10	0.088	0.007

# Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov.	Deflection	Tilt	Twist	Radius of
ft		Load Comb.	in	۰	٠	Curvature ft
169.00	RADIO 4449 B5/B12	10	17.56	1.748	0.152	1080
160.00	15 ft x 2" omni whip	10	14.97	0.860	0.077	790
155.00	LNX-6513DS-A1M_TIA w/ Mount Pipe	10	13.77	0.650	0.061	995
145.00	(2) TMA (10" x 8" x 3")	10	12.10	0.727	0.066	75742
118.00	15 ft x 2" omni whip	10	7.78	0.673	0.054	6888
99.00	16 ft x 2" omni whip	10	5.31	0.518	0.042	7652
47.00	Side Arm Mount [SO 302-1]	10	1.25	0.211	0.017	13418
38.00	12 ft x 2" omni whip	10	0.85	0.172	0.017	13632

# **Bolt Design Data**

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of	Maximum Load	Allowable Load	Ratio Load	Allowable Ratio	Criteria
110	ft			in	Bolts	per Bolt K	per Bolt K	Allowable		
T1	160	Leg	A325N	0.63	4	4.44	20.34	0.218	1.05	Bolt Tension
• •		Diagonal	A325N	0.63	1	4.37	5.81	0.753	1.05	Member Block Shear
		Top Girt	A325N	0.63	1	1.57	7.83	0.201	1.05	Member Bearing
T2	140	Diagonal	A325N	0.63	1	4.08	6.83	0.597	1.05	Member Block Shear
ТЗ	133.333	Diagonal	A325N	0.63	1	4.24	6.83	0.621	1.05	Member Block Shear
T4	126.667	Leg	A325N	0.63	4	10.43	20.34	0.513	1.05	Bolt Tension
• •		Diagonal	A325N	0.63	1	4.27	10.44	0.409		Gusset Bearing
		Secondary	A325N	0.63	1	0.90	10.44	0.086		Gusset Bearin
		Horizontal Top Girt	A325N	0.63	1	0.90	7.83	0.115	1.05	Member Bearing
T5	120	Leg	A325N	0.75	4	16.41	30.10	0.545	1.05	Bolt Tension
10	120	Diagonal	A325N	0.63	1	4.80	7.83	0.612		Member Bearing
Т6	100	Leg	A325N	0.88	4	22.37	41.56	0.538	1.05	Bolt Tension
, 0		Diagonal	A325N	0.63	1	5.46	7.83	0.698		Member Bearing
T7	80	Leg	A325N	1.00	4	27.69	54.52	0.508	1.05	Bolt Tension
		Diagonal	A325N	0.63	1	6.39	10.44	0.612		Gusset Bearin
Т8	60	Leg	A325N	1.00	4	33.51	54.52	0.615	1.05	<b>Bolt Tension</b>
10		Diagonal	A325N	0.63	1	7.05	10.44	0.676	1.05	Gusset Bearin
Т9	40	Leg	A325N	1.00	6	26.00	54.52	0.477		Bolt Tension
10		Diagonal	A325N	0.63	1	7.15	10.44	0.685		Gusset Bearin
T10	20	Diagonal	A325N	0.63	1	7.90	10.44	0.757	1.05	Gusset Bearin

# **Compression Checks**

			Pole [	Pole Design Data										
Section	Elevation	Size	L	Lu	Kl/r	Α	Pu	φPn	Ratio Pu					
No.	ft		ft	ft		in <sup>2</sup>	K	K	$\frac{P_u}{\phi P_n}$					
L1	168 - 160 (1)	Pipe 8.625" x 0.322" (8 STD)	8.00	0.00	0.0	8.40	-3.29	377.97	0.009					
T1	160 - 140 (197)	Pipe 8.625" x 0.322" (8 STD)	8.00	0.00	32.7 K=1.00	8.40	-3.47	349.58	0.010					

Pole	<b>Bending</b>	Design	Data
------	----------------	--------	------

Section	Elevation	Size	Mux	φM <sub>nx</sub>	Ratio M <sub>ux</sub>	Muy	$\phi M_{ny}$	Ratio M <sub>uy</sub>
No.	ft		kip-ft	kip-ft	φM <sub>mx</sub>	kip-ft	kip-ft	$\phi M_{nv}$
L1	168 - 160 (1)	Pipe 8.625" x 0.322" (8	30	83	0.360	0	83	0.000
T1	160 - 140 (197)	STD) Pipe 8.625" x 0.322" (8 STD)	30	83	0.360	0	83	0.000

tnxTower Report - version 8.1.1.0

Section No.	Elevation	Size	$M_{ux}$	$\phi M_{nx}$	Ratio M	$M_{uy}$	φM <sub>ny</sub>	Ratio
	ft		kip-ft	kip-ft	φM <sub>nx</sub>	kip-ft	kip-ft	$\Phi M_{nv}$

	Pole Shear Design Data								
Section No.	Elevation	Size	Actual V <sub>u</sub>	φVn	Ratio V <sub>u</sub>	Actual T <sub>u</sub>	φ <i>T</i> <sub>n</sub>	Ratio T <sub>u</sub>	
	ft		ĸ	K	φVa	kip-ft	kip-ft	φΤα	
L1	168 - 160 (1)	Pipe 8.625" x 0.322" (8 STD)	3.09	113.39	0.027	0	83	0.002	
T1	160 - 140 (197)	Pipe 8.625" x <sup>^</sup> 0.322" (8 STD)	3.75	113.39	0.033	0	83	0.002	

	Pole Interaction Design Data								
Section No.	Elevation	Ratio P <sub>u</sub>	Ratio M <sub>ux</sub>	Ratio M <sub>uy</sub>	Ratio V <sub>u</sub>	Ratio T <sub>u</sub>	Comb. Stress	Allow. Stress	Criteria
	ft	$\phi P_n$	$\phi M_{nx}$	$\phi M_{ny}$	φV <sub>n</sub>	$\phi T_n$	Ratio	Ratio	
L1	168 - 160 (1)	0.009	0.360	0.000	0.027	0.002	0.369	1.050	4.8.2
T1	160 - 140 (197)	0.010	0.360	0.000	0.033	0.002	0.371	1.050	4.8.2

Section No.	Elevation	Size	L	Lu	Kl/r	Α	$P_u$	φPn	Ratio P <sub>u</sub>
	ft		ft	ft		in²	K	K	$\phi P_n$
T1	160 - 140	Pipe 2.875" x 0.203" (2.5 STD)	20.00	5.00	63.3 K=1.00	1.70	-25.08	57.19	0.439 1
T2	140 - 133.333	Pipe 2.875" x 0.276" (2.5 XS)	6.68	6.68	86.7 K=1.00	2.25	-34.10	58.52	0.583 <sup>1</sup>
Т3	133.333 - 126.667	Pipe 2.875" x 0.276" (2.5 XS)	6.68	6.68	86.7 K=1.00	2.25	-43.01	58.52	0.735 1
T4	126.667 - 120	Pipe 2.875" x 0.276" (2.5 XS)	6.68	3.45	44.8 K=1.00	2.25	-51.70	87.59	0.590 <sup>1</sup>
T5	120 - 100	Pipe 2.875" x 0.276" (2.5 XS)	20.03	3.43	44.6 K=1.00	2.25	-79.00	87.71	0.901 1
T6	100 - 80	Pipe 3.5" x 0.300" (3 XS)	20.03	3.42	36.1 K=1.00	3.02	-106.80	123.39	0.866 1
<b>T</b> 7	80 - 60	Pipe 4.5" x 0.337" (4 XS)	20.04	5.17	42.0 K=1.00	4.41	-132.28	174.33	0.759 <sup>1</sup>
T8	60 - 40	Pipe 5.563" x 0.375" (5 XS)	20.03	10.02	65.4 K=1.00	6.11	-160.19	201.25	0.796 ¹
T9	40 - 20	Pipe 5.563" x 0.375" (5 XS)	20.04	10.02	65.4 K=1.00	6.11	-187.02	201.23	0.929 1
T10	20 - 1e-006	Pipe 6.625" x 0.340" (6 EHS)	20.03	10.02	54.0 K=1.00	6.71	-213.31	244.06	0.874 1

 $<sup>^{1}</sup>$  P  $_{u}$  /  $\phi$ P $_{o}$  controls

Lea Bendina	Design	<b>Data</b>	(Compression)
Lea Donaing			

Section	Elevation	Size	Mux	φM <sub>nx</sub>	Ratio M <sub>ux</sub>	Muy	$\phi M_{ny}$	Ratio M <sub>uy</sub>
No.	ft		kip-ft	kip-ft	φM <sub>mx</sub>	kip-ft	kip-ft	$\phi M_{ny}$
T1	160 - 140	Pipe 2.875" x 0.203" (2.5	0	5	0.000	0	5	0.000
T1	100 - 140	STD)		_			7	0.000
T2	140 - 133.333	Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	,	0.000
		XS)	0	7	0.000	0	7	0.000
Т3	133.333 -	Pipe 2.875" x 0.276" (2.5	U	,	0.000	Ü		
<b>T</b> 4	126,667	XS) Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	7	0.000
Т4	126.667 - 120	XS)	_				_	0.000
T5	120 - 100	Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	7	0.000
10		XS)	_	40	0.000	0	12	0.000
T6	100 - 80	Pipe 3.5" x 0.300" (3 XS)	0	12	0.000	-		0.000
T7	80 - 60	Pipe 4.5" x 0.337" (4 XS)	0	22	0.000	0	22	
T8	60 - 40	Pipe 5.563" x 0.375" (5	0	38	0.000	0	38	0.00
10	00 10	XS)				•	20	0.000
Т9	40 - 20	Pipe 5.563" x 0.375" (5	0	38	0.000	0	38	0.000
. 3		XS)		<b>5</b> 0	0.000	0	50	0.00
T10	20 - 1e-006	Pipe 6.625" x 0.340" (6	0	50	0.000	9	00	3.00
		EHS)						

# Leg Interaction Design Data (Compression)

Section	Elevation	Size	Ratio P <sub>u</sub>	Ratio M <sub>ux</sub>	Ratio M <sub>uy</sub>	Comb. Stress	Allow. Stress	Criteria
No.	ft		$\phi P_n$	$\phi M_{nx}$	$\phi M_{ny}$	Ratio	Ratio	
T1	160 - 140	Pipe 2.875" x 0.203" (2.5 STD)	0.439	0.000	0.000	0.439 1	1.050	4.8.1
T2	140 - 133.333	Pipe 2.875" x 0.276" (2.5 XS)	0.583	0.000	0.000	0.583 1	1.050	4.8.1
Т3	133.333 - 126.667	Pipe 2.875" x 0.276" (2.5 XS)	0.735	0.000	0.000	0.735 1	1.050	4.8.1
T4	126.667 - 120	Pipe 2.875" x 0.276" (2.5 XS)	0.590	0.000	0.000	0.590 1	1.050	4.8.1
T5	120 - 100	Pipe 2.875" x 0.276" (2.5 XS)	0.901	0.000	0.000	0.901 1	1.050	4.8.1
Т6	100 - 80	Pipe 3.5" x 0.300" (3 XS)	0.866	0.000	0.000	0.866 1	1,050	4.8.1
T7	80 - 60	Pipe 4.5" x 0.337" (4 XS)	0.759	0.000	0.000	0.759 1	1.050	4.8.1
T8	60 - 40	Pipe 5.563" x 0.375" (5 XS)	0.796	0.000	0.000	0.796 1	1.050	4.8.1
Т9	40 - 20	Pipe 5.563" x 0.375" (5 XS)	0.929	0.000	0.000	0.929 1	1.050	4.8.1
T10	20 - 1e-006	Pipe 6.625" x 0.340" (6 EHS)	0.874	0.000	0.000	0.874 1	1.050	4.8.1

<sup>&</sup>lt;sup>1</sup>  $P_u$  /  $\phi P_n$  controls

# **Diagonal Design Data (Compression)**

Section No.	Elevation	Size	L	Lu	KI/r	Α	$P_u$	$\phi P_n$	Ratio P <sub>u</sub>
	ft		ft	ft		in²	K	K	φ <i>P</i> <sub>n</sub>
T1	160 - 140	L 1.75 x 1.75 x 3/16	9.99	4.74	165.5 K=1.00	0.62	-4.52	6.49	0.697
T2	140 - 133.333	L 2 x 2 x 3/16	11.19	5.53	168.5 K=1.00	0.71	-4.18	7.21	0.580 1
Т3	133.333 - 126.667	L 2 x 2 x 3/16	11.73	5.80	176.7 K=1.00	0.71	-4.24	6.56	0.647 1
T4	126.667 - 120	L 2.5 x 2.5 x 3/16	12.28	6.20	150.2 K=1.00	0.90	-4.51	11.44	0.394 1
T5	120 - 100	L 2.5 x 2.5 x 3/16	14.03	7.07	171.5 K=1.00	0.90	-4.94	8.78	0.563 1
Т6	100 - 80	L 3 x 3 x 3/16	15.84	7.94	159.8 K=1.00	1.09	-5.91	12.21	0.484 1
T7	80 - 60	L3 x 3 x 1/4	19.09	9.63	195.0 K=1.00	1.44	-6.96	10.82	0.644 1
T8	60 - 40	L 3.5 x 3.5 x 1/4	20.83	10.32	178.4 K=1.00	1.69	-7.42	15.20	0.488 1
T9	40 - 20	L 3.5 x 3.5 x 1/4	22.67	11.25	194.5 K=1.00	1.69	-7.64	12.79	0.597 1
T10	20 - 1e-006	L 4 x 4 x 1/4	24.50	12.10	182.7 K=1.00	1.94	-8.73	16.64	0.524 1

 $<sup>^{1}</sup>P_{u}$  /  $\phi P_{n}$  controls

Secondar	y Horizontal	Design	Data	(Comp	ression)	)
----------	--------------	--------	------	-------	----------	---

Section No.	Elevation	Size	L	Lu	KI/r	Α	Pu	φ <i>P</i> <sub>n</sub>	Ratio P <sub>u</sub>
	ft		ft	ft		in²	K	κ	φ <i>P</i> <sub>a</sub>
T4	126.667 - 120	L 2 x 2 x 1/4	10.30	5.03	154.4 K=1.00	0.94	-0.90	11.26	0.080 1
T5	120 - 100	L 2.5 x 2.5 x 3/16	12.34	6.05	146.6 K=1.00	0.90	-1.37	12,01	0.114 1
Т6	100 - 80	L 3 x 3 x 3/16	14.35	7.03	141.5 K=1.00	1.09	-1.85	15.58	0.119 1
T7	80 - 60	L3 x 3 x 1/4	16.24	7.93	160.7 K≃1.00	1.44	-2.29	15.94	0.144 1

 $<sup>^{1}</sup>$   $P_{u}$  /  $\phi P_{n}$  controls

Top Girt Design Data (Compression	rt Design Data (Compress	ion
-----------------------------------	--------------------------	-----

Section No.	Elevation	Size	L	Lu	KI/r	Α	$P_u$	φ <i>P</i> <sub>n</sub>	Ratio
	ft		ft	ft		in <sup>2</sup>	κ	K	$\frac{P_u}{\Phi P_n}$
T1	160 - 140	L 2.5 x 2.5 x 3/16	8.65	8.17	198.0 K=1.00	0.90	-1.54	6.59	0.234
T2	140 - 133.333	L 2 x 2 x 3/16	8.65	8.41	203.7 K=0.80	0.71	-0.59	4.93	0.120 1
		KL/R > 200 (C) - 35							~
T4	126.667 - 120	L 2.5 x 2.5 x 3/16	9.98	9.74	236.1 K=1.00	0.90	-0.90	4.63	0.194 1
		KL/R > 200 (C) - 56							

<sup>1</sup> P <sub>u</sub> /  $\phi P_n$  controls

# Tension Checks

		Leg [	Desig	n Data	(Ten	sion)			
Section	Elevation	Size	L	Lu	KI/r	Α	$P_u$	$\phi P_n$	Ratio Pu
No.	ft		ft	ft		in²	K	K	φPn
T1	160 - 140	Pipe 2.875" x 0.203" (2.5	20.00	5.00	63.3	1.70	17.77	76.68	0.232
T2	140 - 133.333	STD) Pipe 2.875" x 0.276" (2.5	6.68	6.68	86.7	2.25	25.94	101.41	0.256
ТЗ	133.333 -	XS) Pipe 2.875" x 0.276" (2.5	6.68	6.68	86.7	2.25	33.90	101.41	0.334
T4	126.667 126.667 - 120	XS) Pipe 2.875" x 0.276" (2.5	6.68	3.23	42.0	2.25	41.77	101.41	0.412
T5	120 - 100	XS) Pipe 2.875" x 0.276" (2.5	20.03	3.25	42.2	2.25	65.70	101.41	0.648
Т6	100 - 80	XS) Pipe 3.5" x 0.300" (3 XS)	20.03	3.26	34.4 39.4	3.02 4.41	89.56 110.88	135.72 198.34	0.660 0.559
T7 <b>T8</b>	80 - 60 60 - 40	Pipe 4.5" x 0.337" (4 XS) Pipe 5.563" x 0.375" (5	20.04 20.03	4.85 10.02	65.4	6.11	134.03	275.04	0.487
Т9	40 - 20	XS) Pipe 5.563" x 0.375" (5	20.04	10.02	65.4	6.11	155.97	275.04	0.567
T10	20 - 1e-006	XS) Pipe 6.625" x 0.340" (6 EHS)	20.03	10.02	54.0	6.71	177.10	302.10	0.586

<sup>&</sup>lt;sup>1</sup> P<sub>u</sub> /  $\phi$ P<sub>n</sub> controls

Section	Elevation	Size	Mux	фМлх	Ratio M <sub>ux</sub>	$M_{uy}$	φM <sub>ny</sub>	Ratio M <sub>uy</sub>
No.	ft		kip-ft	kip-ft	φM <sub>nx</sub>	kip-ft	kip-ft	$\phi M_{ny}$
T1	160 - 140	Pipe 2.875" x 0.203" (2.5	0	5	0.000	0	5	0.000
T2	140 - 133.333	STD) Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	7	0.000
Т3	133.333 -	XS) Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	7	0.00
T4	126.667 126.667 - 120	XS) Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	7	0.00
T5	120 - 100	XS) Pipe 2.875" x 0.276" (2.5	0	7	0.000	0	7	0.00
TO	400 00	XS) Pipe 3.5" x 0.300" (3 XS)	0	12	0.000	0	12	0.00
T6	100 - 80	Pipe 4.5" x 0.337" (4 XS)	Ō	22	0.000	0	22	0.00
T7 T8	80 - 60 60 <b>-</b> 40	Pipe 5.563" x 0.375" (5	0	38	0.000	0	38	0.00
T9	40 - 20	XS) Pipe 5.563" x 0.375" (5 XS)	0	38	0.000	0	38	0.00
T10	20 - 1e-006	Pipe 6.625" x 0.340" (6 EHS)	0	50	0.000	0	50	0.00

# Leg Interaction Design Data (Tension)

Section No.	Elevation	Size	Ratio P <sub>u</sub>	Ratio	Ratio	Comb.	Allow.	Criteria
	ft		φP <sub>n</sub>	- M <sub>ux</sub> φM <sub>nx</sub>	$M_{uy}$ $\phi M_{ny}$	Stress Ratio	Stress Ratio	
T1	160 - 140	Pipe 2.875" x 0.203" (2.5 STD)	0.232	0.000	0.000	0.232	1.050	4.8.1
T2	140 - 133.333	Pipe 2.875" x 0.276" (2.5 XS)	0.256	0.000	0.000	0.256 1	1.050	4.8.1
T3	133.333 - 126.667	Pipe 2.875" x 0.276" (2.5 XS)	0.334	0.000	0.000	0.334 1	1.050	4.8.1
T4	126.667 - 120	Pipe 2.875" x 0.276" (2.5 XS)	0.412	0.000	0.000	0.412 <sup>1</sup>	1.050	4.8.1
T5	120 - 100	Pipe 2.875" x 0.276" (2.5 XS)	0.648	0.000	0.000	0.648 1	1.050	4.8.1
T6	100 - 80	Pipe 3.5" x 0.300" (3 XS)	0.660	0.000	0.000	0.660 <sup>1</sup>	1.050	4.8.1
T7	80 - 60	Pipe 4.5" x 0.337" (4 XS)	0.559	0.000	0.000	0.559 <sup>1</sup>	1.050	4.8,1
T8	60 - 40	Pipe 5.563" x 0.375" (5 XS)	0.487	0.000	0.000	0.487 <sup>1</sup>	1.050	4.8.1
T9	40 - 20	Pipe 5.563" x 0.375" (5 XS)	0.567	0.000	0.000	0.567 <sup>1</sup>	1.050	4.8.1
T10	20 - 1e-006	Pipe 6.625" x 0.340" (6 EHS)	0.586	0.000	0.000	0.586 <sup>1</sup>	1.050	4.8.1

 $<sup>^{1}</sup>$   $P_{u}$  /  $\phi P_{n}$  controls

Diagonal Design Data	(Tension)
----------------------	-----------

Section No.	Elevation	Size	L	Lu	KI/r	Α	$P_u$	φ <i>P</i> <sub>n</sub>	Ratio
	ft		ft	ft		in²	K	K	$\frac{P_u}{\Phi P_a}$
T1	160 - 140	L 1.75 x 1.75 x 3/16	9.99	4.74	162.8	0.36	4.37	15.68	0.279
T2	140 - 133.333	L 2 x 2 x 3/16	11.19	5.53	160.8	0.43	4.08	18.74	0.218 1
Т3	133.333 - 126.667	L 2 x 2 x 3/16	11.73	5.80	168.8	0.43	4.24	18.74	0.226 1
T4	126.667 - 120	L 2.5 x 2.5 x 3/16	12.28	6.20	140.2	0.57	4.27	27.84	0.153 1
T5	120 - 100	L 2.5 x 2.5 x 3/16	14.03	7.07	160.5	0.57	4.80	24.84	0.193 1
Т6	100 - 80	L 3 x 3 x 3/16	15.84	7.94	149.8	0.71	5.46	30.97	0.176 <sup>1</sup>
T7	80 - 60	L 3 x 3 x 1/4	19.09	9.63	182.3	0.94	6.39	40.78	0.157 <sup>1</sup>
T8	60 - 40	L 3.5 x 3.5 x 1/4	20.83	10.32	169.1	1.13	7.05	49.02	0.144 1
Т9	40 - 20	L 3.5 x 3.5 x 1/4	22.67	11.25	184.4	1.13	7.15	49.02	0.146 <sup>1</sup>
T10	20 - 1e-006	L 4 x 4 x 1/4	24.50	12.10	173.1	1.31	7.90	57.18	0.138 1

 $<sup>^{1}</sup>$  P  $_{u}$  /  $\phi P_{n}$  controls

# Secondary Horizontal Design Data (Tension)

Section	Elevation	Size	L	Lu	KI/r	Α	$P_u$	$\phi P_n$	Ratio P <sub>u</sub>
No.	ft		ft	ft		in²	K	K	φPn
T4	126.667 - 120	L 2 x 2 x 1/4	10.30	5.03	198.3	0.56	0.90	27.44	0.033 1
T5	120 - 100	L 2.5 x 2.5 x 3/16	12.34	6.05	186.4	0.90	1.37	29.22	0.047 1
Т6	100 - 80	L 3 x 3 x 3/16	13.68	6.70	171.1	1.09	1.85	35.31	0.052 1
T7	80 - 60	L 3 x 3 x 1/4	15.20	7.41	191.2	1.44	2.29	46.58	0.049 1

 $<sup>^{1}</sup>$   $_{P}$   $_{u}$  /  $_{\phi}P_{n}$  controls

Top Girt Design Data (Tension)									
Section	Elevation	Size	L	Lu	Kl/r	Α	P <sub>u</sub>	$\phi P_n$	Ratio P.,
No.	ft		ft	ft		in²	K	K	φ <i>P</i> <sub>n</sub>
T1	160 - 140	L 2.5 x 2.5 x 3/16	8.65	8.17	129.5	0.57	1.57	24.84	0.063
T2	140 - 133.333	L 2 x 2 x 3/16	8.65	8.41	163.5	0.71	0.59	23.17	0.026
T4	126.667 - 120	L 2.5 x 2.5 x 3/16	9.98	9.74	150.1	0.57	0.90	24.84	0.036

 $<sup>^{1}</sup>P_{u}/_{\phi}P_{n}$  controls

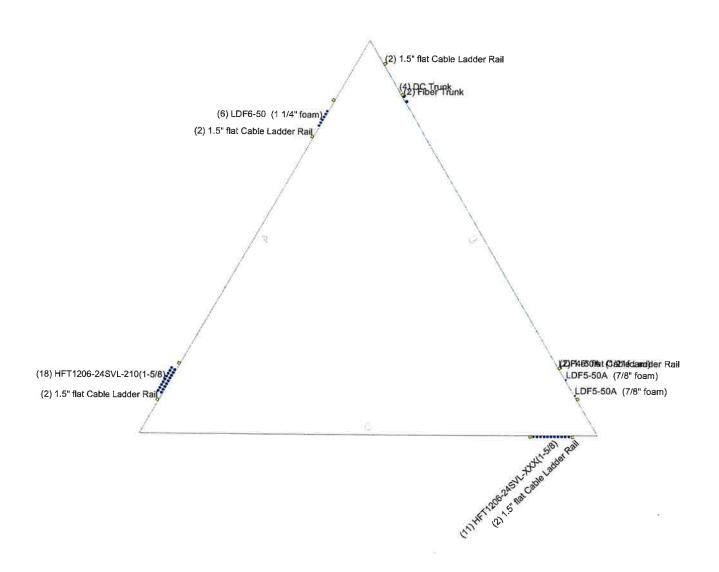
			Section Capaci	ty Tab	le			
Section	Elevation ft	Component Type	Size	Critical Element	P K	øP <sub>allow</sub> K	% Capacity	Pass Fail
No.	168 - 160	Pole	Pipe 8.625" x 0.322" (8 STD)	1	-3.29	396.87	35.2	Pass
L1 T1	160 - 140	Leg	Pipe 2.875" x 0.203" (2.5 STD)	3	-25.08	60.05	41.8	Pass
TO	140 - 133.333	Leg	Pipe 2.875" x 0.276" (2.5 XS)	33	-34.10	61.44	55.5	Pass
T2 T3	133.333 -	Leg	Pipe 2.875" x 0.276" (2.5 XS)	45	-43.01	61.44	70.0	Pass
Τ.	126.667 126.667 - 120	Leg	Pipe 2.875" x 0.276" (2.5 XS)	54	-51.70	91.97	56.2	Pass
T4	120 - 100	Leg	Pipe 2.875" x 0.276" (2.5 XS)	69	-79.00	92.09	85.8	Pass
T5	100 - 80	Leg	Pipe 3.5" x 0.300" (3 XS)	99	-106.80	129.56	82.4	Pass
T6	80 - 60	Leg	Pipe 4.5" x 0.337" (4 XS)	129	-132.28	183.05	72.3	Pass
T7		Leg	Pipe 5.563" x 0.375" (5 XS)	150	-160.19	211.31	75.8	Pass
T8	60 - 40	Leg	Pipe 5.563" x 0.375" (5 XS)	165	-187.02	211.29	88.5	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.340" (6 EHS)	180	-213.31	256.27	83.2	Pass
T10 T1	20 - 1e-006 160 - 140	Diagonal	L 1.75 x 1.75 x 3/16	11	-4.52	6.82	66.4 71.7 (b)	Pass
T2	140 - 133.333	Diagonal	L 2 x 2 x 3/16	41	-4.18	7.57	55.2 56.8 (b)	Pass
Т3	133.333 -	Diagonal	L 2 x 2 x 3/16	50	-4.24	6.88	61.6	Pass
T4	126.667 126.667 - 120	Diagonal	L 2.5 x 2.5 x 3/16	62	-4.51	12.01	37.5 39.0 (b)	Pass
T5	120 - 100	Diagonal	L 2.5 x 2.5 x 3/16	74	-4.94	9.22	53.6 ´ 58.3 (b)	Pass
Т6	100 - 80	Diagonal	L 3 x 3 x 3/16	102	-5.91	12.82	46.1 66.5 (b)	Pass
T7 T8	80 - 60 60 - 40	Diagonal Diagonal	L 3 x 3 x 1/4 L 3.5 x 3.5 x 1/4	132 153	-6.96 -7.42	11.36 15.96	61.3 46.5 64.4 (b)	Pass Pass

Section	Elevation	Component	Size	Critical	P	ØP <sub>allow</sub>	%	Pass
No.	ft	Type		Element	ĸ	K	Capacity	Fail
T9	40 - 20	Diagonal	L 3.5 x 3.5 x 1/4	168	-7.64	13.43	56.9 65.2 (b)	Pass
T10	20 - 1e-006	Diagonal	L 4 x 4 x 1/4	183	-8.73	17.47	49.9 72.1 (b)	Pass
T4	126.667 - 120	Secondary Horizontal	L 2 x 2 x 1/4	65	-0.90	11.82	7.6 8.2 (b)	Pass
T5	120 - 100	Secondary Horizontal	L 2.5 x 2.5 x 3/16	77	-1.37	12.61	10.9	Pass
T6	100 - 80	Secondary Horizontal	L 3 x 3 x 3/16	107	-1.85	16.36	11.3	Pass
T7	80 - 60	Secondary Horizontal	L 3 x 3 x 1/4	137	-2.29	16.74	13.7	Pass
T1	160 - 140	Top Girt	L 2.5 x 2.5 x 3/16	6	-1.54	6.92	22.3	Pass
T2	140 - 133.333	Top Girt	L 2 x 2 x 3/16	35	-0.59	5.18	11.4	Pass
T4	126.667 - 120	Top Girt	L 2.5 x 2.5 x 3/16	56	-0.90	4.86	18.4	Pass
T1	160 - 140	Pole Socket	Pipe 8.625" x 0.322" (8 STD)	197	-3.47	367.06	35.3	Pass
					0.11		Summary	1 233
						Pole (L1)	35.2	Pass
						Leg (T9)	88.5	Pass
						Diagonal (T10)	72.1	Pass
						Secondary Horizontal	13.7	Pass
						(T7) T-2- 0"4	00.0	
						Top Girt (T1)	22.3	Pass
						Pole	35.3	Pass
						Socket (T1)	55.5	1. 499
						Bolt Checks	72.1	Pass
						RATING =	88.5	Pass

# APPENDIX B BASE LEVEL DRAWING

#### Feed Line Plan

Round Flat App In Face App Out Face





# APPENDIX C ADDITIONAL CALCULATIONS



-	8/3/2023	2
ο	Date	42923-000
-	AKT	
Page	By	Project #

# Self-Support Tower Anchor Rod Capacity - TIA-H

	ľď
	ı
	⊢
	Ĭ.,
	H:
	1 2
	1:5
	Įĕ
	18
8	3
잂	18
õ	0
ĭ	IC

kips kips 220 Compression Comp. Shear:

Ten.Shear: Tension:

kips Kips 182 22

TIA-H 1.00 Code: Maximum Ratio: Grout fc ≥ 5000 psi: 주 는

0.00

Ten. Mu

주 i

0.00 0.90 0.75 0.90

Comp. Mu

\_\_\_\_

inches

Existing Anchor Rods

Anchor Rod ø:

Anchor Rod Quantity: Anchor Rod Grade:

A449 (1/4 to 1 Incl.)

9

Ś KS 120 92 ω

0.61 0.75

Threads per Inch Net Tensile Area

'n

Anchor Rod Ratio:

327.10 kip 0.586

.<u>+</u> 390.19 kips 78.04 φ<sub>c</sub>R<sub>nc</sub>: ф<sub>т</sub>М<sub>п</sub> :

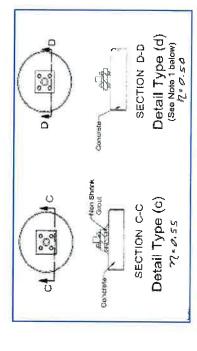
kips

212.06

φ.R<sub>nv</sub> :

.. <del>ŏ</del> **→** 

175.58 kips  $\phi_{c}R_{nvc}$ :



B B B B B B B B B B B B B B B B B B B	Constato (Alla)	SECTION B-B	Detail Type (b)
V ( SS) NV	Controller Physics	SECTION A-A	Detail Type (a) ॡ-⊘.٩٥

© Copyright 2023 by Paul J. Ford & Company, all rights reserved.

Project Number:	42923-0005.001.8700	
Engineer:	AKT	
Engineer: Date:	8/3/2023	
Site Name:	Windsor CT	
Site Number:		
Client Project: Client Project 1:		

# PAD AND PIER FOUNDATION

(Version v5.4 - Effective Date 10/26/2022)

#### STRUCTURE SETTINGS

TIA Standard: Capacity Normalization: Foundation Type: Structure Type: Structure Height:

TIA-222-H	
Yes	(TIA-222-H Section 15.5)
Pad and Pier	
SST	
160.00	ft

BP Dist. Above Fnd.:

**Bolt Circle/Bearing Plate Width:** 

2.00	in
10.50	in

#### **PAD PROPERTIES**

Pad Width (B):
Pad Length (L):
Pad Thickness (T):
Depth to Top of Pad:
Depth to Bottom of Pad (D):

	8.00	16
	8.00	ft (Square)
	2.00	ft
	10.50	ft
	12.50	ft
_		

Top & Btm Pad Steel Different?

Pad Clear Cover (Top) (C2): Pad Rebar Size (Top): Pad Rebar Quantity (Top): Pad Rebar Length:

Pad Clear Cover (Bottom) (C3):
Pad Rebar Size (Bottom):
Pad Rebar Quantity (Bottom):
Pad Rebar Length:

Dir.1	Dir.2	
3.	00	in
7		# bar
9		
7.50	100	ft

No

		in
7.50	•	ft

#### **FACTORED FOUNDATION LOADS**

Load Combo 1 = Comp = 1.2D + 1.0Wo Load Combo 2 = Uplift = 0.9D + 1.0Wo

	Global	LC1 (+C)	LC2 (-T)	
Applied Axial:		220.00	-182.00	kip
Applied Shear:		26.00	22.00	kip
Applied Moment:				kip-ft
• •				

Load Offset (Dir.1) (eB):	0.00	ft
Load Offset (Dir.2) (eL):	0.00	ft

#### PIER PROPERTIES

Pier Shape:	Round	
Diameter (W1):	3.00	ft
Height Above Grade (E):	0.50	ft
Total Pier Height:	11.00	ft

Pier Clear Cover (C1):	3.00	în
Pier Rebar Layout:	Round	
Pier Rebar Size:	9	# bar
Pier Rebar Quantity:	16	
Pier Reinf. Type:	Tie	
Pier Tie Size:	4	# baı
Pier Tie Spacing (S1):	12.00	in
*p provided = 0.0157		

#### **MATERIAL PROPERTIES**

Concrete Strength, F'c:	3.00	ksi
Concrete Density, γ <sub>c</sub> :	150	pc
Long, Rebar Strength, F.:	60	ks

#### **SOIL PROPERTIES**

Layer	Thickness (ft)	Soil Density (pcf)	Cohesion (ksf)	Friction Angle (deg)	Ultimate Gross Bearing (ksf)	Depth (ft)
1	13.00	100.00		30.00	24.00	13.00
2						
3						
4						

Base Friction, µ: Groundwater Depth: Neglected Depth:

Tie Rebar Strength, Fy:

0.30	
99.00	ft
0.00	ft

ksi

#### **RESULTS**

		Demand	Capacity	Rating	
Pad Shear - 1-Way	(kip)	-58.48	155.28	35.9%	Pa
Pad Shear - 2-Way (Comp)	(ksi)	0.059	0.164	34.2%	Pa
Flexural 2-Way (Comp) *	(kip-ft)	148.36	693.49	20.4%	Pa
Pad Flexural*	(kip-ft)	258.58	346.74	71.0%	Pa
Pad Shear - 2-Way (Uplift)	(ksi)	0.00	0.16	0.0%	Pa
Flexural 2-Way (Tension) *	(kip-ft)	147.40	693.49	20.2%	Pa

<sup>\*</sup>Capacity reduced per ACI 318-19 Section 9.6.1.3

Pier Shear	(kip)	22.00	97.92	21.4%	Pa
Pier Compression	(kip)	234.00	1827.69	12.2%	Pa
Pier Flexural (Comp)	(kip-ft)	247.26	1027.67	22.9%	Pa
Pier Flexural (Tension)	(kip-ft)	245.67	738.29	31.7%	Pa

		Demand	Capacity	Rating	_
Lateral	(kip)	22.00	78.61	26.7%	Pass
Overturning		1000	7.0	STABLE	Pass
Bearing Pressure	(ksf)	7.18	18.00	38.0%	Pass
Uplift	(kip)	182.00	202.11	85.8%	Pass

60

Structural Rating*:	71.0%	Pass
Soil Rating*:	85.8%	Pass
Rating per TIA-222-H Section	on 15.5	

#### **ANALYSIS ASSUMPTIONS**

1. PASSIVE PRESSURE: INCLUDED ON PAD AND PIER



# ASCE 7 Hazards Report

Address:

No Address at This Location

Standard:

Soil Class:

ASCE/SEI 7-16

Section 11.4.3)

Latitude:

41.86664

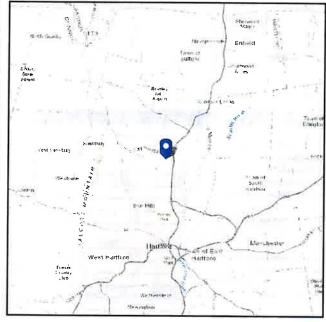
Risk Category: <sup>Ⅱ</sup>

Longitude: -72.674778 D - Default (see

Elevation: 167.0083277130327 ft

(NAVD 88)





#### Wind

#### Results:

Wind Speed

120 mph per Appendix F 116 Vmph

10-year MRI

75 Vmph

25-year MRI

83 Vmph 90 Vmph

50-year MRI 100-year MRI

97 Vmph

Data Source:

ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1-CC.2-4, and Section 26.5.2

Date Accessed:

Thu Jul 20 2023

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 7-16 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 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

#### D - Default (see Section 11.4.3)

#### Site Soil Class: Results: 0.087 S<sub>01</sub> : 0.179 Ss : $T_L$ : 6 0.055 S<sub>1</sub> : PGA: 0.095 1.6 Fa: PGA M: 0.152 2.4 $F_v$ : 1.6 F<sub>PGA</sub> : 0.287 S<sub>MS</sub> : 1 0.131 S<sub>M1</sub>: 0.7 $C_v$ : 0.191 S<sub>DS</sub> : Seismic Design Category: B MCE<sub>R</sub> Response Spectrum Design Response Spectrum 0.20 0.30 0.18 0.16 0.25 0 14 0.20 0.12 0.10 0.15 0.080.10 0.06 0.04 0.05 0.920 5 $S_a(g)$ vs T(s)0 Sa(g) vs T(s) 0 Design Vertical Response Spectrum MCE<sub>R</sub> Vertical Response Spectrum 0.11 0.18 0.10 0.16 0.09 0.74 0.08 0 12 0.07 0.10 0.06 0.08 0.05 0.040.060.03 0.04 0.02 15 2.0 0.5 S<sub>a</sub>(g) vs T(s) 1.5 2.0 0 B 0.5 Sa(g) vs T(s)

Data Accessed:

Thu Jul 20 2023

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



#### lce

Results:

Ice Thickness:

1.50 in.

Concurrent Temperature:

5 F

**Gust Speed** 

50 mph

Data Source:

Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed:

Thu Jul 20 2023

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

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

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

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

pality         Risk         Cat.         <		Basic	: Design Wind (mph)	Basic Design Wind Speeds, V (mph)	ls, V	Allow	able Stress Desi Speeds, $V_{usd}$ (mph)	Allowable Stress Design Wind Speeds, V <sub>asd</sub> (mph)	Vind	Ground	MCE Ground Accelerations	round	Wind-Borne Debris Region <sup>1</sup>	e Debris	Hurricane-
Id         110         120         130         135         85         93         101         105         30         0.196         0.055         9           110         120         130         135         85         93         101         105         35         0.181         0.055         9           110         120         130         135         85         93         101         105         30         0.181         0.057         9           110         115         125         130         85         93         101         40         0.167         0.054         9           ocks         110         125         135         85         93         101         105         30         0.190         0.055         9           ocks         110         120         130         85         93         101         35         0.175         0.055         9         9           in         120         130         135         85         93         101         105         30         0.194         0.054         9           in         120         130         135         85         93         101	Municipality	Risk Cat. I	Risk Cat. II	Risk Cat. III	Risk Cat. IV	Risk Cat. I	Risk Cat. II	Risk Cat. III	Risk Cat. IV	Load  Pg  (psf)	S <sub>S</sub> (g)	$S_I$ (g)	Risk Cat. III Occup. I-2	Risk Cat. IV	Region
110         120         130         135         85         93         101         105         35         0.181         0.055         9            110         120         130         135         85         93         101         105         30         0.241         0.057         9            110         120         135         85         89         97         101         40         0.167         0.054         9           ocks         110         120         135         85         93         101         105         30         0.181         0.055         9           ocks         110         120         135         85         93         101         105         30         0.181         0.055         9           e         110         120         130         85         93         101         105         35         0.191         0.054         9           ge         110         120         135         85         93         101         105         30         0.194         0.054         9           ge         110         120         120         136         85	Wethersfield	110	120	130	135	85	93	101	105	30	0.196	0.055			Yes
110         120         130         135         85         93         101         105         30         0.241         0.057         9           110         115         125         130         85         89         97         101         40         0.167         0.054         9           ocks         116         120         135         85         93         101         105         30         0.190         0.055         9           ocks         110         120         125         130         85         93         101         105         35         0.181         0.055         9           e         110         120         135         85         93         101         105         35         0.191         0.055         9           ge         110         120         130         135         85         93         101         105         35         0.191         0.054         9           ge         110         120         130         85         93         101         105         0.094         0.054         9           ge         110         120         130         135         85	Willington	110	120	130	135	85	93	101	105	35	0.181	0.055			Yes
seter         110         115         125         130         85         89         97         101         40         0.167         0.054         9           am         115         125         135         135         89         97         105         30         0.190         0.055         9           or         110         120         135         85         93         101         105         35         0.175         0.055         9           st         110         120         130         85         93         101         105         35         0.191         0.054         9           ridge         110         120         130         85         93         101         105         35         0.191         0.054         9           nury         110         120         130         85         93         101         35         0.194         0.054         9           nury         110         120         130         135         85         93         101         35         0.194         0.054         9           tock         110         120         136         85         93         101 <td>Wilton</td> <td>110</td> <td>120</td> <td>130</td> <td>135</td> <td>85</td> <td>93</td> <td>101</td> <td>105</td> <td>30</td> <td>0.241</td> <td>0.057</td> <td></td> <td></td> <td>Yes</td>	Wilton	110	120	130	135	85	93	101	105	30	0.241	0.057			Yes
115         125         135         89         97         105         105         30         0.190         0.055         6           110         120         130         135         85         93         101         105         30         0.181         0.055         6           110         120         125         130         85         93         101         105         35         0.191         0.054         6           110         120         130         135         85         93         101         105         30         0.200         0.054         6           110         120         125         130         85         93         101         35         0.194         0.054         6         6           110         120         125         130         85         93         101         105         40         0.182         0.054         6           110         120         130         135         85         93         101         105         40         0.182         0.055         8	Winchester	110	115	125	130	85	68	16	101	40	0.167	0.054			
110         120         135         85         93         101         105         30         0.181         0.055         60.55           110         120         125         130         85         93         97         101         35         0.175         0.055         60.55           110         120         130         135         85         93         101         105         35         0.191         0.054         60.54           110         120         125         130         85         93         101         165         30         0.194         0.054         60.54         60	Windham	115	125	135	135	68	76	105	105	30	0.190	0.055			Yes
110         120         125         130         85         93         97         101         35         0.175         0.055         9           110         120         130         135         85         93         101         105         35         0.191         0.054         9           110         120         125         130         85         93         101         165         30         0.194         0.054         9           110         120         125         130         85         93         101         105         40         0.182         0.055         9           110         120         130         135         85         93         101         105         40         0.182         0.055         9	Windsor	110	120	130	135	85	93	101	105	30	0.181	0.055			Yes
110         120         130         135         85         93         101         105         35         0.191         0.054         9           110         120         130         135         85         93         101         105         30         0.200         0.054         9           110         120         125         130         85         93         97         101         35         0.194         0.054         9           110         120         130         135         85         93         101         105         40         0.182         0.055         9	Windsor Locks	110	120	125	130	85	93	- 64	101	35	0.175	0.055			Yes
ge 110 120 120 135 85 93 101 105 30 0.200 0.054	Wolcott	110	120	130	135	85	93	101	105	35	0.191	0.054			Yes
110 120 125 130 85 93 97 101 35 0.194 0.054	Woodbridge	110	120	130	135	85	93	101	105	30	0.200	0.054			Yes
110   120   130   135   85   93   101   105   40   0.182   0.055	Woodbury	110	120	125	130	85	93	97	101	35	0.194	0.054			Yes
	Woodstock	110	120	130	135	85	93	101	105	40	0.182	0.055			Yes

Wind-Borne Debris Regions
 Type A: Full municipality
 Type B: Areas within one mile (1.61 km) of the mean high-water line where an Exposure D condition exists upwind at the waterline.

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

- Paul J. Ford and Company has not made a field inspection to verify the tower member sizes or the antenna/coax loading. If the existing conditions are not as represented on these drawings, we should be contacted immediately to evaluate the significance of the deviation.
- 2) No allowance was made for any damaged, missing, or rusted members. The analysis of this tower assumes that no physical deterioration has occurred in any of the structural components of the tower and that all the tower members have the same load carrying capacity as the day the tower was erected.
- 3) It is not possible to have all the detailed information to perform a thorough analysis of every structural sub-component of an existing tower. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members of the tower. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc.
- 4) The structural integrity of the existing tower foundation can only be verified if exact foundation sizes and soil conditions are known. Paul J. Ford and Company will not accept any responsibility for the adequacy of the existing foundations unless the foundation sizes and a soils report are provided.
- 5) This tower has been analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association Standard ANSI/TIA-222-H. If the owner or local or state agencies require a higher design wind load, Paul J. Ford and Company should be made aware of this requirement.
- 6) The enclosed sketches are a schematic representation of the tower that we have analyzed. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions and for the proper fit and clearance in the field.
- 7) Miscellaneous items such as antenna mounts etc. have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.





Colliers Engineering & Design CT, P.C. 1055 Washington Boulevard Stamford, CT 06901 203.324.0800 peter.albano@collierseng.com

# **Antenna Mount Analysis Report and PMI Requirements**

Mount ReAnalysis

SMART Tool Project #: 10206408 Colliers Engineering & Design CT, P.C. Project #: 23777087

July 21, 2023

Site Information

Site ID:

5000385159-VZW / WINDSOR CT

Site Name:

WINDSOR CT Verizon Wireless

Carrier Name: Address:

482 Pigeon Hill Rd.

Windsor, Connecticut 06095 Hartford County

Latitude:

41.866640°

Longitude:

-72.674778°

Structure Information

Tower Type:

160-Ft Self Support

Mount Type:

12.50-Ft Sector Frame

**FUZE ID # 17123870** 

#### **Analysis Results**

Sector Frame: 56.3% Pass\*

\*Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.

\*\*\*Contractor PMI Requirements:

Included at the end of this MA report Available & Submitted via portal at https://pmi.vzwsmart.com

For additional questions and support, please reach out to: pmisupport@colliersengineering.com

Report Prepared By: Prasanna Dhakal



July 21, 2023 Site ID: 5000385159-VZW / WINDSOR CT Page | 2

#### **Executive Summary:**

The objective of this report is to determine the capacity of the antenna support mount at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

#### Sources of Information:

Document Type	Remarks
As-Built Radio Frequency Data Sheet (RFDS)	Verizon RFDS, Site ID: 325169, dated September 27, 2021
Mount Mapping Report	Delta Oaks Group, Site ID: 469487, dated November 11, 2020
Previous Mount Analysis	Maser Consulting Connecticut, Project #: 20777393, dated November 25, 2020
Antenna Mount Post-Modification Inspection Report	Maser Consulting Connecticut, Project #: 20777393, dated October 21, 2021
Final Loading Configuration	Filter Add Scope Provided by Verizon Wireless

#### **Analysis Criteria:**

Codes	and	Stanc	torde:
Cuues	anu	SIAIIC	iaros

ANSI/TIA-222-H

2022 Connecticut State Building Code (CSBC), Effective October 1, 2022

Wind Parameters:

Basic Wind Speed (Ultimate 3-sec. Gust), Vult: 120 mph Ice Wind Speed (3-sec. Gust): 50 mph Design Ice Thickness: 1.50 in Risk Category: П **Exposure Category:** С Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, Ke: 0.994

Seismic Parameters:

Ss: 0.181 g S1: 0.055 g

Maintenance Parameters:

Wind Speed (3-sec. Gust): 30 mph Maintenance Load, Lv: 250 lbs.

Maintenance Load, Lm:

500 lbs.

Analysis Software:

RISA-3D (V17)

# Final Loading Configuration:

The following equipment has been considered for the analysis of the mounts:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
(10)		4	KAelus	KA-6030	Added
		3	Andrew	LNX-6513DS-A1M	
	1 1	3	Samsung	MT6407-77A	
156.00	157.50	6	Commscope	NNHH-65B-R4	Retained
150.00	157.50	3	Samsung	B2/B66A RRH-BR049	Retained
	3	Şamsung	B5/B13 RRH-BR04C		
		1	Raycap	RHSDC-3315-PF-4*	

<sup>\*</sup> Equipment is flush mounted directly to the Self Support. They are not mounted on sector frame mounts and are not included in this mount analysis.

It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

#### Standard Conditions:

- All engineering services are performed on the basis that the information provided to Colliers Engineering & Design CT, P.C. and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Colliers Engineering & Design CT, P.C. to verify deviation will not adversely impact the analysis.
- Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

- For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.
- 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.

Bolts

July 21, 2023 Site ID: 5000385159-VZW / WINDSOR CT Page | 4

- 5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.
- 6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Colliers Engineering & Design CT, P.C. is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.
- 7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:

ASTM A325

Channel, Solid Round, Angle, Plate
HSS (Rectangular)
Pipe
ASTM A36 (Gr. 36)
ASTM 500 (Gr. B-46)
ASTM A53 (Gr. B-35)
Threaded Rod
F1554 (Gr. 36)

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Colliers Engineering & Design CT, P.C.

#### **Analysis Results:**

Component	Utilization %	Pass/Fail
Face Horizontal	56.3%	Pass
Standoff Plate	55.0%	Pass
Standoff Horizontal	43.2%	Pass
Standoff Diagonal	7.6%	Pass
Tieback	13.6%	Pass
Mount Pipe	35.9%	Pass
Standoff Vertical	5.8%	Pass
Mount Connection	21.8%	Pass

Structure Rating – (Controlling Utilization of all Components)	56.3%

# Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice	Mount Pipes Excluded		Mount Pipes Included	
Thickness (In)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	17.1	10.0	25.0	17.9
0.5	26.4	16.8	37.8	28.2
11	35.1	23.1	49.8	37.8

#### Notes:

- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 1 sector.
- Ka factors included in (EPA)a calculations

Mount Structural Analysis Report (3) 12.50-Ft Sector Frame

July 21, 2023 Site ID: 5000385159-VZW / WINDSOR CT Page | 5

#### Requirements:

The existing mounts are **SUFFICIENT** for the final loading configuration shown in attachment 2 and do not require modifications. Additional requirements are noted below.

If required, ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other. Separate review fees will apply.

#### **Attachments:**

- 1. Contractor Required Post Installation Inspection (PMI) Report Deliverables
- 2. Antenna Placement Diagrams
- 3. Mount Photos
- 4. Mount Mapping Report (for reference only)
- 5. Analysis Calculations

# Mount Desktop - Post Modification Inspection (PMI) Report Requirements

# **Documents & Photos Required from Contractor – Passing Mount Analysis**

Passing Mount Analysis requires a PMI due to a modification in loading.

Electronic pdf version of this can be downloaded at <a href="https://pmi.vzwsmart.com">https://pmi.vzwsmart.com</a>.

For additional questions and support, please reach out to pmisupport@colliersengineering.com

MDG #: 5000385159

SMART Project #: 10206408

Fuze Project ID: 17123870

<u>Purpose</u> – to provide SMART Tool structural vendor the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

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

#### Base Requirements:

- If installation will cause damage to the structure, the climbing facility, or safety climb if present
  or any installed system, SMART Tool vendor to be notified prior to install. Any special photos
  outside of the standard requirements will be indicated on the drawings.
- Provide "as built mount drawings" showing contractor's name, contact information, preparer's signature, and date. Any deviations from the drawings (Proposed modification) shall be shown.
   NOTE: If loading is different than what is conveyed in the passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo should be time and date stamped
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely
  impacted by the install of the modification components. This may involve the install of wire
  rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool
  engineer for recommendations.
- The PMI can be accessed at the following portal: https://pmi.vzwsmart.com

#### Photo Requirements:

- Photos taken at ground level
  - o Photo of Gate Signs showing the tower owner, site name, and number.
  - o Overall tower structure after installation.
  - Photos of the mount after installation; if the mounts are at different rad elevations, pictures must be provided for all elevations that equipment was installed.
- Photos taken at Mount Elevation
  - Photos showing the safety climb wire rope above and below the mount prior to installation.
  - Photos showing the climbing facility and safety climb if present.
  - Photos showing each individual sector after installation. Each entire sector shall be in one photo to show the interconnection of members.

- These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this
- o Photos that show the model number of each antenna and piece of equipment installed per sector.

## Antenna & equipment placement and Geometry Confirmation:

Antenna & equipment placement and Geometry Commitmation.
<ul> <li>The contractor shall certify that the antenna &amp; equipment placement and geometry is in accordance with the sketch and table as included in the mount analysis and noted below.</li> </ul>
$\Box$ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.
OR
☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.
Special Instructions / Validation as required from the MA or any other information the contractor
deems necessary to share that was identified:
decino necessity
Issue:
Response:
Special Instruction Confirmation:
$\square$ The contractor has read and acknowledges the above special instructions.
$\square$ All hardware listed in the Special Instructions above (if applicable) has been properly installed, and the existing hardware was inspected.
☐ The material utilized was as specified in the SMART Tool engineering vendor Special Instructions above (if applicable) and included in the material certification folder is a packing list or invoice for these materials.
OR
☐ The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

Comments:		
Contractor certifies that	t the climbing facility / safety climb was not damaged prior to s	tarting work
	salety emile was not damaged prior to s	carting work.
☐ Yes ☐	] No	
Contractor certifies no n	new damage created during the current installation:	
☐ Yes ☐	l No	
Contractor to certify the	e condition of the safety climb and verify no damage when leave	ing the site:
		to a little of the little of t
☐ Safety Climb in	n Good Condition	
Certifying Individual:		
Company: Employee Name:		
Contact Phone:		
Email:		
Date:		

Sector:

Structure Type: Self Support

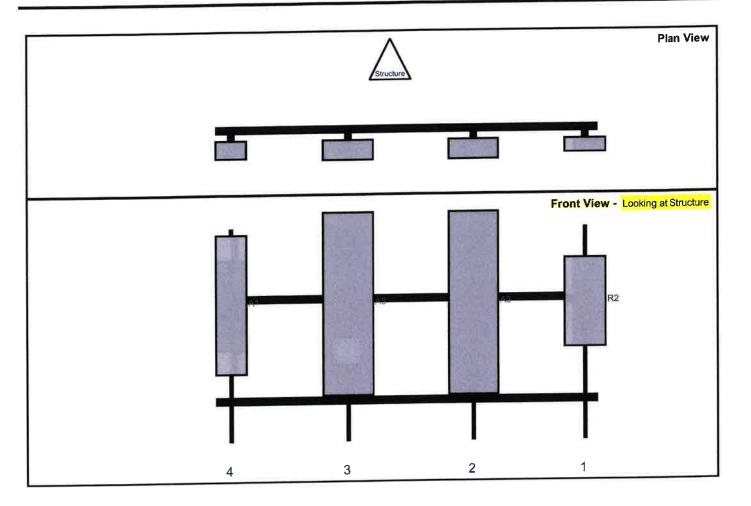
156.00 Mount Elev:

10206408

Page: 1

7/21/2023





Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant	Ant H Off	Status	Validation
R2	MT6407-77A	35.1	16.1	145	1	а	Front	30	0	Retained	09/23/2021
A3	NNHH-65B-R4	72	19.6	101	2	а	Front	30	0	Retained	09/23/2021
A3	NNHH-65B-R4	72	19.6	52	3	а	Front	30	0	Retained	09/23/2021
A1	LNX-6513DS-A1M	54.7	11.9	6	4	а	Front	30	0	Retained	09/23/2021
M49	B2/B66A RRH-BR049	15	15		Memb	er				Retained	09/23/2021
M48	B5/B13 RRH-BR04C	15	15		Memb	er				Retained	09/23/2021

Sector:

Structure Type: Self Support

10206408

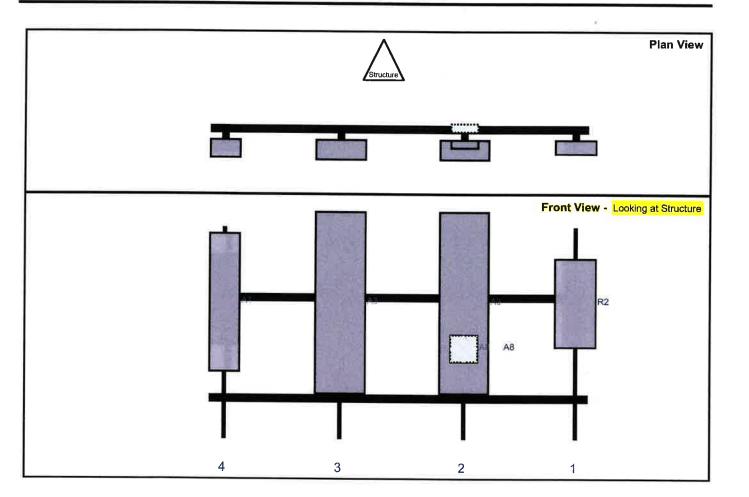
7/21/2023

Page: 2

Colliers Engineering & Design

Mount Elev:

156.00



Ref#	Model	Height (in)	Width (in)	H Dist	Pipe #	Pipe Pos V	Ant Pos	C. Ant	Ant H Off	Status	Validation
R2	MT6407-77A	35.1	16.1	145	1	а	Front	30	0	Retained	09/23/2021
А3	NNHH-65B-R4	72	19.6	101	2	а	Front	30	0	Retained	09/23/2021
A8	KA-6030	10.6	10.9	101	2	а	Front	48	0	Added	
A8	KA-6030	10.6	10.9	101	2	b	Behind	48	0	Added	
A3	NNHH-65B-R4	72	19.6	52	3	а	Front	30	0	Retained	09/23/2021
A1	LNX-6513DS-A1M	54.7	11.9	6	4	а	Front	30	0	Retained	09/23/2021

Sector:

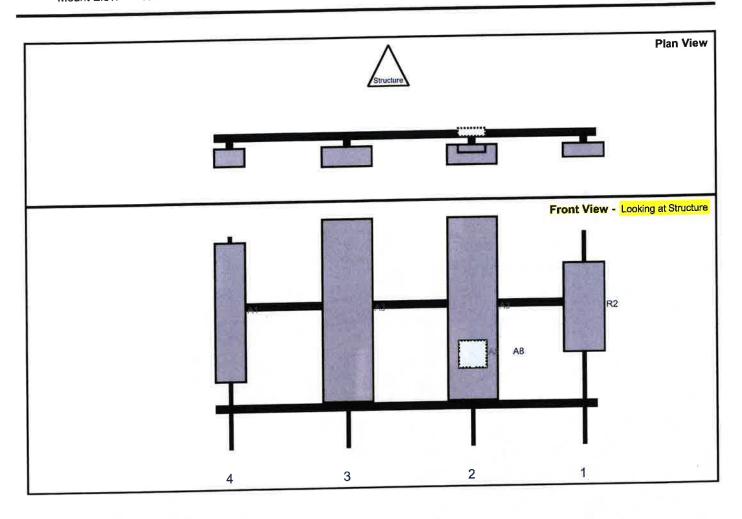
Structure Type: Self Support

10206408

Colliers Engineering & Design

7/21/2023

Page: 3 156.00 Mount Elev:



Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
35.1	16.1	145	1	а	Front	30	0	Retained	09/23/2021
72	19.6	101	2	а	Front	30	0	Retained	09/23/2021
10.8	10.9	101	2	а	Front	48	0	Added	
10.6	10.9	101	2	b	Behind	48	D	Added	i de la companya de l
	19.6	52	3	а	Front	30	0	Retained	09/23/2021
		6	4	2	Front	30	0	Retained	09/23/2021
07-77A H-65B-R4 130 130 H-65B-R4	(in) 07-77A 35.1 1-65B-R4 72 130 10.6 1-65B-R4 72	(in) (in)  07-77A 35.1 16.1  1-65B-R4 72 19.6  130 10.6 10.9  130 10.6 10.9	(in) (in) Fm L.  07-77A 35.1 16.1 145  1-65B-R4 72 19.6 101  130 10.6 10.9 101  1-65B-R4 72 19.6 52	(in) (in) Fm L. #  107-77A 35.1 16.1 145 1  1-65B-R4 72 19.6 101 2  130 10.6 10.9 101 2  1-65B-R4 72 19.6 52 3	(in) (in) Fm L. # Pos V  07-77A 35.1 16.1 145 1 a  1-65B-R4 72 19.6 101 2 a  130 10.6 10.9 101 2 a  130 10.6 10.9 101 2 b  1-65B-R4 72 19.6 52 3 a	(in) (in) Frm L. # Pos V Pos  07-77A 35.1 16.1 145 1 a Front  1-65B-R4 72 19.6 101 2 a Front  130 10.6 10.9 101 2 a Front  130 10.6 10.9 101 2 b Behind  1-65B-R4 72 19.6 52 3 a Front	(in) (in) Fm L. # Pos V Pos Fm T.  107-77A 35.1 16.1 145 1 a Front 30  1-65B-R4 72 19.6 101 2 a Front 30  10.8 10.9 101 2 a Front 48  1030 10.6 10.9 101 2 b Behind 48  1-65B-R4 72 19.6 52 3 a Front 30	Height   Width   Hibit   Tips   Tip	





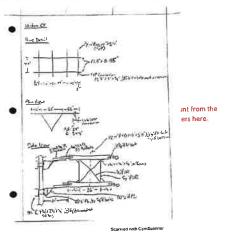
2.9



				FCC #
	Antenna Mount Mapping	Form (PATENT PENDING)		n/a
	Verizon Wireless	Mapping Date:		/2020
Tower Owner:		Tower Type:	Self S	Support
Site Name:	Windsor CT	Tower Height (Ft.):	2	60
Site Number or ID:	469487	Mount Elevation (FL):	-	57
Mapping Contractor:	Delta Oaks Group	Mount Elevation (FL):	peroduction transmission.	publication.

Mapping Contractor: [Delta Oths Group | Mount Elevation (Ft.): 157

This antenna mapping form is the property of TES and under PATENT PENDING. The formation contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication modification or disclosure by any method is prohibited except by express written permission of TES, All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warrantying the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.



Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	eometries [Unit = Inches]  Mount Pipe Size & Length	Vertical Offset Dimension	Horizonta Offset "C1 C2, C3, etc
A1	2.4"x0.14"x84"	68.00	5.00	C1	2.4"x0.14"x84"	58.00	5.00
A2	2.4"x0.14"x84"	68.00	51.00	CZ	2.4"x0.14"x84"	68.00	51,00
A3	2.4"x0.14"x84"	68.00	100.00	C3	2.4"x0.14"x84"	68.00	100.00
A4	2.4"x0.14"x84"	68.00	147.00	C4	2.4"x0.14"x84"	68.00	147.00
AS	2.4 40.14 404			C5			
A6				C6			
B1	2.4"x0.14"x84"	68.00	5.00	D1			
82	2.4"x0.14"x84"	68.00	51.00	D2			
B3	2.4"x0.14"x84"	68.00	100.00	D3			_
84	2.4"x0.14"x84"	68.00	147.00	D4		_	-
85				05			
B6				D6			
-	Distance between bottom ra	ail and mour	nt CL elevat	ion (dim d	). Unit is inches. See 'Mount Elev Ref' ta	b for details.	20,00
_	Distance from	top of botto	m support	rail to low	est tip of ant./eapt. of Carrier above. (N	AII > TO IT!	
	Distance from t	op of bottor	n support r	all to high	est tip of ant./eqpt. of Carrier below. (N	/Aif > 10 ft);	5.2
_		Please ent	er addition	al infomat	tion or comments below.		
*1 000001	U-D1A ON EACH LEFT MOUNT A	RM AND (1) F	RFV01U-D2A	ON EACH	RIGHT MOUNT ARM.		

Tower Face Width at Mount Elev. (ft.): 8.75 Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):

SECTOR 8

FACE B

LEG C

Horizontal Offset 'h'

	Enter antenna	model.	If not label	led, enter '	'Unknown"		Mountin [Units are inch	g Locations nes and de		Photos o antenna
Ants, Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center- line (Ft.)	Vertical Distances"b <sub>1a</sub> , b <sub>2a</sub> , b <sub>3a</sub> , b <sub>3b</sub> " (Inches)	Horiz. Offset "h" (Use "-" If Ant. is behind)	Antenna Azimuth (Degrees)	Photo Number
					Sector A					
Ant <sub>1</sub>	LPA 80063/4CF E-DIN	15.20	13.10	47.40	1/2" HYBR	158.25	33.00	14.00	322.00	96
Ant <sub>1b</sub>										
Ant <sub>1c</sub>										
Ant <sub>2a</sub>	NNHH-65B-R4-V1	19.60	7.80	72.00		158.25	33.00	9.50	322.00	98
Ant <sub>2b</sub>										
Ant <sub>2c</sub>										
Anta	NNHH-65B-R4-V1	19.60	7.80	72.00		158.25	33.00	9.50	322.00	100
Antab										
Ant <sub>3c</sub>										
Ant	LPA 80063/4CF E-DIN	15.20	13.10	47.40		158.25	33.00	14.00	322.00	103
Ant <sub>4b</sub>										
Ant <sub>4c</sub>										
Antsa										
Ant <sub>Sb</sub>										_
Antsc										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

24	nbu g	Asita Asita	24	Amas T 2	e dentes Lantes	T	inta
	2	1 2	T	盏	1		
		1					II
61	eta ea	Sec. in		Metre	LAnts		Latitar
		_C.	06	===			

Mou	nt Azimuth	(Degre	e)	Tower Leg Azimi	uth (Degree)	1					Sector	R				
	for Each Se			for Each S		Ant <sub>1a</sub>	LPA 80063/4CF E-DI	15.20	13.10	47.40	Jector	158.25	33.00	14.00	80.00	118
Sector A:	327.00	Deg	Leg A:	345.00	Deg	Ant <sub>1b</sub>						1	-	11100	55.00	110
Sector 8:	80.00	Deg	Leg B:	105.00	Deg	Antic								-	_	-
Sector C:	214.00	Deg	Leg C:	225.00	Deg	Ant <sub>2</sub>	NNHH-65B-R4-V1	19.60	7.80	72.00		158.25	33.00	9.50	80.00	120
Sector 0:		Deg	Leg D:		Deg	Ant <sub>2b</sub>				1		250,25	35.55	3.30	00.00	120
		Climi	ing Fac	:Nity Information		Ant <sub>2s</sub>		-		-	_	_		+	-	_
Location:	225.00	Deg		On Leg B		Ant <sub>3a</sub>	NNHH-658-R4-V1	19.60	7.80	72.00	_	150.25	72.00	0.50	20.00	
		sion Typ	e:	Good condition.		Antab	1414111-030-K4-41	19.00	7.80	72.00		158.25	33.00	9.50	80.00	123
Climbing		cess:		Climbing path was obst	tructed	-		-		-		-		-		
Facility		dition:	-	Missing safety cable.	ducted.	Ant <sub>3c</sub>	D1 00000 / 100 0 0 0					-		-		
		Value of the last	PT/%	Invision & surcey cable.		Anta	LPA 80063/4CF E-DIN	15.20	13.10	47.40		158.25	33.00	14.00	80.00	125
12	4 3		111 4	A.		Antab										
f	7 F	7411	HIT	i i		Ant <sub>4c</sub>										
		Hill				Antsa			_							
4			-	Notes and an		Ant <sub>sb</sub>										
	8 3			T THE PERSONS		Ant <sub>Sc</sub>										
-	-	. 11	111 -		SART BOOK THE OF ME	Ant on Standoff										
ુ		.0.1	IU.	120%	TANT / DO IT )	Ant on						-		-		
		mi	118			Standoff										
વ	F.	H	TITL		to Time to the	Ant on										
EXTRE SUPPLEMENT	~ .		111 "	7 10	of the American	Tower		_								
-	1, 16	4111	1 0	" Herenaum"	- C. T. T. T.	Ant on Tower										
ſ	T f		M			TOWE					Sector (					
- 1	1 1					Ant <sub>18</sub>	LPA 80063/4CF E-DIN	15.20	13.10	47.40	Sector 6	158.25	33.00	14.00	214.00	236
4		LIT	111			Ant <sub>1b</sub>	7 2 511					233.23	33.00	14.00	£14.00	430
L	, L	L.,	1 1	Ų		Antic										
-	-		1.0	Time?		Ant <sub>2a</sub>	NNHH-65B-R4-V1	19.60	7.80	72.00		158.25	33.00	9.50	214.00	244
		0-	41.	n []	A)	Antzh	(*************************************	15.00	7.00	72.00		136.23	33.00	9.50	214.00	244
1 1	-		7 1	<b>-</b>		Ant <sub>2c</sub>					_			-		
						Ant <sub>3a</sub>	NNHH-658-R4-V1	19.60	7.80	72.00		158.25	22.00	0.50	24422	
لوا	1,77		7	A. A. S. S. S. S. S. S.		Ant <sub>3b</sub>	14(4)()-038-)(4-41	15.00	7.00	72.00		158.25	33.00	9.50	214.00	293
		- 1	/			Antac		-						-		
-	1 1	1 K		- us	STANCE PROM TO 1 OF BUTTOM	Ant <sub>4a</sub>	LPA 80063/4CF E-DIN	15.20	13.10	47.40		450.25	22.00	41.00		
				AN IN	STAKE PRIAL TO! OF BUTTON PYCHT RAL TO LONEST TO OF TL/ESPI OF CAPPER APPAE /A F = 10 FT;	Ant <sub>4b</sub>	EFA 60003/4CF E-DIN	13.20	13.10	47.40		158.25	33.00	14.00	214.00	314
	100		4 [			Ant <sub>4c</sub>			_		_	-		-		
	riting					Antsa		-						_		
DISTRICT SECTION FROM MICH.	1 3		7	100	rave new to or amounted the first united to the second to the first of funds and the first to the first of th	Ant <sub>Sb</sub>										
acc.	'	K	-		A F L II PL	Ant <sub>5c</sub>								_		
1	-		\A.	1 TO TO PORT		Ant on			_	_						
11	-		<b>⊒</b> ∐			Standoff										
- 11	Eta )		111			Ant on										
L			71 1	1		Standoff										
10 Table				-		Ant on Tower										
						Ant an		_	_	-						
						Tower										
											Sector D					
						Ant <sub>1a</sub>										
					[	Ant <sub>1b</sub>										
					1	Ant <sub>1c</sub>										
					1	Ant <sub>Za</sub>										
					1	Ant <sub>2b</sub>										
						Ant <sub>2c</sub>										
					1	Ant <sub>3a</sub>										
					1	Ant <sub>3b</sub>										
					1	Ant <sub>3c</sub>										
					1	Ant <sub>4a</sub>										
					ī	Ant <sub>4b</sub>										
					1	Ant <sub>4c</sub>					-					
					1	Ant <sub>Sa</sub>										
					1	Ant <sub>5b</sub>										
					Ì	Antsc				- 4						
					Ť	Ant on						-				
					L	Standoff										
					I	Ant on										
					ļ.	Standoff										
					1	Ant on Tower		- 1				- 1				
					h	Ant on		_			-	-		$\vdash$		
						Tower										

	Observed Safety and Structural Issues During the Mount Mapping	
Issue #	Description of Issue	Photo #

		62
1	No safety climb present and the step pegs stop at 80 feet.	
2		
3		
4		
5		
6		
7		
8		

#### **Mapping Notes**

- 1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
- 2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
- 3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
- 4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
- 5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
- Please measure and report the size and length of all existing antenna mounting pipes.
- 7. Please measure and report the antenna information for all sectors.

  8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

#### Standard Conditions

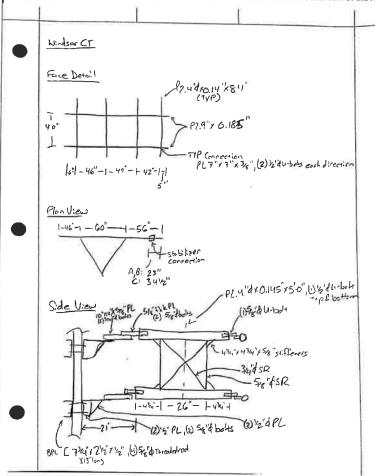
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.



	Antenna Mount Mapping	g Form (PATENT PENDING)	V3.0 Updated on 8-3	FCC#
		ground (FATERT TERDITO)		n/a
Towar Owner:	Verizon Wireless	Mapping Date:	11/11	1/2020
Site Name:	Windsor CT	Tower Type:		Support
Site Number or ID:	469487	Tower Height (FL);		60
Mapping Contractor:	Delta Oaks Group	Mount Elevation (Ft.):		57

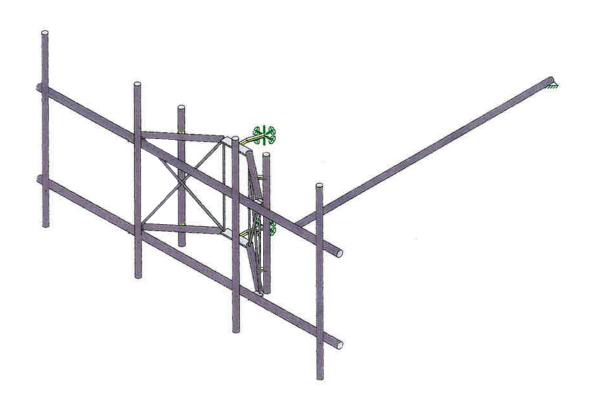
This antenna mapping form is the property of TES and under PATENT PENDING. The formation contained herein is considered confidential in nature and is to be used only for the specific customer It was intended for. Reproduction, transmission, publication modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warrantying the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.

#### Please Insert Sketches of the Antenna Mount



Scanned with CamScanner





Envelope Only Solution

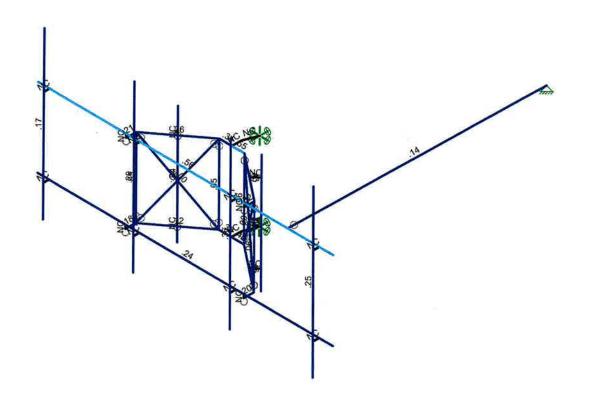
Colliers Engineering & De	
Project # 23777087	

Antenna Mount Analysis

SK - 4	
July 19, 2023 at 5:04 PM	
5000395159-VZW MT LOT C H	







Member Code Checks Displayed (Enveloped) Envelope Only Solution

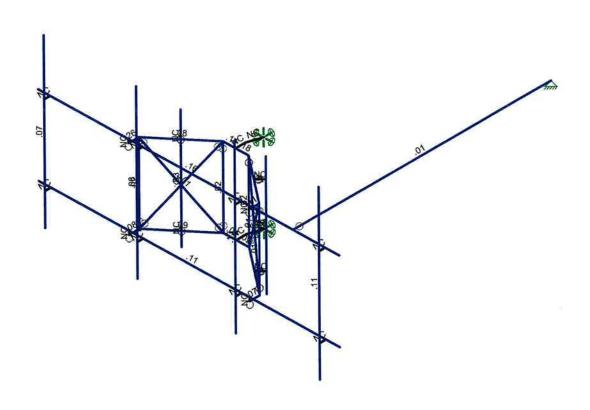
-	colliers Engineering & De
F	Project # 23777087

Antenna Mount Analysis

SK - 5 July 19, 2023 at 5:04 PM 5000385159-VZW\_MT\_LOT\_C\_H....







Member Shear Checks Displayed (Enveloped) Envelope Only Solution

Colliers Engineering & De		SK - 6		
Collers Engineering & Do	Antenna Mount Analysis	July 19, 2023 at 5:04 PM 5000385159-VZW_MT_LOT_C_H		
D : # 00777097				
Project # 23777087				



Colliers Engineering & Design

Project # 23777087
Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_

#### **Basic Load Cases**

1	BLC Description	Category	X Gr	Y Gr.	Z Gr Joint	Point	Distributed	Area(Member)	Surfa
1	Antenna D	None				36			T CONTO.
2	Antenna Di	None				36		1	-
3	Antenna Wo (0 Deg)	None				36			
4	Antenna Wo (30 Deg)	None				36			1
5	Antenna Wo (60 Deg)	None				36			
6	Antenna Wo (90 Deg)	None				36			
7	Antenna Wo (120 Deg)	None				36			
8	Antenna Wo (150 Deg)	None				36			
9	Antenna Wo (180 Deg)	None				36			
10	Antenna Wo (210 Deg)	None		1		36			
11	Antenna Wo (240 Deg)	None				36			
12	Antenna Wo (270 Deg)	None				36			
13	Antenna Wo (300 Deg)	None				36			
14	Antenna Wo (330 Deg)	None				36			
15	Antenna Wi (0 Deg)	None		-	1	36			
16	Antenna Wi (30 Deg)	None				36			-
17	Antenna Wi (60 Deg)	None				36			
18	Antenna Wi (90 Deg)	None				36			
19	Antenna Wi (120 Deg)	None		-	<del>  -   -   -   -   -   -   -   -   -   -</del>	36			
20	Antenna Wi (150 Deg)	None				36			
21	Antenna Wi (180 Deg)	None				36			
22	Antenna Wi (210 Deg)	None				36			
23	Antenna Wi (240 Deg)	None		_		36			
24	Antenna Wi (270 Deg)	None				36			
25	Antenna Wi (300 Deg)	None							
26	Antenna Wi (330 Deg)	None				36			
27	Antenna Wm (0 Deg)	None				36			
28	Antenna Wm (30 Deg)	None			+	36			
29	Antenna Wm (60 Deg)	None				36			_
30	Antenna Wm (90 Deg)	None				36			
31	Antenna Wm (120 Deg)	None				36			
32	Antenna Wm (150 Deg)	None				36			
33	Antenna Wm (180 Deg)	None	_			36			
34	Antenna Wm (210 Deg)	None	_			36			
35	Antenna Wm (240 Deg)					36			
36	Antenna Wm (270 Deg)	None				36			
37	Antenna Wm (300 Deg)	None None				36			
38	Antenna Wm (330 Deg)		_			36			
39	Structure D	None				36			
40	Structure Di	None		-1					
41	Structure Wo (0 Deg)	None					29		
42	Structure Wo (30 Deg)	None	_				58		
43	Structure Wo (60 Deg)	None					58		
44		None	_				58		
	Structure Wo (90 Deg)	None					58		
45	Structure Wo (120 Deg)	None					58		
46	Structure Wo (150 Deg)	None					58		
47	Structure Wo (180 Deg)	None					58		
48	Structure Wo (210 Deg)	None					58		
49	Structure Wo (240 Deg)	None					58		
50	Structure Wo (270 Deg)	None					58		
51	Structure Wo (300 Deg)	None					58		
52	Structure Wo (330 Deg)	None					58		
53	Structure Wi (0 Deg)	None					58		
54	Structure Wi (30 Deg)	None					58		
55	Structure Wi (60 Deg)	None					58		
56	Structure Wi (90 Deg)	None		-		- 1	58		



Colliers Engineering & Design

Project # 23777087
: Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_

Basic Load Cases (Continued)

	BLC Description	Category	X Gr	Y Gr	Z Gr	Joint	Point		Area(Member)	Suna
57	Structure Wi (120 Deg)	None						58		-
58	Structure Wi (150 Deg)	None						58		
_	Structure Wi (180 Deg)	None						58		
59	Structure Wi (210 Deg)	None						58		
60	Structure Wi (240 Deg)	None						58		-
61	Structure Wi (270 Deg)	None						58		-
62	Structure Wi (300 Deg)	None						58		-
63	Structure WI (300 Deg)	None		1/4				58		
64	Structure Wi (330 Deg)	None						58		-
65	Structure Wm (0 Deg)	None		2				58		
66	Structure Wm (30 Deg)	None						58		
67	Structure Wm (60 Deg)	None						58		
68	Structure Wm (90 Deg)	None						58		
69	Structure Wm (120 Deg)	None						58		
70	Structure Wm (150 Deg)	None						58		
71	Structure Wm (180 Deg)	None						58		
72	Structure Wm (210 Deg)							58		
73	Structure Wm (240 Deg)	None			1			58		
74	Structure Wm (270 Deg)	None	_					58		
75	Structure Wm (300 Deg)	None				100		58		-
76	Structure Wm (330 Deg)	None		-			1			
77	Lm1	None		1			1			
78	Lm2	None	_	_	-	_	1			
79	Lv1	None					1			
80	Lv2	None		+	_		36			
81	Antenna Ev	None	_	-			24			
82	Antenna Eh (0 Deg)	None		-	-		24			
83	Antenna Eh (90 Deg)	None	_	0386	-	-	24			1 =
84	Structure Ev	ELY		0386			-		+	-
85	Structure Eh (0 Deg)	ELZ			0965					
86	Structure Eh (90 Deg)	ELX	.0965	)						

**Load Combinations** 

LUat	Combinations		Dal	ep.	BI C	Fa	BLC	Fa	BLC	Fa	В	Fa	В	Fa	В	Fa	BLC	Fa	В	Fa.	В	Fa	В	Fa
4	Description 1.2D+1.0Wo (0 Deg)	SF	V V	No.	1	1.2	39	1.2	3	1	41	1									_		_	-
2	1.2D+1.0Wo (30 Deg)		Ÿ		1	1.2	39	1.2	4	1	42	1							-	+ -	-	-	-	-
3	1.2D+1.0Wo (60 Deg)		Ÿ		1	1.2	39	1.2	5	1	43	1	1_		-		-	ļ	-	-	-	ļ.,		-
4	1.2D+1.0Wo (90 Deg)		Y		1	1.2	39	1.2	6	1	44	1			1				-	-	-	-	-	
5	1.2D+1.0Wo (120 De.		Y		1	1.2	39	1.2	7	1	45		-		-		-		-	+-	-	-	1	
6	1.2D+1.0Wo (150 De.	Yes	Y		1	1.2	-	1.2	8	1	46		-	-	+			-	+	+-	₩	-	-	
7	1.2D+1.0Wo (180 De.	Yes	Y		_1_	1.2	39	1.2	9	1	47		-	-	-	-		-	+	-	+-	-	-	
8	1.2D+1.0Wo (210 De.	Yes	Y		1	1.2	-	1.2	10	1	48		-		-	_	-	-	+	+	1	1		-
9	1.2D+1.0Wo (240 De.	Yes	Y		1	1.2	-	1.2	11	1	49		+	_	-	-	-	-						
10	1.2D+1.0Wo (270 De.	Yes	Y		1_	1.2	-	1.2	12	1	50	1	+		+	-		+	+	1	1	1	1	
11	1.2D+1.0Wo (300 De.	Yes	Υ_		_1_	1.2	39	1.2	13	1	51	1		-	+-	-	-	1	1					
12	1.2D+1.0Wo (330 De.		Y_		1	1.2	39	1.2	14	1	40	1	15	1	53	1	1						T	
13	1.2D + 1.0Di + 1.0Wi				1_	1.2	_	1.2	2	1	40		16		54							1		
14	1.2D + 1.0Di + 1.0Wi	Yes	Y		1_	1.2	-	1.2	2	1	40		17	1	55				+	+	T	T		
15	1.2D + 1.0Di + 1.0Wi.		Y	-	1	1.2	-	1.2	2	1	40		18	1	56									
16	1.2D + 1.0Di + 1.0Wi.		Y	-	4	1.2	1	1.2	2	1	40	_	19	-	57	1			E					
17	1.2D + 1.0Di + 1.0Wi.				1	1.2		1.2	2	1	40	_	20		58	1	-							
18	1.2D + 1.0Di + 1.0Wi.	Ves	Y	-	1	1.2	-	1.2	2	1	40	-	21		59								1_	
19	1.2D + 1.0Di + 1.0Wi. 1.2D + 1.0Di + 1.0Wi.	Voc	Y		1	1.2	-	1.2	2	1	40	-	22		60								_	
20	1.2D + 1.0Di + 1.0Wi.			-	1	1.2	-	1.2	-	1	40		23	1	61	1								
21	1.2D + 1.0Di + 1.0Wi.	Yes	Y		1	1.2		1.2	2	1	40		24		62	1		1						



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

#### Load Combinations (Continued)

Description   S., Poel SR. B.C Fa. B.C Fa. B.C Fa. B. Fa	24 1.2D + 1.0Di + 1.0WiYes Y 1 1.2 39 1.2 2 1 40 1 25 1 63 1 25 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 27 1 65 1 26 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 28 1 66 1 27 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 28 1 66 1 28 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 30 1 68 1 29 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 30 1 68 1 29 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 31 1 69 1 30 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 32 1 70 1 31 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1 34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1	.BFa
24   12D + 1.00i + 1.00i   .	24 1.2D + 1.0Di + 1.0WiYes Y	
25   120 + 15.Lm1 + 10Ves   Y	25 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 27 1 65 1 26 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 28 1 66 1 27 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 29 1 67 1 28 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 30 1 68 1 29 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 31 1 69 1 30 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 32 1 70 1 31 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1 34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	
26   120 + 15.Lm1 + 10Ves   Y	26 1.2D + 1.5Lm1 + 1.0Yes Y	
12P + 1.5Lm + 1 - 0Yes	27       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       29       1       67       1         28       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       30       1       68       1         29       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       31       1       69       1         30       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       32       1       70       1         31       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       34       1       72       1         33       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       35       1       73       1         34       1.2D + 1.5Lm1 + 1.0Yes       Y       1       1.2       39       1.2       77       1.5       36       1       74       1         35       1.2D + 1.5Lm1 + 1.0Yes       Y       1       <	
120 + 1.5Lm1 + 1.0Yes	28 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 30 1 68 1  29 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 31 1 69 1  30 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 32 1 70 1  31 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1  32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 34 1 72 1  33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1  34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1  35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1	
120 + 1.5Lm1 + 1.0Yes	29 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 31 1 69 1 30 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 32 1 70 1 31 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 34 1 72 1 33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1 34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	
30   12D+1.5Lm1+1.0Yes	30 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 32 1 70 1 31 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 34 1 72 1 33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1 34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1	
31 1.2D+1.5Lm1+1.0Yes Y	31 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 33 1 71 1 32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 34 1 72 1 33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1 34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1	
32 1.2D + 1.5Lm1 + 1.0Yes Y	32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 34 1 72 1 33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1 34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	
33   12P+1.5.mn+1.0/Yes   Y   1   1.2   39   1.2   77   1.5   34   1.72   1	32 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 34 1 72 1  33 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 35 1 73 1  34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1  35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	
34 1.2D+1.5Lm1+1.0Yes Y	34 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	
35   1.20 + 1.5.Lm1 + 1.0Yes   Y   1   1.2   39   1.2   77   1.5   36   1   74   1   1   1   1   1   1   1   1   1	34 1.2D+1.5Lm1+1.0Yes Y 1 1.2 39 1.2 77 1.5 36 1 74 1 35 1.2D+1.5Lm1+1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	
35 1.20 + 1.5Lm1 + 1.0Yes Y 1 1.2 39 1.2 77 1.5 37 1 75 1	35   1.2D + 1.5Lm1 + 1.0Yes   Y   1   1.2   39   1.2   77   1.5   37   1   75   1	
36   1.20 + 1.5Lm1 + 1.0Yes		
38   1.2D + 1.5Lm2 + 1.0.   Yes   Y	36 1.2D + 1.5Lm1 + 1.0 Yes Y 1 1 2 39 12 77 15 38 1 76 1	
38   1.2D + 1.5Lm2 + 1.0Yes   Y	37 1.2D + 1.5Lm2 + 1.0 Yes Y 1 1.2 39 1.2 78 1.5 27 1 65 1	
39   1.2D + 1.5Lm² + 1.0Yes   Y   1   1.2   39   1.2   78   1.5   29   1   67   1	38 1.2D + 1.5Lm2 + 1.0Yes Y 1 1.2 39 1.2 78 1.5 28 1 66 1	7277
40   1.2D + 1.5Lm2 + 1.0Yes   Y	39 1.2D + 1.5Lm2 + 1.0Yes Y 1 1.2 39 1.2 78 1.5 29 1 67 1	
42 12D + 1.5Lm2 + 1.0 Yes   Y   1   1.2   39   1.2   78   1.5   31   1   69   1	40 1.2D + 1.5Lm2 + 1.0Yes Y 1 1 2 39 1 2 78 1 5 30 1 68 1	
42   1.2D + 1.5Lm2 + 1.0	41   1.2D + 1.5Lm2 + 1.0 Yes   Y   1   1.2   39   1.2   78   1.5   31   1   69   1	
44   12D + 1.5Lm2 + 1.0 Yes   Y   1   1.2   39   1.2   78   1.5   33   1   71   1		
44   12D + 1.5Lm2 + 1.0Yes   Y	43 1.2D + 1.5Lm2 + 1.0Yes Y 1 1 2 39 12 78 15 33 1 77 1	
46 1.2D + 1.5Lm2 + 1.0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
46   1.2D + 1.5Lm2 + 1.0Yes   Y	45 400 45 0 45 0 40 M	
1.2D + 1.5Lm2 + 1.0 Yes   Y	10 10 10 10 10 10 10 10 10 10 10 10 10 1	
48 1.2D + 1.5Lm2 + 1.0 Yes Y	17 100 15 0 15 0 15 0 15 0 15 0 15 0 15	
49	40 420 45 - 40 40 40 40 40 40 40 40 40 40 40 40 40	
50	10 1.2 00 1.2 10 1.0 00 1 10	
51	FO 4 OD 4 FL O W	
52       1.2D + 1.0Ev + 1.0E Yes       Y       1       1.2       39       1.2       81       1       E       1       82       1       82       1       83       ELZ       1       E       5       53       1.2D + 1.0Ev + 1.0E Yes       Y       1       1.2       39       1.2       81       1       E       1       82       .866       83       .5       ELZ       1.866       E       .5       5         54       1.2D + 1.0Ev + 1.0E Yes       Y       1       1.2       39       1.2       81       1       E       1       82       .83       .66       ELZ       .5       E       .866         55       1.2D + 1.0Ev + 1.0E Yes       Y       1       1.2       39       1.2       81       1       E       1       82       .83       1       ELZ       E       .9         56       1.2D + 1.0Ev + 1.0E Yes       Y       1       1.2       39       1.2       81       1       E       1       82       -8       3       5       ELZ -8       E       5         58       1.2D + 1.0Ev + 1.0E Yes       Y       1       1.2       39	[ F4	
53 12D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .866 83 .5 ELZ .866 E5 54 12D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .866 83 .5 ELZ .866 E5 55 12D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .83 .866 ELZ .5 E866 55 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 3 1 ELZ E 1 56 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 3 .5 ELZ .85 57 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 3 .5 ELZ .85 58 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 3 .5 ELZ .85 59 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 3 .5 ELZ .85 60 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 ELZ .5 E85 61 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 ELZ .5 E85 62 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 ELZ .5 E86 63 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 ELZ .5 E86 64 0.9D - 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .8 .8 ELZ .5 E86 65 0.9D - 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 .866 83 .5 ELZ .866 E5 66 0.9D - 1.0Ev + 1.0Eh Yes Y 1 1.2 39 1.2 81 1 E 1 82 .866 83 .5 ELZ .5 E86 67 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 .9 81 -1 E1 82 .83 1 ELZ .5 E866 68 0.9D - 1.0Ev + 1.0Eh Yes Y 1 .9 39 .9 81 -1 E1 82 .83 1 ELZ .5 E866 69 0.9D - 1.0Ev + 1.0Eh Yes Y 1 .9 39 .9 81 -1 E1 82 .5 83 .866 ELZ .5 E866 69 0.9D - 1.0Ev + 1.0Eh Yes Y 1 .9 39 .9 81 -1 E1 82 .5 83 .866 ELZ .5 E866 69 0.9D - 1.0Ev + 1.0Eh Yes Y 1 .9 39 .9 81 -1 E1 82 .5 83 .5 ELZ .85 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 .9 39 .9 81 -1 E1 82 .5 83 .5 ELZ .85	F2 12D + 10E v	
54 1.2D + 1.0Ev + 1.0E Yes Y	FO 4 OF 14 OF 14 OF 15 O	
55 12D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 83 1 ELZ E 1 56 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 - 5 83 866 ELZ - 5 E 866 57 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 - 8.8 83 5 ELZ - 8 E 5 5 81 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 - 8.8 83 5 ELZ - 8 E 5 5 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 - 8 83 - 5 ELZ - 8 E 5 5 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 - 8 83 - 5 ELZ - 8 E5 60 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 - 5 83 - 8 ELZ - 5 E8 61 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 83 - 1 ELZ E1 62 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 83 - 1 ELZ E1 63 1.2D + 1.0Ev + 1.0E Yes Y 1 1.2 39 1.2 81 1 E 1 82 83 - 5 ELZ 866 E5 64 0.9D - 1.0Ev + 1.0Eh Yes Y 1 1.2 39 1.2 81 1 E 1 82 866 83 - 5 ELZ 866 E5 65 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 81 - 1 E1 82 866 83 5 ELZ 866 E 5 66 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 866 83 5 ELZ 866 E 5 66 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 86 83 1 ELZ E 1 66 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 1 ELZ 5 E 866 68 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 66 ELZ 5 E 866 68 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 60 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E1 82 8 83 5 ELZ 8 E 5 70 0.9D - 1.0Ev + 1.0Eh Yes Y 1 9 39 9 9 81 - 1 E	54 4 0D 4 0F 4 0F 4 0F 4 0F 4 0F 4 0F 4 0	
56 1.2D + 1.0Ev + 1.0E Yes Y	55 1 2D + 1 05 + 1 05 V - 1 1 2 05 1.2 01 1 = 1 1 02 .3 63.000 ELZ .3 E 880	
57 1.2D + 1.0Ev + 1.0E Yes Y	EC 42D + 4 0F 14 0F 14 0F 12 0	
58 1.2D + 1.0Ev + 1.0E Yes Y	F7 1 2D 1 1 0E 1 1 0E 1 0 0 0 0 0 0 0 0 0 0 0 0	
59 1.2D + 1.0Ev + 1.0E Yes Y	50 4.05 4.05 4.05 5.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1.2 01 1 2.0 1	
60 1.2D + 1.0Ev + 1.0E Yes Y	EO 13D 1105 1105 Vel V	
61 1.2D + 1.0Ev + 1.0E Yes Y	CO 12D 140E 140E 140E 150E 150E 150E 150E 150E 150E 150E 15	
62 1.2D + 1.0Ev + 1.0E Yes Y	61 12D + 10Ey + 10E Ve V	
63 1.2D + 1.0Ev + 1.0E Yes Y	CO 1 2D 1 1 05 1 1 05 1 1 1 1 1 0 1 1 2 0 1 1 1 1 1 0 2 0 1 1 1 1	
64  0.9D - 1.0Ev + 1.0EhYes Y	20 4 0D + 4 0E + 5 0E +	
65 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 .866 83 .5 ELZ .866 E5 66 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 .5 83 .866 ELZ .5 E866 67 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 .83 .866 ELZ .5 E866 68 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 .83 .866 ELZ .5 E866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -5 83 .866 ELZ -5 E866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -885 70 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -85	64 000 105 1405 2 100 12 01 1 1 02 100 03 -3 122 1000 13	
66 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 .5 83.866 ELZ .5 E 866 67 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 83 1 ELZ E 1 68 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 -5 83.866 ELZ -5 E 866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 -5 83.866 ELZ -5 E 866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -8 E5		
67 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 83 1 ELZ E 1 68 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 825 83.866 ELZ5 E866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -8 E5 70 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -8 E5	0.000 0.00 0	
68 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 83 1 ELZ E 1 68 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -5 83 .866 ELZ -5 E866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -8 E5 70 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -1 83 .FLZ -1 E5	07 000 405 405 C 231 000 00 10 10 00 00 00 00 00 00 00 00 0	
68 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 825 83 .866 ELZ5 E866 69 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -8 E5 70 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -1 83 .5 ELZ -8 E5	67 0.9D 1.0EV 1.0EnYes Y 1 .9 39 .9 81 -1 E1 82 83 1 ELZ E 1	
69 U.9D - 1.0Ev + 1.0EhYes Y	68 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 - 5 83 866 ELZ - 5 E 866	
70 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 E1 82 -1 83 Fi Z -1 F	69 0.9D - 1.0Ev + 1.0EhYes Y 1 .9 39 .9 81 -1 E1 82 -8 83 .5 ELZ -8 E5	
	70 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 E1 82 -1 83 Ft 7 -1 F	
71 0.9D - 1.0EV + 1.0EhYes Y 1 9 39 9 81 -1 F -1 82 - 8 83 - 5 Ft 7 - 8 F 5	71 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 F -1 82 - 8 83 - 5 Fl 7 - 8 F 5	
72 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 E -1 82 - 5 83 -8 Et 7 5 E -8	72 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 E1 82 - 5 83 -8 EIZ 5 E -8	100
73 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 E1 82 83 -1 ELZ E -1	73 0.9D - 1.0Ev + 1.0EhYes Y 1 9 39 9 81 -1 E1 82 83 -1 Et 7 E -1	
	74   0.9D - 1.0Ev + 1.0Eh. Yes Y   1   9   39   9   81   -1   E.   -1   82   5   83 - 8   FIZ   5   F   -8	
	75   0.9D - 1.0Ev + 1.0EhYes   Y   1   .9   39   .9   81   -1   E   -1   82   .866   83   -5   ELZ   .866   E   -5	
	7F 0.0D 4.0Ft 14.0Ft 12.1 3.4	



Colliers Engineering & Design

Project # 23777087
Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_

## Joint Coordinates and Temperatures

	ordinates and T	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap
1	N1	3.416667	0.145833	8.083333	0	
2	N2	-9.083333	0.145833	8.083333	0	
3	N3	3.416667	3.479167	8.083333	0	
4	N4	-9.083333	3.479167	8.083333	0	
5	N5	-8.583333	0.145833	8.083333	0	
6	N6	-8.583333	3.479167	8.083333	0	
7	N7	-4.75	0.145833	8.083333	0	
8	N8	-4.75	3.479167	8.083333	0	
9	N9	-0.666667	0.145833	8.083333	0	
10	N10	-0.666667	3.479167	8.083333	0	
11	N11	2.833333	0.145833	8.083333	0	
12	N12	2.833333	3.479167	8.083333	0	
13	N13	-8.583333	0.145833	8.333333	0	
14	N14	-8.583333	3.479167	8.333333	0	
	N15	-4.75	0.145833	8.333333	0	
15	N16	-4.75	3.479167	8.333333	0	
16	N17	-0.666667	0.145833	8.333333	0	
17	N18	-0.666667	3.479167	8.333333	0	
18		2.833333	0.145833	8.333333	0	
19	N19	2.833333	3.479167	8.333333	0	
20	N20	-5.333333	0	8.083333	0	
21	N21	-5.333333	3.333333	8.083333	0	
22	N22	-0.333333	0	8.083333	0	
23	N23	-0.333333	3.333333	8.083333	0	
24	N24	-5.333333	0.00000	7.661458	0	
25	N25		3.333333	7.661458	0	
26	N26	-5.333333	0	7.661458	0	
27	N27	-0.333333	3.333333	7.661458	Ö	W == 5 L
28	N28	-0.333333		6.119792	Ö	
29	N29	-2.833333	0	6.119792	0	
30	N30	-2.833333	3.333333		0	
31	N31	-3.364583	0	6.119792	0	
32	N32	-3.364583	3.333333	6.119792	0	+
33	N33	-2.302083	0	6.119792	0	
34	N34	-2.302083	3.333333	6.119792	0	
35	N35	-2.633822	0	5.154971		
36	N36	-2.633822	3.333333	5.154971	0	-
37	N37	1.5	3.479167	8.083333	0	
38	N39	-8.583333	5.8125	8.333333	0	
39	N40	-4.75	5.8125	8.333333	0	
40	N41	-0.666667	5.8125	8.333333	0	
41	N42	2.833333	5.8125	8.333333	0	
42	N43	-8.583333	-1.1875	8.333333	0	
43	N44	-4.75	-1.1875	8.333333	0	
	N45	-0.666667	-1.1875	8.333333	0	
44 45	N46	2.833333	-1.1875	8.333333	0	
	N58	-5.333333	3.333333	7.708333	0	
46	N76	-2.927083	0	6.119792	0	
47	N77	-3.229167	0	6.119792	0	
48	N78	-2.739583	0	6.119792	0	
49		-2.4375	0	6.119792	0	
50	N79	-2.927083	3.333333	6.119792	0	
51	N80	-3.229167	3.333333	6.119792	0	
52	N81		3.333333	6.119792	0	
53	N82	-2.739583	3.333333	6.119792	0	
54	N83	-2.4375	3.479167	8.083333	0	
55	N58A	-2.833333	0.145833	8.083333	Ö	
56	N59	-5.333333	0.143033	0.00000		



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y Ift]	Z (ft)	Temp [F]	Detach From Diap.
57	N60	-5.333333	3.479167	8.083333	0	Dollaci i Tom Diap
58	N61	-0.333333	0.145833	8.083333	0	1
59	N62	-0.333333	3.479167	8.083333	0	
60	N61A	-4.348958	3.333333	6.890625	0	
61	N62A	-4.348958	0	6.890625	0	
62	N63	-1.317708	0	6.890625	0	
63	N64	-1.317708	3.333333	6.890625	0	
64	N65	-4.598958	3.333333	6.640625	0	
65	N66	-4.598958	0	6.640625	0	
66	N67	-1.067708	0	6.640625	0	
67	N68	-1.067708	3.333333	6.640625	0	
68	N69	-4.598958	4.166667	6.640625	0	
69	N70	-1.067708	4.166667	6.640625	0	
70	N71	-4.598958	-0.833333	6.640625	Ö	
71	N72	-1.067708	-0.833333	6.640625	Ö	
72	N73A	-2.833333	3.333333	5.703125	0	
73	N74	-2.833333	0	5.703125	Ö	
74	N75	2.002978	3.833333	-2.265455	Ö	

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Desig A [in2] lyy [i lzz [i J [in4]
1	Mount Pipe	PIPE 2.0	Beam	Pipe	A53 Gr. B	
2	Face Horizontal	PIPE 2.5	Beam	Pipe	Q235	Typical 1.61 1.45 1.45 2.89
3	Standoff Horizontal	PIPE 2.0	Beam	Pipe	Q235	Typical 1.02 .627 .627 1.25
4	Standoff Diagonal	SR 0.75	Beam	BAR	Q235	Typical .4418 .0155 .0155 .0311
5	Tieback	PIPE 2.0	Beam	Pipe	Q235	Typical 1.02 .627 .627 1.25
6	Standoff Vertical	SR 0.625	Beam	BAR	Q235	Typical .3068 .0075 .0075 .015
7	Standoff Plate	PL5/8X3.5	Beam	BAR	Q235	Typical 2.1875 .0712 2.2331 .2528

#### Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/	Density[k/ft^3]	Yield[ksi]	Rv	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
5	A500 Gr. B 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
6	A500 Gr. B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3
7	Q235	29000	11154	.3	.65	.49	35	1.5	58	1.2

#### Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d.	. Section/Shape	Type	Design List	Material	Design Ru.
1	M1	N2	N1			Face Horizontal		Pipe	Q235	Typical
2	M2	N4	N3			Face Horizontal		Pipe	Q235	Typical
3	M3	N5	N13			RIGID	None	None	RIGID	Typical
4	M4	N6	N14			RIGID	None	None	RIGID	Typical
5	M5	N8	N16			RIGID	None	None	RIGID	Typical
6	M6	N7	N15			RIGID	None	None	RIGID	Typical
7	M9	N10	N18			RIGID	None	None	RIGID	Typical
8	M10	N9	N17			RIGID	None	None	RIGID	Typical
9	M11	N12	N20			RIGID	None	None	RIGID	Typical
10	M12	N11	N19			RIGID	None	None	RIGID	Typical
11	M13	N22	N26		90	Standoff Plate	Beam	BAR	Q235	Typical

: Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d.	Section/Shape	Type	Design List		Design Ru
12	M14	N21	N25		90	Standoff Plate		BAR	Q235	Typical
13	M15	N23	N27		90	Standoff Plate		BAR	Q235	Typical
14	M16	N24	N28		90	Standoff Plate		BAR	Q235	Typical
15	M17	N26	N32			Standoff Horizontal		Pipe	Q235	Typical
16	M18	N25	N31			Standoff Horizontal		Pipe	Q235	Typical
17	M19	N27	N33			Standoff Horizontal		Pipe	Q235	Typical
18	M20	N28	N34			Standoff Horizontal		Pipe	Q235	Typical
19	M21	N32	N30		90	Standoff Plate	Beam	BAR	Q235	Typical
	M22	N34	N30		90	Standoff Plate	Beam	BAR	Q235	Typical
20	M23	N31	N29		90	Standoff Plate	Beam	BAR	Q235	Typical
21	M24	N33	N29		90	Standoff Plate	Beam	BAR	Q235	Typical
22	M25	N31	N26			Standoff Diagonal	Beam	BAR	Q235	Typical
23	M26	N32	N25			Standoff Diagonal	Beam	BAR	Q235	Typical
24		N33	N28			Standoff Diagonal	Beam	BAR	Q235	Typical
25	M27	N27	N34			Standoff Diagonal	Beam	BAR	Q235	Typical
26	M28	N29	N35			RIGID	None	None	RIGID	Typical
27	M29	N30	N36			RIGID	None	None	RIGID	Typical
28	M30	N37	N75			Tieback	Beam	Pipe	Q235	Typical
29	M31		N43			Mount Pipe	Beam	Pipe	A53 Gr. B	Typical
30	MP4A	N39	N44		1	Mount Pipe	Beam	Pipe	A53 Gr. B	Typical
31	MP3A	N40	N45			Mount Pipe	Beam	Pipe	A53 Gr. B	Typical
32	MP2A	N41	N45	-		Mount Pipe	Beam	Pipe	A53 Gr. B	Typical
33	MP1A	N42				Standoff Vertical	Beam	BAR	Q235	Typical
34	M44	N25	N26		-	Standoff Vertical	Beam	BAR	Q235	Typical
35	M45	N31	N32			Standoff Vertical	Beam	BAR	Q235	Typical
36	M46	N33	N34		-	Standoff Vertical	Beam	BAR	Q235	Typical
37	M47	N27	N28		-	RIGID	None	None	RIGID	Typical
38	M47B	N22	N60		-	RIGID	None	None	RIGID	Typical
39	M48A	N21	N59_			RIGID	None	None	RIGID	Typical
40	M49A	N24	N62		+	RIGID	None	None	RIGID	Typical
41	M50A	N23	N61		-	RIGID	None	None	RIGID	Typical
42	M51A	N30	N73A			RIGID	None	None	RIGID	Typica
43	M52A	N29	N74				None	None	RIGID	Typical
44	M44A	N62A	N66		-	RIGID			RIGID	Typica
45	M45A	N63	N67			RIGID	None	None	RIGID	Typical
46	M46A	N64	N68		-	RIGID	None	None	RIGID	Typical
47	M47A	N61A	N65			RIGID	None	None	A53 Gr. E	
48	M48	N69	N71			Mount Pipe	Beam	Pipe	A53 Gr. E	
49	M49	N70	N72			Mount Pipe	Beam			
50	M50	N73A	N36			RIGID	None	None	RIGID	Typical
51	M51	N74	N35			RIGID	None	None	RIGID	Typica

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only		Defl Ratio Opti	Analysis	Inactive	Seismi
4	M1	Titelease	01100000	12.00.1313131313131			Yes				None
-!							Yes				None
2	M2				_		Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6							** NA **			None
7	M9						Yes		1		None
8	M10						Yes	** NA **	-		
9	M11						Yes	** NA **			None
							Yes	** NA **			None
10	M12						Yes	Default			None
11	M13 M14						Yes	Default			None

: Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis

#### Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio Opti	Analysis	Inactive	Seismi
13	M15						Yes				None
14	M16			CONTRACTOR		Name to the	Yes				None
15	M17						Yes	Default			None
16	M18						Yes				None
17	M19						Yes				None
18	M20						Yes	Default			None
19	M21						Yes	Default			None
20	M22						Yes				None
21	M23						Yes				None
22	M24						Yes				None
23	M25	BenPIN	BenPIN			Euler Bu		Default			None
24	M26	BenPIN	BenPIN			Euler Bu		Default			None
25	M27	BenPIN	BenPIN			Euler Bu					None
26	M28	BenPIN	BenPIN			Euler Bu					None
27	M29	LC					Yes	** NA **		Inactive	None
28	M30						Yes	** NA **		Inactive	None
29	M31	BenPIN					Yes	Default	1	IIIGOUVC	None
30	MP4A						Yes	Doiduit			None
31	MP3A						Yes				None
32	MP2A		- 4				Yes				None
33	MP1A						Yes				None
34	M44	BenPIN	BenPIN				Yes				None
35	M45	BenPIN	BenPIN				Yes				None
36	M46	BenPIN	BenPIN				Yes				None
37	M47	BenPIN	BenPIN				Yes	Default			None
38	M47B		000000				Yes	** NA **			None
39	M48A		000000				Yes	** NA **			None
40	M49A		000000				Yes	** NA **			None
41	M50A		000000				Yes	** NA **			None
42	M51A						Yes	** NA **			None
43	M52A		10.0				Yes	** NA **			None
44	M44A		000000				Yes	** NA **			None
45	M45A		000000	************			Yes	** NA **			None
46	M46A		000000				Yes	** NA **			None
47	M47A		000000	-			Yes	** NA **			None
48	M48						Yes	INA			
49	M49						Yes				None
50	M50						Yes	** NA **			None
51	M51						Yes	** NA **			None
3.1	10101	-					162	INA			None

#### Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft.%]
1	MP4A	Υ	-15.2	5
2	MP4A	Mv	0101	5
3	MP4A	Mz	0	5
4	MP4A	Y	-15.2	4.5
5	MP4A	My	0101	4.5
6	MP4A	Mz	0	4.5
7	MP1A	Y	-43.55	1.5
8	MP1A	Mv	0109	1.5
9	MP1A	Mz	0	1.5
10	MP1A	Y	-43.55	3.5
11	MP1A	Mv	0109	3.5
12	MP1A	Mz	0	3.5
13	MP2A	Y	-38.7	.75

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_

## Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
44		My	0258	.75
14	MP2A	Mz	0	.75
15	MP2A	- IVIZ	-38.7	4.25
16	MP2A		0258	4,25
17	MP2A	My	0	4.25
18	MP2A	Mz		.75
19	MP3A	Y	-38.7	.75
20	MP3A	My	0258	.75
21	MP3A	Mz	0	4.25
22	MP3A	Y	-38.7	
23	MP3A	My	0258	4.25
24	MP3A	Mz	0	4.25
25	M49	Y	-84.4	2.5
26	M49	Mv	0	2.5
27	M49	Mz	0	2.5
	M48	Y	-70.3	2.5
28	M48	My	0	2.5
29		Mz	0	2.5
30	M48	Y	-17.6	4
31	MP2A	My	.0073	4
32	MP2A		0	4
33	MP2A	Mz Y	-17.6	4
34	MP3A		.0073	4
35	MP3A	My		4
36	MP3A	Mz	0	

## Member Point Loads (BLC 2 : Antenna Di)

	er Point Loads (BL Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	Member Label MP4A	Y	-75.7752	.5
1	MP4A MP4A	My	0505	.5
2		Mz	0	.5
3	MP4A	Y	-75.7752	4.5
4	MP4A	My	0505	4.5
5	MP4A	Mz	0	4.5
6	MP4A	Y	-57.3658	1.5
7	MP1A	My	0143	1.5
8	MP1A	Mz	0	1.5
9	MP1A	Y	-57.3658	3.5
10	MP1A		0143	3.5
11	MP1A	My	0	3.5
12	MP1A	Mz Y	-136.7409	.75
13	MP2A		0912	.75
14	MP2A	My	0312	.75
15	MP2A	Mz	-136.7409	4.25
16	MP2A	Y	0912	4.25
17	MP2A	My	0912	4.25
18	MP2A	Mz		.75
19	MP3A	Y	-136.7409	.75
20	MP3A	My	0912	.75
21	MP3A	Mz	120.7400	4.25
22	MP3A	Y	-136.7409	4.25
23	MP3A	My	0912	4.25
24	MP3A	Mz	70.0507	2.5
25	M49	Y	-72.8507	2.5
26	M49	My	0	2.5
27	M49	Mz	0	2.5
28	M48	Y	-65.7839	
29	M48	My	0	2.5
30	M48	Mz	0	2.5



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Point Loads (BLC 2 : Antenna Di) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
31	MP2A	Y	6.6	Location (1.76)
32	MP2A	My	0027	4
33	MP2A	Mz	0	
34	MP3A	Y	6.6	4
35	MP3A	Mv	0027	4
36	MP3A	Mz	0	1

### Member Point Loads (BLC 3 : Antenna Wo (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
_1	MP4A	X	0	.5
2	MP4A	Z	-127.169	.5
3	MP4A	Mx	0	.5
4	MP4A	X	0	4.5
5	MP4A	Z	-127.169	4.5
6	MP4A	Mx	0	4.5
7	MP1A	X	0	1.5
8	MP1A	Z	-85.506	1.5
9	MP1A	Mx	0	1.5
10	MP1A	X	0	3.5
11	MP1A	Z	-85.506	3.5
12	MP1A	Mx	0	3.5
13	MP2A	X	0	.75
14	MP2A	Z	-267.643	.75
15	MP2A	Mx	0	.75
16	MP2A	X	0	4.25
17	MP2A	Z	-267.643	4.25
18	MP2A	Mx	0	4.25
19	MP3A	X	Ö	.75
20	MP3A	Z	-267.643	.75
21	MP3A	Mx	0	.75
22	MP3A	X	Ö	4.25
23	MP3A	Z	-267.643	4.25
24	MP3A	Mx	0	4.25
25	M49	X	0	2.5
26	M49	Z	-66.814	2.5
27	M49	Mx	0	2.5
28	M48	X	0	2.5
29	M48	Z	-66.565	2.5
30	M48	Mx	0	2.5
31	MP2A	X	0	2:5
32	MP2A	Z	-41.796	4
33	MP2A	Mx	0	4
34	MP3A	X	0	4
35	MP3A	Z	-41.796	4
36	MP3A	Mx	0	4

## Member Point Loads (BLC 4: Antenna Wo (30 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	58.156	5
2	MP4A	Z	-100.729	5
3	MP4A	Mx	0388	5
4	MP4A	X	58.156	4.5
5	MP4A	Z	-100.729	4.5
6	MP4A	Mx	0388	4.5
7	MP1A	X	35.746	1.5
8	MP1A	Z	-61.913	1.5

# Member Point Loads (BLC 4 : Antenna Wo (30 Deg)) (Continued)

	Point Loads (BL	Direction	Magnitude[lb,k-ft]	Location[ft,%]
0	Member Label MP1A	Mx	0089	1.5
9		X	35.746	3.5
10	MP1A	Z	-61.913	3.5
11	MP1A	Mx	0089	3,5
12	MP1A	X	116.044	.75
13	MP2A	Ž	-200.994	.75
14	MP2A	Mx	0774	.75
15	MP2A	X	116.044	4.25
16	MP2A	Ž	-200.994	4.25
17	MP2A	Mx	0774	4.25
18	MP2A	X	116.044	.75
19	MP3A	- ^	-200.994	.75
20	MP3A		0774	.75
21	MP3A	Mx	116.044	4.25
22	MP3A	X	-200.994	4.25
23	MP3A	Z	0774	4.25
24	MP3A	Mx	29.155	2.5
25	M49	X		2.5
26	M49	Z	-50.497 0	2.5
27	M49	Mx		2.5
28	M48	X	27.446	2.5
29	M48	Z	-47.537	2.5
30	M48	Mx	0	4
31	MP2A	X	17.258	4
32	MP2A	Z	-29.892	4
33	MP2A	Mx	.0072	4
34	MP3A	X	17.258	4
35	MP3A	Z	-29.892	4
36	MP3A	Mx	.0072	4

## Member Point Loads (BLC 5 : Antenna Wo (60 Deg))

	r Point Loads (BL	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	Member Label	X	81.925	.5
	MP4A	+ - <del>Z</del>	-47.299	.5
2	MP4A	Mx	0546	.5
3	MP4A	X	81.925	4.5
4	MP4A	Z	-47.299	4.5
5	MP4A		0546	4.5
6	MP4A	Mx V	37.639	1.5
7	MP1A	X Z	-21.731	1.5
8	MP1A		0094	1.5
9	MP1A	Mx	37.639	3.5
10	MP1A	<u>X</u>	-21.731	3.5
11	MP1A	Z		3.5
12	MP1A	Mx	0094	.75
13	MP2A	X	139.411	.75
14	MP2A	Z	-80.489	.75
15	MP2A	Mx	0929	4.25
16	MP2A	X	139.411	4.25
17	MP2A	Z	-80.489	
18	MP2A	Mx	0929	4.25
19	MP3A	X	139.411	.75
20	MP3A	Z	-80.489	.75
21	MP3A	Mx	0929	.75
22	MP3A	X	139.411	4.25
23	MP3A	Z	-80.489	4.25
24	MP3A	Mx	0929	4.25
25	M49	X	41.462	2.5



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
26	M49	Z	-23.938	2.5
27	M49	Mx	0	2.5
28	M48	X	35.137	2.5
29	M48	Z	-20.286	2.5
30	M48	Mx	0	2.5
31	MP2A	X	17.283	4
32	MP2A	Z	-9.978	1
33	MP2A	Mx	.0072	4
34	MP3A	X	17.283	4
35	MP3A	Z	-9.978	4
36	MP3A	Mx	.0072	4

Member Point Loads (BLC 6 : Antenna Wo (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	83.742	5
2	MP4A	Z	0	.5
3	MP4A	Mx	0558	.5
4	MP4A	X	83.742	4.5
5	MP4A	Z	0	4.5
6	MP4A	Mx	0558	4.5
7	MP1A	X	29.447	1.5
8	MP1A	Z	0	1.5
9	MP1A	Mx	0074	1.5
10	MP1A	X	29.447	3.5
11	MP1A	Z	0	3.5
12	MP1A	Mx	0074	3.5
13	MP2A	X	125.423	.75
14	MP2A	Z	0	.75
15	MP2A	Mx	0836	.75
16	MP2A	X	125.423	4.25
17	MP2A	Z	0	4.25
18	MP2A	Mx	0836	4.25
19	MP3A	X	125.423	.75
20	MP3A	Z	0	.75
21	MP3A	Mx	0836	.75
22	MP3A	X	125.423	4.25
23	MP3A	Z	0	4.25
24	MP3A	Mx	0836	4.25
25	M49	X	45.949	2.5
26	M49	Z	0	2.5
27	M49	Mx	0	2.5
28	M48	X	37.926	2.5
29	M48	Z	0	2.5
30	M48	Mx	0	2.5
31	MP2A	X	12.677	4
32	MP2A	Z	0	4
33	MP2A	Mx	.0053	4
34	MP3A	X	12.677	4
35	MP3A	Z	0	4
36	MP3A	Mx	.0053	4

Member Point Loads (BLC 7 : Antenna Wo (120 Deg))

	Member Label	Direction	Magnitude[lb.k-ft]	Location[ft,%]
1	MP4A	X	81.925	5
2	MP4A	Z	47.299	.5
3	MP4A	Mx	0546	5

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Point Loads (BLC 7 : Antenna Wo (120 Deg)) (Continued)

		Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	Member Label MP4A	X	81.925	4.5
4	MP4A	Z	47.299	4.5
5		Mx	0546	4.5
6	MP4A	X	37.639	1.5
7	MP1A	Z	21.731	1.5
8	MP1A	Mx	0094	1.5
9	MP1A	X	37.639	3.5
10	MP1A	Z	21.731	3.5
11	MP1A	Mx	0094	3.5
12	MP1A	X	139.411	.75
13	MP2A	Ž	80.489	.75
14	MP2A	Mx	0929	.75
15	MP2A	X	139.411	4.25
16	MP2A	Z	80.489	4.25
17	MP2A	Mx	0929	4.25
18	MP2A	X	139.411	.75
19	MP3A	Ž	80.489	.75
20	MP3A	Mx	0929	.75
21	MP3A	X	139.411	4.25
22	MP3A		80.489	4.25
23	MP3A		0929	4.25
24	MP3A	Mx	47.158	2.5
25	M49	X	27.227	2.5
26	M49		0	2.5
27	M49	Mx	42.954	2.5
28	M48	X	24.8	2.5
29	M48		0	2.5
30	M48	Mx	17.283	4
31	MP2A	<u> </u>	9.978	4
32	MP2A	Z	.0072	4
33	MP2A	Mx	17.283	4
34	MP3A	X		4
35	MP3A	Z	9.978 .0072	4
36	MP3A	Mx	.0072	7

# Member Point Loads (BLC 8 : Antenna Wo (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	MP4A	X	58.156	.5
	MP4A	Z	100.729	.5
2	MP4A	Mx	0388	.5
3	MP4A	X	58.156	4.5
4	MP4A	Z	100.729	4.5
5	MP4A	Mx	0388	4.5
6		X	35.746	1.5
7	MP1A	Z	61.913	1.5
8	MP1A	Mx	0089	1.5
9	MP1A	X	35.746	3.5
10	MP1A	Z	61.913	3.5
11	MP1A	Mx	0089	3.5
12	MP1A	X	116.044	.75
13	MP2A		200.994	.75
14	MP2A	Mx	0774	.75
15	MP2A	X	116.044	4.25
16	MP2A		200.994	4.25
17	MP2A		0774	4.25
18	MP2A	Mx	116.044	.75
19	MP3A	X	200.994	.75
20	MP3A	Z	200.334	



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft.%]
21	MP3A	Mx	0774	.75
22	MP3A	X	116.044	4.25
23	MP3A	Z	200.994	4.25
24	MP3A	Mx	0774	4.25
25	M49	X	32.443	2.5
26	M49	Z	56.193	2.5
27	M49	Mx	0	2.5
28	M48	X	31.959	2.5
29	M48	Z	55.355	2.5
30	M48	Mx	0	2.5
31	MP2A	X	17.258	1
32	MP2A	Z	29.892	1
33	MP2A	Mx	.0072	1
34	MP3A	X	17.258	4
35	MP3A	Z	29.892	1
36	MP3A	Mx	.0072	4

Member Point Loads (BLC 9 : Antenna Wo (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
_1	MP4A	X	0	.5
2	MP4A	Z	127.169	.5
3	MP4A	Mx	0	.5
4	MP4A	X	0	4.5
5	MP4A	Z	127.169	4.5
6	MP4A	Mx	0	4.5
7	MP1A	X	0	1.5
8	MP1A	Z	85.506	1.5
9	MP1A	Mx	0	1.5
10	MP1A	X	0	3.5
11	MP1A	Z	85.506	3.5
12	MP1A	Mx	0	3.5
13	MP2A	X	0	.75
14	MP2A	Z	267.643	.75
15	MP2A	Mx	0	.75
16	MP2A	X	Ŏ.	4.25
17	MP2A	Z	267.643	4.25
18	MP2A	Mx	0	4.25
19	MP3A		0	.75
20	MP3A	X	267.643	.75
21	MP3A	Mx	0	.75
22	MP3A	X	Ö	4.25
23	MP3A	Z	267.643	4.25
24	MP3A	Mx	0	4.25
25	M49		0	2.5
26	M49	X	66.814	2.5
27	M49	Mx	0	2.5
28	M48	X	0	2.5
29	M48	Z	66.565	2.5
30	M48	Mx	0	2.5
31	MP2A	X	0	4
32	MP2A	7	41.796	4
33	MP2A	Mx	0	4
34	MP3A	X	0	4
35	MP3A	Z	41.796	4
36	MP3A	Mx	0	4

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

Member Point Loads (BLC 10 : Antenna Wo (210 Deg))

	r Point Loads (BL Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-58.156	.5
1	MP4A	Ž	100.729	.5
2 3	MP4A	Mx	.0388	.5
	MP4A	X	-58.156	4.5
4	MP4A	Z	100.729	4.5
5	MP4A	Mx	.0388	4.5
7	MP1A	X	-35.746	1.5
	MP1A	Z	61.913	1.5
8	MP1A	Mx	.0089	1.5
9	MP1A	X	-35.746	3.5
10		Z	61.913	3.5
11	MP1A MP1A	Mx	.0089	3.5
12		X	-116.044	.75
13	MP2A	7	200.994	.75
14	MP2A	Mx	.0774	.75
15	MP2A	X	-116.044	4.25
16	MP2A	Z	200.994	4.25
17	MP2A	Mx	.0774	4.25
18	MP2A	X	-116.044	.75
19	MP3A		200.994	.75
20	MP3A	Mx	.0774	.75
21	MP3A	X	-116.044	4.25
22	MP3A	Ž	200.994	4.25
23	MP3A	Mx	.0774	4.25
24	MP3A	X	-29.155	2.5
25	M49	Ž	50.497	2.5
26	M49	Mx	0	2.5
27	M49	X	-27.446	2.5
28	M48	- <del>                                    </del>	47.537	2.5
29	M48	Mx	0	2.5
30	M48	X	-17.258	4
31	MP2A	Z	29.892	4
32	MP2A		0072	4
33	MP2A	Mx	-17.258	4
34	MP3A	X	29.892	4
35	MP3A		0072	4
36	MP3A	Mx	0072	L

Member Point Loads (BLC 11 : Antenna Wo (240 Deg))

	r Point Loads (BL Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	MP4A	X	-81.925	5
1 -	MP4A	Z	47.299	.5
2	MP4A	Mx	.0546	.5
3	MP4A	X	-81.925	4.5
4	MP4A	Z	47.299	4.5
5	MP4A	Mx	.0546	4.5
6	MP1A	X	-37.639	1.5
		7	21.731	1.5
8	MP1A	Mx	.0094	1.5
9	MP1A	X	-37.639	3.5
10	MP1A	Z	21.731	3.5
11	MP1A	Mx	.0094	3.5
12	MP1A	X	-139.411	.75
13	MP2A	Ž	80.489	.75
14	MP2A	Mx	.0929	.75
15	MP2A	X	-139.411	4.25
16	MP2A	Z	80.489	4.25
17	MP2A		00.100	



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

Member Point Loads (BLC 11 : Antenna Wo (240 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
18	MP2A	Mx	.0929	4.25
19	MP3A	X	-139.411	.75
20	MP3A	Z	80.489	.75
21	MP3A	Mx	.0929	.75
22	MP3A	X	-139.411	4.25
23	MP3A	Z	80.489	4.25
24	MP3A	Mx	.0929	4.25
25	M49	X	-41.462	2.5
26	M49	Z	23.938	2.5
27	M49	Mx	0	2.5
28	M48	X	-35.137	2.5
29	M48	Z	20.286	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-17.283	4
32	MP2A	Z	9.978	4
33	MP2A	Mx	0072	4
34	MP3A	X	-17.283	4
35	MP3A	Z	9.978	4
36	MP3A	Mx	0072	4

Member Point Loads (BLC 12 : Antenna Wo (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-83.742	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	.0558	.5
4	MP4A	X	-83.742	4.5
5	MP4A	Z	0	4.5
6	MP4A	Mx	.0558	4.5
7	MP1A	X	-29.447	1.5
8	MP1A	Z	- 0	1.5
9	MP1A	Mx	.0074	1.5
10	MP1A		-29.447	3.5
11	MP1A	X	0	3.5
12	MP1A	Mx	.0074	3.5
13	MP2A	X	-125.423	.75
14	MP2A	Z	0	.75
15	MP2A	Mx	.0836	.75
16	MP2A	X	-125.423	4.25
17	MP2A	Ž	0	4.25
18	MP2A	Mx	.0836	4.25
19	MP3A	X	-125.423	.75
20	MP3A	Z	0	.75
21	MP3A	Mx	.0836	.75
22	MP3A	X	-125.423	4.25
23	MP3A	Z	0	4.25
24	МРЗА	Mx	.0836	4.25
25	M49	X	-45.949	2.5
26	M49	Z	0	2.5
27	M49	Mx	0	2.5
28	M48	X	-37.926	2.5
29	M48	Z	0	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-12.677	4
32	MP2A	Z	0	4
33	MP2A	Mx	0053	
34	MP3A	X	-12.677	4



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

Member Point Loads (BLC 12 : Antenna Wo (270 Deg)) (Continued)

111011110	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
35	MP3A	Z	0	4
36	MP3A	Mx	0053	4

Member Point Loads (BLC 13 : Antenna Wo (300 Deg))

	Member Label	C 13 : Antenna VI	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-81.925	.5
2	MP4A	Z	-47.299	.5
3	MP4A	Mx	.0546	.5
	MP4A	X	-81.925	4.5
4	MP4A	Z	-47.299	4.5
5	MP4A	Mx	.0546	4.5
7	MP1A	X	-37.639	1.5
	MP1A	Z	-21.731	1.5
8	MP1A	Mx	.0094	1.5
9	MP1A	X	-37.639	3.5
10	MP1A	Z	-21.731	3.5
11	MP1A	Mx	.0094	3,5
12	MP2A	X	-139.411	.75
13	MP2A	Ž	-80.489	.75
14	MP2A MP2A	Mx	.0929	.75
15		X	-139.411	4.25
16	MP2A	Z	-80.489	4.25
17	MP2A	Mx	.0929	4.25
18	MP2A	X	-139.411	.75
19	MP3A	Z	-80.489	.75
20	MP3A	Mx	.0929	.75
21	MP3A		-139.411	4.25
22	MP3A	X	-80.489	4.25
23	MP3A	Mx	.0929	4.25
24	MP3A	X	-47.158	2.5
25	M49	ż	-27.227	2.5
26	M49	and the same of th	0	2.5
27	M49	Mx X	-42.954	2.5
28	M48	Z	-24.8	2.5
29	M48		0	2.5
30	M48	Mx	-17.283	4
31	MP2A	X	-9.978	4
32	MP2A	Z	0072	4
33	MP2A	Mx	-17.283	4
34	MP3A	X	-9.978	4
35	MP3A	Z	0072	4
36	MP3A	Mx	0072	

Member Point Loads (BLC 14 : Antenna Wo (330 Deg))

RISA-3D Version 17.0.4

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft.%]
4	MP4A	X	-58.156	.5
2	MP4A	7	-100.729	.5
3	MP4A	Mx	.0388	.5
4	MP4A	X	-58.156	4.5
5	MP4A	7	-100.729	4.5
	MP4A	Mx	.0388	4.5
6	MP1A	X	-35.746	1.5
0	MP1A	7	-61.913	1.5
8	MP1A	Mx	.0089	1.5
9		X	-35.746	3.5
10	MP1A	7	-61.913	3.5
11	MP1A MP1A	Mx	.0089	3.5

: Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

## Member Point Loads (BLC 14 : Antenna Wo (330 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft.%]
13	MP2A	X	-116.044	.75
14	MP2A	Z	-200.994	.75
15	MP2A	Mx	.0774	.75
16	MP2A	X	-116.044	4.25
17	MP2A	Z	-200,994	4.25
18	MP2A	Mx	.0774	4.25
19	MP3A	X	-116.044	.75
20	MP3A	Z	-200.994	.75
21	MP3A	Mx	.0774	.75
22	MP3A	X	-116.044	4.25
23	MP3A	Z	-200.994	4.25
24	MP3A	Mx	.0774	4.25
25	M49	X	-32.443	2.5
26	M49	Z	-56.193	2.5
27	M49	Mx	0	2.5
28	M48	X	-31.959	2.5
29	M48	Z	-55.355	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-17.258	4
32	MP2A	Z	-29.892	4
33	MP2A	Mx	0072	4
34	MP3A	X	-17.258	4
35	MP3A	Z	-29.892	4
36	MP3A	Mx	0072	4

#### Member Point Loads (BLC 15 : Antenna Wi (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	-26.225	.5
3	MP4A	Mx	0	.5
4	MP4A	X	0	4.5
5	MP4A	Z	-26.225	4.5
6	MP4A	Mx	0	4.5
7	MP1A	X	0	1.5
8	MP1A	Z	-21.366	1.5
9	MP1A	Mx	0	1.5
10	MP1A	X	0	3.5
11	MP1A	Z	-21.366	3.5
12	MP1A	Mx	0	3.5
13	MP2A	X	0	.75
14	MP2A	Z	-52.091	.75
15	MP2A	Mx	0	.75
16	MP2A	X	0	4.25
17	MP2A	Z	-52.091	4.25
18	MP2A	Mx	0	4.25
19	MP3A	X	0	.75
20	MP3A	Z	-52.091	.75
21	MP3A	Mx	0	.75
22	MP3A	X	Ö	4.25
23	MP3A	Z	-52.091	4.25
24	MP3A	Mx	0	4.25
25	M49	X	0	2.5
26	M49	Z	-18.324	2.5
27	M49	Mx	0	2.5
28	M48	X	0	2.5
29	M48	Z	-18.263	2.5



Colliers Engineering & Design

Project # 23777087 : Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

Member Point Loads (BLC 15 : Antenna Wi (0 Deg)) (Continued)

CHINO.	1 Ome Louis 122	Direction	Magnitude[lb,k-ft]	Location[ft.%]
	Member Label		0	2.5
0	M48	Mx	0	4
31	MP2A	X		
32	MP2A	Z	-10.497	
23	MP2A	Mx	0	4
14	MP3A	X	0	4
4		7	-10.497	4
33 34 35	MP3A	200	0	4
36	MP3A	Mx	<u> </u>	

Member Point Loads (BLC 16 : Antenna Wi (30 Deg))

	r Point Loads (BL Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	MP4A	X	12.113	
2	MP4A	Ž	-20.98	.5
3	MP4A	Mx	0081	.5
	MP4A	X	12.113	4.5
4	MP4A	Z	-20.98	4.5
5	MP4A	Mx	0081	4.5
6	MP1A	X	9.2	1.5
7	MP1A	Ž	-15.935	1.5
8	MP1A	Mx	0023	1.5
9	MP1A	X	9.2	3.5
10			-15.935	3.5
11	MP1A	Mx	0023	3.5
12	MP1A	X	22.854	.75
13	MP2A	Ž	-39.584	.75
14	MP2A	Mx	0152	.75
15	MP2A	X	22.854	4.25
16	MP2A	Z	-39.584	4.25
17	MP2A	Mx	0152	4.25
18	MP2A		22.854	.75
19	MP3A	X	-39.584	.75
20	MP3A	Mx	0152	.75
21	MP3A		22.854	4.25
22	MP3A	X	-39.584	4.25
23	MP3A		0152	4.25
24	MP3A	Mx	8.134	2.5
25	M49	X	-14.089	2.5
26	M49	Z	0	2.5
27	M49	Mx	7.713	2.5
28	M48	X	-13.359	2.5
29	M48	Z	-13.359	2.5
30	M48	Mx	4.482	4
31	MP2A	<u>X</u>		4
32	MP2A	Z	-7.763	4
33	MP2A	Mx	.0019	4
34	MP3A	X	4.482	4
35	MP3A	Z	-7.763	4
36	MP3A	Mx	.0019	4

Member Point Loads (BLC 17 : Antenna Wi (60 Deg))

	FOIR LOADS (DL	Direction	Magnitude[lb,k-ft]	Location[ft,%]
	Member Label	Direction	17.518	.5
	MP4A	X		5
)	MP4A	Z	-10.114	.3
		Mx	0117	.5
ii.	MP4A	V	17.518	4.5
	MP4A			4.5
	MP4A	Z	-10.114	
	MP4A	Mx	0117	4.5
		V	10.799	1.5
	MP1A	Χ	10.799	

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

## Member Point Loads (BLC 17 : Antenna Wi (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft.%]
8	MP1A	Z	-6.235	1.5
9	MP1A	Mx	0027	1.5
10	MP1A	X	10.799	3.5
11	MP1A	Z	-6.235	3.5
12	MP1A	Mx	0027	3.5
13	MP2A	X	28.528	.75
14	MP2A	Z	-16.47	.75
15	MP2A	Mx	019	.75
16	MP2A	X	28.528	4.25
17	MP2A	Z	-16.47	4.25
18	MP2A	Mx	019	4.25
19	MP3A	X	28.528	.75
20	MP3A	Z	-16.47	.75
21	MP3A	Mx	019	.75
22	MP3A	X	28.528	4.25
23	MP3A	Z	-16.47	4.25
24	MP3A	Mx	019	4.25
25	M49	X	11.905	2.5
26	M49	Z	-6.873	2.5
27	M49	Mx	0.010	2.5
28	M48	X	10.345	2.5
29	M48	Z	-5.973	2.5
30	M48	Mx	0.070	2.5
31	MP2A	X	5.108	4
32	MP2A	Z	-2.949	4
33	MP2A	Mx	.0021	4
34	MP3A	X	5.108	4
35	MP3A	Z	-2.949	4
36	MP3A	Mx	.0021	4

### Member Point Loads (BLC 18 : Antenna Wi (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	18.229	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	0122	.5
4	MP4A	X	18.229	4.5
5	MP4A	Z	0	4.5
6	MP4A	Mx	0122	4.5
7	MP1A	X	9.505	1.5
8	MP1A	Z	0	1.5
9	MP1A	Mx	0024	1.5
10	MP1A	X	9.505	3.5
11	MP1A	Z	0	3.5
12	MP1A	Mx	0024	3.5
13	MP2A	X	26.558	.75
14	MP2A	Z	0	.75
15	MP2A	Mx	0177	.75
16	MP2A	X	26.558	4.25
17	MP2A	Z	0	4.25
18	MP2A	Mx	0177	4.25
19	MP3A	X	26.558	.75
20	MP3A	Z	0	.75
21	MP3A	Mx	0177	.75
22	MP3A	X	26.558	4.25
23	MP3A	Z	0	4.25
24	MP3A	Mx	0177	4.25

# Member Point Loads (BLC 18 : Antenna Wi (90 Deg)) (Continued)

TOTTING		Direction	Magnitude[lb,k-ft]	Location[ft,%]
	Member Label	Direction	13.28	2.5
25	M49		0	2.5
26	M49	Z		2.5
27	M49	Mx	0	
28	M48	X	11.302	2.5
	1192 (0.15) (1.15)	7	0	2.5
29	M48	My	0	2.5
30	M48	Mx	4.365	4
31	MP2A	X	4.303	1
32	MP2A	Z	0	7
33	MP2A	Mx	.0018	4
	MP3A	X	4.365	4
34		7	0	4
35	MP3A		0019	4
36	MP3A	Mx	.0018	

## Member Point Loads (BLC 19 : Antenna Wi (120 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	MP4A	X	17.518	.5
2	MP4A	Z	10.114	.5
2	MP4A	Mx	0117	.5
3	MP4A	X	17.518	4.5
4	MP4A	Z	10.114	4.5
5	MP4A	Mx	0117	4.5
6	MP1A	X	10.799	1.5
7	MP1A	Z	6.235	1.5
8	MP1A MP1A	Mx	0027	1,5
9		X	10.799	3.5
10	MP1A	Z	6.235	3.5
11	MP1A	Mx	0027	3.5
12	MP1A	X	28.528	.75
13	MP2A	Ž	16.47	.75
14	MP2A	Mx	019	.75
15	MP2A	X	28.528	4.25
16	MP2A	- ^	16.47	4.25
17	MP2A	Mx	019	4.25
18	MP2A	X	28.528	.75
19	MP3A	Ž	16.47	.75
20	MP3A		019	.75
21	MP3A	Mx	28.528	4.25
22	MP3A	X	16.47	4.25
23	MP3A	Z	019	4.25
24	MP3A	Mx	13.282	2.5
25	M49	<u>x</u>	7.668	2.5
26	M49	Z	0	2,5
27	M49	Mx	12.245	2.5
28	M48	X	7.07	2.5
29	M48		0	2.5
30	M48	Mx	5.108	4
31	MP2A	X	2.949	4
32	MP2A	Z		4
33	MP2A	Mx	.0021	4
34	MP3A	X	5.108	4
35	MP3A	Z	2.949	4
36	MP3A	Mx	.0021	T

## Member Point Loads (BLC 20 : Antenna Wi (150 Deg))

CITIO	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4		X	12.113	.5
1	MP4A		20.98	.5
2	MP4A		20.30	

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis

## Member Point Loads (BLC 20 : Antenna Wi (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
3	MP4A	Mx	0081	.5
4	MP4A	X	12.113	4.5
5	MP4A	Z	20.98	4.5
6	MP4A	Mx	0081	4.5
7	MP1A	X	9.2	1.5
8	MP1A	Z	15.935	1.5
9	MP1A	Mx	0023	1.5
10	MP1A	X	9.2	3.5
11	MP1A	Z	15.935	3.5
12	MP1A	Mx	0023	3.5
13	MP2A	X X	22.854	.75
14	MP2A	Ž	39.584	.75
15	MP2A	Mx	0152	.75
16	MP2A	X	22.854	
17	MP2A	Z	39.584	4.25
18	MP2A	Mx	0152	4.25
19	MP3A	X	22.854	4.25
20	MP3A	Z	39.584	.75
21	MP3A	Mx	0152	.75
22	MP3A	X	22.854	.75
23	MP3A	Z	39.584	4.25
24	MP3A	Mx	0152	4.25
25	M49	X	8.929	4.25
26	M49	Z	15.466	2.5
27	M49	Mx	0	2.5
28	M48	X	8.81	2.5
29	M48	Z	15.259	2.5
30	M48	Mx		2.5
31	MP2A	X	0	2.5
32	MP2A	Z	4.482	4
33	MP2A	Mx	7.763	4
34	MP3A	X	.0019	4
35	MP3A	Z - Z	4.482	4
36	MP3A	Mx	7.763	4
	INIT OA	IVIX	.0019	4

## Member Point Loads (BLC 21 : Antenna Wi (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	26.225	.5
3	MP4A	Mx	0	.5
4	MP4A	X	0	4.5
5	MP4A	Z	26.225	4.5
6	MP4A	Mx	0	4.5
7	MP1A	X	0	1.5
8	MP1A	Z	21.366	1.5
9	MP1A	Mx	0	1.5
10	MP1A	X	0	3.5
11	MP1A	Z	21.366	3.5
12	MP1A	Mx	0	3.5
13	MP2A	X	0	.75
14	MP2A	Z	52.091	.75
15	MP2A	Mx	0	.75
16	MP2A	X	Ö	4.25
17	MP2A	Z	52.091	4.25
18	MP2A	Mx	0	4.25
19	MP3A	X	0	.75

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Point Loads (BLC 21 : Antenna Wi (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
20	MP3A	7	52.091	.75
20	MP3A	Mx	0	.75
21		X	0	4.25
22	MP3A	Z	52.091	4.25
23	MP3A	Mx	0	4.25
24	MP3A	X	0	2.5
25	M49	Z	18.324	2.5
26	M49		0	2.5
27	M49	Mx	0	2.5
28	M48	X		2.5
29	M48	Z	18.263	2.5
30	M48	Mx	0	
31	MP2A	X	0	4
32	MP2A	Z	10.497	4
33	MP2A	Mx	0	4
34	MP3A	X	0	4
35	MP3A	Z	10.497	4
36	MP3A	Mx	0	4

## Member Point Loads (BLC 22 : Antenna Wi (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-12.113	.5
2	MP4A	Z	20.98	.5
3	MP4A	Mx	.0081	.5
4	MP4A	X	-12.113	4.5
5	MP4A	Z	20.98	4.5
6	MP4A	Mx	.0081	4.5
7	MP1A	X	-9.2	1.5
8	MP1A	Z	15.935	1.5
9	MP1A	Mx	.0023	1.5
10	MP1A	X	-9.2	3.5
11	MP1A	Ž	15.935	3.5
12	MP1A	Mx	.0023	3.5
13	MP2A	X	-22.854	.75
14	MP2A	Ž	39.584	.75
15	MP2A	Mx	.0152	.75
	MP2A	X	-22.854	4.25
16 17	MP2A	<del>Z</del>	39.584	4.25
18	MP2A	Mx	.0152	4.25
	MP3A	X	-22.854	.75
19	MP3A	Z	39.584	.75
20	MP3A	Mx	.0152	.75
21	MP3A	X	-22.854	4.25
22		Z	39.584	4.25
23	MP3A	Mx	.0152	4.25
24	MP3A	X	-8.134	2.5
25	M49	Ż	14.089	2.5
26	M49	Mx	0	2.5
27	M49	X	-7.713	2.5
28	M48		13.359	2.5
29	M48	Mx	0	2.5
30	M48	X	-4.482	4
31	MP2A	Ž	7.763	4
32	MP2A		0019	4
33	MP2A	Mx	-4.482	4
34	MP3A	X	7.763	4
35	MP3A	Z	0019	4
36	MP3A	Mx	0019	

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

### Member Point Loads (BLC 23 : Antenna Wi (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-17.518	.5
2	MP4A	Z	10.114	.5
3	MP4A	Mx	.0117	.5
4	MP4A	X	-17.518	4.5
5	MP4A	Z	10.114	4.5
6	MP4A	Mx	.0117	4.5
7	MP1A	X	-10.799	1.5
8	MP1A	Z	6.235	1.5
9	MP1A	Mx	.0027	1.5
10	MP1A	X	-10,799	3.5
11	MP1A	Z	6.235	3.5
12	MP1A	Mx	.0027	3.5
13	MP2A	X	-28.528	.75
14	MP2A	Z	16.47	.75
15	MP2A	Mx	.019	.75
16	MP2A	X	-28.528	4.25
17	MP2A	Z	16.47	4.25
18	MP2A	Mx	.019	4.25
19	MP3A	X	-28.528	.75
20	MP3A	Z	16.47	.75
21	MP3A	Mx	.019	.75
22	MP3A	X	-28.528	4.25
23	MP3A	Z	16,47	4.25
24	MP3A	Mx	.019	4.25
25	M49	X	-11.905	2.5
26	M49	Z	6.873	2.5
27	M49	Mx	0	2.5
28	M48	X	-10.345	2.5
29	M48	Z	5.973	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-5.108	4
32	MP2A	Z	2.949	4
33	MP2A	Mx	0021	4
34	MP3A	X	-5.108	4
35	MP3A	Z	2.949	4
36	MP3A	Mx	0021	4

### Member Point Loads (BLC 24 : Antenna Wi (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-18.229	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	.0122	.5
4	MP4A	X	-18.229	4.5
5	MP4A	Z	0	4.5
6	MP4A	Mx	.0122	4.5
7	MP1A	X	-9.505	1.5
8	MP1A	Z	0	1.5
9	MP1A	Mx	.0024	1.5
10	MP1A	X	-9.505	3.5
11	MP1A	Z	0	3.5
12	MP1A	Mx	.0024	3.5
13	MP2A	X	-26.558	.75
14	MP2A	Z	0	.75
15	MP2A	Mx	.0177	.75
16	MP2A	X	-26.558	4.25
17	MP2A	Z	0	4.25

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

# Member Point Loads (BLC 24 : Antenna Wi (270 Deg)) (Continued)

O. TO	r Politi Loaus IDE	Direction	Magnitude[lb,k-ft]	Location[ft,%]
	Member Label	Mx	.0177	4.25
18	MP2A		-26.558	.75
19	MP3A	<u>X</u>	0	.75
20	MP3A	Z		.75
21	MP3A	Mx	.0177	4.25
22	MP3A	X	-26.558	4.25
23	MP3A	Z	0	4.25
24	MP3A	Mx	.0177	
25	M49	X	-13.28	2.5
26	M49	Z	0	2.5
27	M49	Mx	0	2.5
	M48	X	-11.302	2.5
28	M48	7	0	2.5
29		Mx	0	2.5
30	M48	X	-4.365	4
31	MP2A	7	0	4
32	MP2A		0018	4
33	MP2A	Mx	-4.365	4
34	MP3A	X	-4.365	4
35	MP3A	Z		4
36	MP3A	Mx	0018	

# Member Point Loads (BLC 25 : Antenna Wi (300 Deg))

011120	Pr Point Loads (BL Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	MP4A		-17.518	.5
1	MP4A	X	-10.114	.5
2	MP4A MP4A	Mx	.0117	.5
3		X	-17.518	4.5
4	MP4A	Z	-10.114	4.5
5	MP4A	Mx	.0117	4.5
6	MP4A	X	-10.799	1.5
7	MP1A	Ž	-6.235	1.5
8	MP1A	Mx	.0027	1.5
9	MP1A		-10.799	3.5
10	MP1A	X	-6.235	3.5
11	MP1A	Z	.0027	3.5
12	MP1A	Mx	-28.528	.75
13	MP2A	X	-16.47	.75
14	MP2A	Z	.019	.75
15	MP2A	Mx	-28.528	4.25
16	MP2A	X	-28.528 -16.47	4.25
17	MP2A	Z	.019	4.25
18	MP2A	Mx		.75
19	MP3A	X	-28.528	.75
20	MP3A	Z	-16.47	.75
21	MP3A	Mx	.019	4.25
22	MP3A	X	-28.528	4.25
23	MP3A	Z	-16.47	4.25
24	MP3A	Mx	.019	
25	M49	X	-13.282	2.5
26	M49	Z	-7.668	2.5
27	M49	Mx	0	2.5
28	M48	X	-12.245	2.5
	M48	Z	-7.07	2.5
29	M48	Mx	0	2.5
30	MP2A	X	-5.108	4
31	MP2A	Z	-2.949	4
32		Mx	0021	4
33	MP2A	X	-5.108	4
34	MP3A			



Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

Member Point Loads (BLC 25 : Antenna Wi (300 Deg)) (Continued)

	Member Label	Direction	Magnitudelib k-ftl	Location[ft.%]
35	MP3A	7	-2 949	Location[it,76]
36	MP3A	Mx	0021	4

Member Point Loads (BLC 26 : Antenna Wi (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-12.113	.5
2	MP4A	Z	-20.98	
3	MP4A	Mx	.0081	.5
4	MP4A	X	-12.113	4.5
5	MP4A	Z	-20.98	4.5
6	MP4A	Mx	.0081	4.5
7	MP1A	X	-9.2	1.5
8	MP1A	Z	-15.935	1.5
9	MP1A	Mx	.0023	1.5
10	MP1A	X	-9.2	3.5
11	MP1A	Z	-15.935	3.5
12	MP1A	Mx	.0023	3.5
13	MP2A	X	-22.854	.75
14	MP2A	Z	-39.584	.75
15	MP2A	Mx	.0152	.75
16	MP2A	X	-22.854	4.25
17	MP2A	Z	-39.584	4.25
18	MP2A	Mx	.0152	4.25
19	MP3A	X	-22.854	
20	MP3A	Z	-39.584	.75
21	MP3A	Mx	.0152	.75
22	MP3A	X	-22.854	4.25
23	MP3A	Z	-39.584	
24	MP3A	Mx	.0152	4.25 4.25
25	M49	X	-8.929	2.5
26	M49	Z	-15.466	2.5
27	M49	Mx	0	2.5
28	M48	X	-8.81	
29	M48	Z	-15.259	2.5 2.5
30	M48	Mx	0	2.5
31	MP2A	X	-4.482	
32	MP2A	Ž	-7.763	4
33	MP2A	Mx	0019	4
34	MP3A	X	-4.482	4
35	MP3A	Z	-7.763	4
36	MP3A	Mx	0019	4

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	5
2	MP4A	Z	-7.948	5
3	MP4A	Mx	0	.5
4	MP4A	X	Ŏ	4.5
5	MP4A	Z	-7.948	4.5
6	MP4A	Mx	0	4.5
7	MP1A	X	0	1.5
8	MP1A	Z	-5.344	1.5
9	MP1A	Mx	0	1.5
10	MP1A	X	Ŏ	
11	MP1A	7	-5.344	3.5 3.5
12	MP1A	Mx	0	3.5

Project # 23777087 Antenna Mount Analysis

Member Point Loads (BLC 27 : Antenna Wm (0 Deg)) (Continued)

	Mambas I abol	Direction	Magnitude[lb,k-ft]	Location[ft,%]
10	Member Label	X	0	.75
13	MP2A	Ž	-16.728	.75
14	MP2A		0	.75
15	MP2A	Mx	Ů	4.25
16	MP2A	X	-16.728	4.25
17	MP2A	Z	-10.728	4.25
18	MP2A	Mx		.75
19	MP3A	X	0	.75
20	MP3A	Z	-16.728	.75
21	MP3A	Mx	0	4.25
22	MP3A	X	0	
23	MP3A	Z	-16.728	4.25
24	MP3A	Mx	0	4.25
25	M49	X	0	2.5
26	M49	Z	-4.176	2.5
27	M49	Mx	0	2.5
28	M48	X	0	2.5
29	M48	Z	-4.16	2.5
	M48	Mx	0	2.5
30	MP2A	X	0	4
31		Z	-2.612	4
32	MP2A	Mx	0	4
33	MP2A	X	0	4
34	MP3A		-2.612	4
35	MP3A	Z	0	4
36	MP3A	Mx		

Member Point Loads (BLC 28 : Antenna Wm (30 Deg))

	r Point Loads (BL	Direction	Magnitude[lb,k-ft]	Location[ft,%]
4	Member Label MP4A	X	3.635	.5
1 -		Z	-6.296	.5
2	MP4A	Mx	0024	.5
3	MP4A	X	3.635	4.5
4	MP4A	7	-6.296	4.5
5	MP4A	Mx	0024	4.5
6	MP4A	X	2.234	1.5
7	MP1A	Ž	-3.87	1.5
8	MP1A	Mx	000558	1.5
9	MP1A		2.234	3.5
10	MP1A	X	-3.87	3.5
11	MP1A		000558	3.5
12	MP1A	Mx	7.253	.75
13	MP2A	X	-12.562	.75
14	MP2A	Z	0048	.75
15	MP2A	Mx	7.253	4.25
16	MP2A	X		4.25
17	MP2A	Z	-12.562	4.25
18	MP2A	Mx	0048	.75
19	MP3A	X	7.253	.75
20	MP3A	Z	-12.562	.75
21	MP3A	Mx	0048	4.25
22	MP3A	X	7.253	4.25
23	MP3A	Z	-12.562	4.25
24	MP3A	Mx	0048	2.5
25	M49	X	1.822	2.5
26	M49	Z	-3.156	2.5
27	M49	Mx	0	
28	M48	X	1.715	2.5
29	M48	Z	-2.971	2.5



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

Member Point Loads (BLC 28 : Antenna Wm (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
30	M48	Mx	0	2.5
31	MP2A	X	1.079	4
32	MP2A	Z	-1.868	4
33	MP2A	Mx	.00045	1
34	MP3A	X	1.079	4
35	MP3A	Z	-1.868	4
36	MP3A	Mx	.00045	4

Member Point Loads (BLC 29 : Antenna Wm (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	5.12	.5
2	MP4A	Z	-2.956	.5
3	MP4A	Mx	0034	.5
4	MP4A	X	5,12	4.5
5	MP4A	Z	-2.956	4.5
6	MP4A	Mx	0034	4.5
7	MP1A	X	2.352	1.5
8	MP1A	Z	-1.358	1.5
9	MP1A	Mx	000588	1.5
10	MP1A	X	2.352	3.5
11	MP1A	Z	-1.358	3.5
12	MP1A	Mx	000588	3.5
13	MP2A	X	8.713	.75
14	MP2A	Z	-5.031	.75
15	MP2A	Mx	0058	.75
16	MP2A	X	8.713	4.25
17	MP2A	Z	-5.031	4.25
18	MP2A	Mx	0058	4.25
19	MP3A	X	8.713	.75
20	MP3A	Z	-5.031	.75
21	MP3A	Mx	0058	.75
22	MP3A	X	8.713	4.25
23	MP3A	Z	-5.031	4.25
24	MP3A	Mx	0058	4.25
25	M49	X	2.591	2.5
26	M49	Z	-1.496	2.5
27	M49	Mx	0	2.5
28	M48		2.196	2.5
29	M48	X Z	-1.268	2.5
30	M48	Mx	0	2.5
31	MP2A	X	1.08	4
32	MP2A	Ž	624	4
33	MP2A	Mx	.00045	4
34	MP3A		1.08	4
35	MP3A	X	624	4
36	MP3A	Mx	.00045	4

Member Point Loads (BLC 30 : Antenna Wm (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	5.234	5
2	MP4A	Z	0	5
3	MP4A	Mx	0035	5
4	MP4A	X	5.234	4.5
	MP4A	Z	0	A E
	MP4A	Mx	0035	4.5
7	MP1A	X	1.84	1.5



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

Member Point Loads (BLC 30 : Antenna Wm (90 Deg)) (Continued)

		Direction	Magnitude[lb.k-ft]	Location[ft,%]
0	Member Label	Z	0	1.5
8	MP1A	Mx	00046	1.5
9	MP1A	X	1.84	3.5
10	MP1A	Ž	0	3.5
11	MP1A	Mx	00046	3.5
12	MP1A	X	7.839	.75
13	MP2A	Ž	0	.75
14	MP2A	Mx	0052	.75
15	MP2A	X	7.839	4.25
16	MP2A	Z	0	4.25
17	MP2A		0052	4.25
18	MP2A	Mx	7.839	.75
19	MP3A	X Z	0	.75
20	MP3A		0052	.75
21	MP3A	Mx	7.839	4.25
22	MP3A	<u>X</u>	0	4.25
23	MP3A	Z	0052	4.25
24	MP3A	Mx	2.872	2.5
25	M49	X	0	2.5
26	M49	Z	0	2.5
27	M49	Mx	2.37	2.5
28	M48	X		2.5
29	M48	Z	0	2.5
30	M48	Mx		4
31	MP2A	X	.792	4
32	MP2A	Z	0	4
33	MP2A	Mx	.00033	4
34	MP3A	X	.792	4
35	MP3A	Z	0	4
36	MP3A	Mx	.00033	- 1

Member Point Loads (BLC 31 : Antenna Wm (120 Deg))

	r Point Loads (BL	Direction	Magnitude[lb,k-ft]	Location[ft,%]
	Member Label	X	5.12	.5
1	MP4A	Ž	2.956	.5
2	MP4A		0034	.5
3	MP4A	Mx	5.12	4.5
4	MP4A	X	2.956	4.5
5	MP4A		0034	4.5
6	MP4A	Mx	2.352	1.5
7	MP1A	X	1.358	1.5
8	MP1A			1.5
9	MP1A	Mx	000588	3.5
10	MP1A	X	2.352	3.5
11	MP1A	Z	1.358	3.5
12	MP1A	Mx	000588	.75
13	MP2A	X	8.713	.75
14	MP2A	Z	5.031	
15	MP2A	Mx	0058	.75
16	MP2A	X	8.713	4.25
17	MP2A	Z	5.031_	4.25
18	MP2A	Mx	0058	4.25
19	MP3A	X	8.713	.75
20	MP3A	Z	5.031	.75
21	MP3A	Mx	0058	.75
	MP3A	X	8.713	4.25
22	MP3A	Ž	5.031	4.25
23		Mx	0058	4.25
24	MP3A	Mx	0038	1120

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

Member Point Loads (BLC 31 : Antenna Wm (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
25	M49	X	2.947	2.5
26	M49	Z	1.702	2.5
27	M49	Mx	0	2.5
28	M48	X	2.685	2.5
29	M48	Z	1.55	2.5
30	M48	Mx	0	2.5
31	MP2A	X	1.08	1
32	MP2A	Z	.624	4
33	MP2A	Mx	.00045	4
34	MP3A	X	1.08	4
35	MP3A	7	.624	4
36	MP3A	Mx	.00045	4

Member Point Loads (BLC 32 : Antenna Wm (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	3.635	.5
2	MP4A	Z	6.296	.5
3	MP4A	Mx	0024	.5
4	MP4A	X	3.635	4.5
5	MP4A	Z	6.296	4.5
6	MP4A	Mx	0024	4.5
7	MP1A	X	2.234	1,5
8	MP1A	Z	3.87	1.5
9	MP1A	Mx	000558	1.5
10	MP1A	X	2.234	3.5
11	MP1A	Z	3.87	3.5
12	MP1A	Mx	000558	3.5
13	MP2A	X	7.253	.75
14	MP2A	Z	12.562	.75
15	MP2A	Mx	0048	.75
16	MP2A	X	7.253	4.25
17	MP2A	Z	12.562	4.25
18	MP2A	Mx	0048	4.25
19	MP3A	X	7.253	.75
20	MP3A	Z	12.562	.75
21	MP3A	Mx	0048	.75
22	MP3A	X	7.253	4.25
23	MP3A	Z	12.562	4.25
24	MP3A	Mx	0048	4.25
25	M49	X	2.028	2.5
26	M49	Z	3.512	2.5
27	M49	Mx	0	2.5
28	M48	X	1.997	2.5
29	M48	Ž	3.46	2.5
30	M48	Mx	0	
31	MP2A	X	1.079	2.5
32	MP2A	Z	1.868	4
33	MP2A	Mx Mx	.00045	
34	MP3A	X	1.079	4
35	MP3A	Z	1.868	4
36	MP3A	Mx	.00045	4

Member Point Loads (BLC 33 : Antenna Wm (180 Deg))

 Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
MP4A	X	0	5
MP4A	7	7.948	5

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

Member Point Loads (BLC 33 : Antenna Wm (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
2	MP4A	Mx	0	.5
3	MP4A	X	0	4.5
4		Z	7.948	4.5
5	MP4A	Mx	0	4.5
6	MP4A	X	Ö	1.5
7	MP1A	Ž	5.344	1.5
8	MP1A	Mx	0	1.5
9	MP1A	X	0	3.5
10	MP1A	Z	5.344	3.5
11	MP1A		0	3.5
12	MP1A	Mx	0	.75
13	MP2A	X	16.728	.75
14	MP2A	Z	0	.75
15	MP2A	Mx	0	4.25
16	MP2A	X	16.728	4.25
17	MP2A	Z		4.25
18	MP2A	Mx	0	.75
19	MP3A	X		.75
20	MP3A	Z	16.728	.75
21	MP3A	Mx	0	4.25
22	MP3A	X	0	4.25
23	MP3A		16.728	4.25
24	MP3A	Mx	0	2.5
25	M49	X	0	2.5
26	M49	Z	4.176	2.5
27	M49	Mx	0	2.5 2.5
28	M48	X	0	
29	M48	Z	4.16	2.5
30	M48	Mx	0	2.5
31	MP2A	X	0	4
32	MP2A	Z	2.612	4
33	MP2A	Mx	0	4
34	MP3A	X	0	4
35	MP3A	Z	2.612	4
36	MP3A	Mx	0	4

Member Point Loads (BLC 34 : Antenna Wm (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-3.635	.5
2	MP4A	Ž	6.296	.5
	MP4A	Mx	.0024	.5
3 4	MP4A	X	-3.635	4.5
	MP4A	Ž	6.296	4.5
5 6	MP4A	Mx	.0024	4.5
7	MP1A	X	-2.234	1.5
8	MP1A	Z	3.87	1.5
9	MP1A	Mx	.000558	1.5
10	MP1A	X	-2.234	3.5
11	MP1A	Z	3.87	3.5
	MP1A	Mx	.000558	3.5
12	MP2A	X	-7.253	.75
13	MP2A	Ž	12.562	.75
14	MP2A	Mx	.0048	.75
15	MP2A	X	-7.253	4.25
16	MP2A	<u>Z</u>	12.562	4.25
	MP2A	Mx	.0048	4.25
18 19	MP3A	X	-7.253	.75

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

### Member Point Loads (BLC 34 : Antenna Wm (210 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft.%]
20	MP3A	Z	12.562	.75
21	MP3A	Mx	.0048	.75
22	MP3A	X	-7.253	4.25
23	MP3A	Z	12.562	4.25
24	MP3A	Mx	.0048	4.25
25	M49	X	-1.822	2.5
26	M49	Z	3.156	2.5
27	M49	Mx	0	2.5
28	M48	X	-1.715	2.5
29	M48	Z	2.971	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-1.079	4
32	MP2A	Z	1.868	4
33	MP2A	Mx	00045	4
34	MP3A	X	-1.079	4
35	MP3A	Z	1.868	4
36	MP3A	Mx	00045	4

#### Member Point Loads (BLC 35 : Antenna Wm (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-5.12	.5
2	MP4A	Z	2.956	.5
3	MP4A	Mx	.0034	.5
4	MP4A	X	-5.12	4.5
5	MP4A	Z	2.956	4.5
6	MP4A	Mx	.0034	4.5
7	MP1A	X	-2.352	1.5
8	MP1A	Z	1.358	1.5
9	MP1A	Mx	.000588	1.5
10	MP1A	X	-2.352	3.5
11	MP1A	Z	1.358	3.5
12	MP1A	Mx	.000588	3.5
13	MP2A	X	-8.713	.75
14	MP2A	Z	5.031	.75
15	MP2A	Mx	.0058	.75
16	MP2A	X	-8.713	4.25
17	MP2A	Z	5.031	4.25
18	MP2A	Mx	.0058	4.25
19	MP3A	X	-8.713	.75
20	MP3A	Z	5.031	.75
21	MP3A	Mx	.0058	.75
22	MP3A	X	-8.713	4.25
23	MP3A	Z	5.031	4.25
24	MP3A	Mx	.0058	4.25
25	M49	X	-2.591	2.5
26	M49	Z	1.496	2.5
27	M49	Mx	0	2.5
28	M48	X	-2.196	2.5
29	M48	Z	1.268	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-1.08	4
32	MP2A	Z	.624	4
33	MP2A	Mx	00045	4
34	MP3A	X	-1.08	4
35	MP3A	Z	.624	4
36	MP3A	Mx	00045	4



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

Member Point Loads (BLC 36 : Antenna Wm (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-5.234	.5
2	MP4A	Z	0	.5
	MP4A	Mx	.0035	.5
3	MP4A	X	-5.234	4.5
4	MP4A	Z	0	4.5
5	MP4A	Mx	.0035	4.5
6	MP1A	X	-1.84	1.5
7	MP1A	Ž	0	1.5
8		Mx	.00046	1.5
9	MP1A	X	-1.84	3.5
10	MP1A	Z	0	3.5
11	MP1A	Mx	.00046	3.5
12	MP1A	X	-7.839	.75
13	MP2A	Ž	0	.75
14	MP2A	Mx	.0052	.75
15	MP2A	X	-7.839	4.25
16	MP2A	Ž	0	4.25
17	MP2A		.0052	4.25
18	MP2A	Mx	-7.839	.75
19	MP3A	X	0	.75
20	MP3A	Z	.0052	.75
21	MP3A	Mx	-7.839	4.25
22	MP3A	X	0	4.25
23	MP3A	Z	.0052	4.25
24	MP3A	Mx	-2.872	2.5
25	M49	X		2.5
26	M49	Z	0	2.5
27	M49	Mx		2.5
28	M48	X	-2.37	2.5
29	M48	Z	0	2.5
30	M48	Mx	0	4
31	MP2A	X	792	4
32	MP2A	Z	0	4
33	MP2A	Mx	00033	4
34	MP3A	X	792	
35	MP3A	Z	0	4 4
36	MP3A	Mx	00033	4

Member Point Loads (BLC 37 : Antenna Wm (300 Deg))

	er Point Loads (BL	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-5.12	5
	MP4A	Z	-2.956	.5
3	MP4A	Mx	.0034	.5
4	MP4A	X	-5.12	4.5
5	MP4A	Z	-2.956	4.5
	MP4A	Mx	.0034	4.5
6	MP1A	X	-2.352	1.5
	MP1A	Z	-1.358	1.5
8		Mx	.000588	1.5
9	MP1A MP1A	X	-2.352	3.5
10	The state of the s	<u>x</u>	-1.358	3.5
11	MP1A	Mx	.000588	3.5
12	MP1A	X	-8.713	.75
13	MP2A	Z	-5.031	.75
14	MP2A	Mx	.0058	.75
15	MP2A	X	-8.713	4.25
16	MP2A	Z	-5.031	4.25
17	MP2A		0.001	

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

### Member Point Loads (BLC 37 : Antenna Wm (300 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
18	MP2A	Mx	.0058	4.25
19	MP3A	X	-8.713	.75
20	MP3A	Z	-5.031	.75
21	MP3A	Mx	.0058	.75
22	MP3A	X	-8.713	4.25
23	MP3A	Z	-5.031	4.25
24	MP3A	Mx	.0058	4.25
25	M49	X	-2.947	2.5
26	M49	Z	-1.702	2.5
27	M49	Mx	0	2.5
28	M48	X	-2.685	2.5
29	M48	Z	-1.55	2.5
30	M48	Mx	0	2.5
31	MP2A	X	-1.08	2.5
32	MP2A	Z	624	4
33	MP2A	Mx	0045	4
34	MP3A	X	-1.08	4
35	MP3A	Z	624	4
36	MP3A	Mx	0045	4

#### Member Point Loads (BLC 38 : Antenna Wm (330 Deg))

	mber Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
	MP4A	X	-3.635	.5
	MP4A	Z	-6.296	.5
	MP4A	Mx	.0024	.5
4	MP4A	X	-3.635	4.5
5	MP4A	Z	-6.296	4.5
	MP4A	Mx	.0024	4.5
	MP1A	X	-2.234	1.5
8	MP1A	Z	-3.87	1.5
	MP1A	Mx	.000558	1.5
10	MP1A	X	-2.234	3.5
11	MP1A	Z	-3.87	3.5
12	MP1A	Mx	.000558	3.5
13	MP2A	X	-7.253	.75
14	MP2A	Z	-12.562	.75
15	MP2A	Mx	.0048	.75
	MP2A	X	-7.253	4.25
	MP2A	Z	-12.562	4.25
	MP2A	Mx	.0048	4.25
	МРЗА	X	-7.253	.75
	MP3A	Z	-12.562	.75
	MP3A	Mx	.0048	.75
	МРЗА	X	-7.253	4.25
	MP3A	Z	-12.562	4.25
	MP3A	Mx	.0048	4.25
	M49	X	-2.028	
	M49	Ž	-3.512	2.5
	M49	Mx	0	2.5
	M48	X	-1.997	2.5 2.5
	M48	Z	-3.46	
	M48	Mx	-3.46	2.5
	MP2A	X	-1.079	2.5
	MP2A	Ż		4
	MP2A	Mx	-1.868	4
	MP3A	X	00045	4
	WI JA	^	-1.079	4



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_

	Member Label	Direction	(m (330 Deg)) (Continued)  Magnitude[lb,k-ft]	Location[ft,%]
05	MP3A	Z	-1.868	4
6	MP3A	Mx	00045	4
	r Point Loads (BL			
CITIOC	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	Member Label	Y	-500	0
1	r Point Loads (BL Member Label M10	Direction Y	Magnitude[lb,k-ft] -500	Location[ft,%]
lembe	r Point Loads (BL Member Label	C 79 : Lv1)  Direction	Magnitude[lb,k-ft]	Location[ft,%] %50
lombo	M1 er Point Loads (BL	C 80 : L v2)		
embe	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-250	%100
	Member Label	C 81 : Antenna E	Magnitude[lb,k-ft]5869	Location[ft,%]
1	MP4A	My	000391	.5
_			,000001	
2	MP4A		0	.5
3	MP4A	Mz	· ·	.5 4.5
3 4	MP4A MP4A	Mz Y	5869	
3 4 5	MP4A MP4A MP4A	Mz Y My	5869 000391	4.5 4.5
3 4 5 6	MP4A MP4A MP4A MP4A	Mz Y My Mz	5869 000391 0	4.5 4.5 4.5
3 4 5 6 7	MP4A MP4A MP4A MP4A MP1A	Mz Y My Mz Y	-,5869 -,000391 0 -1.6816	4.5 4.5 4.5 1.5
3 4 5 6 7 8	MP4A MP4A MP4A MP4A MP1A MP1A	Mz Y My Mz Y My	-,5869 -,000391 0 -1,6816 -,00042	4.5 4.5 4.5 1.5
3 4 5 6 7 8 9	MP4A MP4A MP4A MP4A MP1A MP1A MP1A	Mz Y My Mz Y My Mz	-,5869 -,000391 0 -1,6816 -,00042	4.5 4.5 4.5 1.5 1.5
3 4 5 6 7 8 9	MP4A MP4A MP4A MP4A MP1A MP1A MP1A MP1A	Mz Y My Mz Y My Mz Y	5869 000391 0 -1.6816 00042 0 -1.6816	4.5 4.5 4.5 1.5 1.5 3.5
3 4 5 6 7 8 9	MP4A MP4A MP4A MP4A MP1A MP1A MP1A	Mz Y My Mz Y My Mz	-,5869 -,000391 0 -1,6816 -,00042	4.5 4.5 4.5 1.5 1.5

11	MP1A	My	00042	3.5
12	MP1A	Mz	0	3.5
13	MP2A	Y	-1.4943	.75
14	MP2A	My	000996	.75
15	MP2A	Mz	0	.75
16	MP2A	Y	-1.4943	4.25
17	MP2A	My	000996	4.25
18	MP2A	Mz	0	4.25
19	MP3A	Y	-1.4943	.75
20	MP3A	My	000996	.75
21	MP3A	Mz	0	.75
	MP3A	Y	-1.4943	4.25
22	MP3A	My	000996	4.25
	MP3A	Mz	0	4.25
24	M49	Y	-3.259	2.5
25	M49	Mv	0	2.5
26	M49	Mz	0	2.5
27	M48	Y	-2.7145	2.5
28	M48	My	0	2.5
29		Mz	0	2.5
30	M48	V	6796	4
31	MP2A	My	.000283	4
32	MP2A	Mz	0	4
33	MP2A	IVIZ		

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

#### Member Point Loads (BLC 81 : Antenna Ev) (Continued)

	Member Label	Direction	Magnitude[lb.k-ft]	Location[ft,%]
34	MP3A	Y	6796	4
35	MP3A	Mv	.000283	4
36	MP3A	Mz	0	4

#### Member Point Loads (BLC 82 : Antenna Eh (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Z	-1.4673	.5
2	MP4A	Mx	0	.5
3	MP4A	Z	-1.4673	4.5
4	MP4A	Mx	0	4.5
5	MP1A	Z	-4.204	1.5
6	MP1A	Mx	0	1.5
7	MP1A	Z	-4.204	3.5
8	MP1A	Mx	0	3.5
9	MP2A	Z	-3.7358	.75
10	MP2A	Mx	0	.75
11	MP2A	Z	-3.7358	4.25
12	MP2A	Mx	0	4.25
13	MP3A	Z	-3.7358	.75
14	MP3A	Mx	0	.75
15	MP3A	Z	-3.7358	4.25
16	MP3A	Mx	0	4.25
17	M49	Z	-8.1474	2.5
18	M49	Mx	0	2.5
19	M48	7	-6.7863	2.5
20	M48	Mx	0	2.5
21	MP2A	7	-1.699	4
22	MP2A	Mx	0	4
23	MP3A	Z	-1.699	4
24	MP3A	Mx	0	4

#### Member Point Loads (BLC 83 : Antenna Eh (90 Deg))

	Member Label	Direction	Magnitude[ib,k-ft]	Location[ft,%]
1	MP4A	X	1.4673	.5
2	MP4A	Mx	000978	.5
3	MP4A	X	1.4673	4.5
4	MP4A	Mx	000978	4.5
5	MP1A	X	4.204	1.5
6	MP1A	Mx	0011	1.5
7	MP1A	X	4.204	3.5
8	MP1A	Mx	0011	3.5
9	MP2A	X	3.7358	.75
10	MP2A	Mx	0025	.75
11	MP2A	X	3.7358	4.25
12	MP2A	Mx	0025	4.25
13	MP3A	X	3.7358	.75
14	MP3A	Mx	0025	.75
15	MP3A	X	3.7358	4.25
16	MP3A	Mx	0025	4.25
17	M49	X	8.1474	2.5
18	M49	Mx	0	2.5
19	M48	X	6.7863	2.5
20	M48	Mx	0	2.5
21	MP2A	X	1.699	4
22	MP2A	Mx	.000708	4
23	MP3A	X	1.699	4



Colliers Engineering & Design

Project # 23777087 Antenna Mount Ana Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

Member Point Loads (BLC 83 : Antenna Eh (90 Deg)) (Continued)

Menno	I I Ullit Loudo IDE		AND THE PARTY OF T	THE RESIDENCE OF THE PARTY OF T
	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
		Mx	.000708	4
24	MP3A	IVIA	.000,00	

Member Distributed Loads (BLC 40 : Structure Di)

	Member Label	Direction	Start Magnitude	.End Magnitude[l	Start Location[ft	.End Location[f
4	Member Laber	Y	-9.9045	-9.9045	0	%100
1	M2	Y	-9.9045	-9.9045	0	%100
2	M13	Y	-11.3609	-11.3609	0	%100
3	M14	Y	-11.3609	-11.3609	0	%100
4	M15	Y	-11.3609	-11.3609	0	%100
5	M16	Y	-11.3609	-11.3609	0	%100
6	M17	Ý	-8.8343	-8.8343	0	%100
7	M18	Ý	-8.8343	-8.8343	0	%100
8	M19	Ý	-8.8343	-8.8343	0	%100
9	M20	Ý	-8.8343	-8.8343	0	%100
10		Y	-11.3609	-11.3609	0	%100
11	M21	Y	-11.3609	-11.3609	0	%100
12	M22	Y	-11.3609	-11.3609	0	%100
13	M23	Y	-11.3609	-11.3609	0	%100
14	M24	<del>'</del>	-5.3558	-5.3558	0	%100
15	M25	<del></del>	-5.3558	-5.3558	0	%100
16	M26	V	-5.3558	-5.3558	0	%100
17	M27	Y	-5.3558	-5.3558	0	%100
18	M28		-8.8343	-8.8343	0	%100
19	M31		-8.8343	-8.8343	0	%100
20	MP4A	Y	-8.8343	-8.8343	0	%100
21	MP3A	V	-8.8343	-8.8343	0	%100
22	MP2A	T	-8.8343	-8.8343	Ō	%100
23	MP1A	Y	-5.0883	-5.0883	Ö	%100
24	M44			-5.0883	0	%100
25	M45	Y	-5.0883	-5.0883	0	%100
26	M46	Y	-5.0883	THE R. LEWIS CO., LANSING, MICH.	0	%100
27	M47	YY	-5.0883	-5.0883 -8.8343	0	%100
28	M48	Y	-8.8343		0	%100
29	M49	Y	-8.8343	-8.8343		70100

Member Distributed Loads (BLC 41 : Structure Wo (0 Deg))

	Member Label	Direction	Start Magnitude	End Magnitude[ISt	n	%100
1	M1	X	40.5474	-12.5171	0	%100
2	M1	Z	-12.5171		0	%100
3	M2	X	0	0	0	%100
4	M2	Z	-12.5171	-12.5171	0	%100
5	M13	X	0	0		%100
6	M13	Z	0	0	0	%100
7	M14	X	0	0	0	
8	M14	Z	0	0	0	%100
9	M15	X	0	0	0	%100
0	M15	Z	0	0	0	%100
	M16	X	0	0	00	%100
1	M16	Z	0	0	0	%100
2	M17	X	0	0	0	%100
3	M17	7	-4.942	-4.942	0	%100
4	M18	X	0	0	0	%100
5		7	-4.942	-4.942	0	%100
6	M18	X	0	0	0	%100
17	M19	7	-4.942	-4.942	0	%100
18	M19 M20	Y	0	0	0	%100

Colliers Engineering & Design

Project # 23777087
Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:

## Member Distributed Loads (BLC 41 : Structure Wo (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[l.	Start Location(ff	End Location#
20	M20		-4.942	-4.942	0	%100
21	<u>M21</u>	X	0	0	0	%100
22	M21	Z	-2.7211	-2.7211	Ö	%100
23	M22	X	0	0	Ö	%100
24	M22	Z	-2.7211	-2.7211	0	%100
25	M23	X	0	0	Ö	%100
26	M23	Z	-2.7211	-2.7211	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	-2.7211	-2.7211	Ö	%100
29	M25	X	0	0	0	%100
30	M25	Z	-2.8184	-2.8184	Ö	%100
31	M26	X	0	0	0	%100
32	M26	Z	-2.8184	-2.8184	0	%100
33	M27	X	0	0	0	%100
34	M27	Z	-2.8184	-2.8184	0	%100
35	M28	X	0	0	0	%100
36	M28	Z	-2.8184	-2.8184	Ö	%100
37	M31	X	0	0	0	%100
38	M31	Z	0364	0364	Ö	%100
39	MP4A	X	0	0	0	%100
40	MP4A	Z	-10.3402	-10.3402	Ö	%100
41	MP3A	X	0	0	0	%100
42	MP3A	Z	-10.3402	-10.3402	Ö	%100
43	MP2A	X	0	0	0	%100
44	MP2A	Z	-10.3402	-10.3402	Ö	%100 %100
45	MP1A	X	0	0	0	%100 %100
46	MP1A	Z	-10.3402	-10.3402	Ö	%100
47	M44	X	0	0	0	%100
48	M44	Z	-2.7211	-2.7211	0	%100
49	M45	X	0	0	0	%100
50	M45	Z	-2.7211	-2.7211	Ö	%100
51	M46	X	0	0	0	%100
52	M46	Z	-2.7211	-2.7211	0	%100
53	M47	X	0	0	0	%100
54	M47	Z	-2.7211	-2.7211	0	%100 %100
55	M48	X	0	0	0	%100
56	M48	Z	-10.3402	-10.3402	0	%100 %100
57	M49	X	0	0	0	%100 %100
58	M49	Z	-10.3402	-10.3402	0	%100

### Member Distributed Loads (BLC 42 : Structure Wo (30 Deg))

	Member Label	Direction	Start Magnitude.	.End Magnitude[I.	Start Location[ft	End Location(ft
_1	M1	X	4.6939	4.6939	0	%100
2	M1	Z	-8.1301	-8.1301	0	%100
3	M2	X	4.6939	4.6939	0	%100
4	M2	Z	-8.1301	-8.1301	0	%100
5	M13	X	.3401	.3401	0	%100 %100
6	M13	Z	5891	5891	0	%100
7	M14	X	.3401	.3401	0	%100
8	M14	Z	5891	5891	0	%100
9	M15	X	.3401	.3401	0	%100
10	M15	Z	5891	5891	0	%100
11	M16	X	.3401	.3401	0	%100
12	M16	Z	5891	5891	Ö	%100
13	M17	X	.5563	.5563	0	%100
14	M17	Z	9636	9636	Ö	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

# Member Distributed Loads (BLC 42 : Structure Wo (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	.End Magnitude[l.	Start Location[ft,	.End Location[ft,
15	M18	X	.5563	.5563	0	% 100
16	M18	Z	9636	9636	0	%100
17	M19	X	3.9078	3.9078	0	%100
	M19	Z	-6.7684	-6.7684	0	%100
18	M20	X	3.9078	3.9078	0	%100
19	M20	Z	-6.7684	-6.7684	0	%100
20	M21	X	1.0204	1.0204	0	%100
21	M21	Z	-1.7674	-1.7674	0	%100
22	M22	X	1.0204	1.0204	0	%100
23	M22	Z	-1.7674	-1.7674	0	%100
24		X	1.0204	1.0204	0	%100
25	M23	Z	-1.7674	-1.7674	0	%100
26	M23	X	1.0204	1.0204	0	%100
27	M24	Z	-1.7674	-1.7674	0	%100
28	M24	X	1.1268	1.1268	0	%100
29	M25	Ž	1.9517	-1.9517	0	%100
30	M25	X	1.1268	1.1268	0	%100
31	M26	Ž	-1.9517	-1.9517	0	%100
32	M26	X	1.6211	1.6211	0	%100
33	M27	Z	-2.8078	-2.8078	Ō	%100
34	M27		1.6211	1.6211	0	%100
35	M28	X	-2.8078	-2.8078	0	%100
36	M28	Z	1.0863	1.0863	0	%100
37	M31	X	-1.8815	-1.8815	0	%100
38	M31	Z	5.1701	5.1701	0	%100
39	MP4A	X		-8.9549	Ö	%100
40	MP4A	Z	-8.9549	5.1701	0	%100
41	MP3A	X	5.1701		0	%100
42	MP3A	Z	-8.9549	-8.9549 5.1701	0	%100
43	MP2A	X	5.1701		0	%100
44	MP2A	Z	-8.9549	-8.9549	0	%100
45	MP1A	X	5.1701	5.1701	0	%100
46	MP1A	Z	-8.9549	-8.9549	0	%100
47	M44	X	1.3606	1.3606	0	%100
48	M44	Z	-2.3565	-2.3565	0	%100
49	M45	X	1.3606	1,3606		%100
50	M45	Z	-2.3565	-2.3565	0	%100
51	M46	X	1.3606	1.3606	0	%100 %100
52	M46	Z	-2.3565	-2.3565	0	%100 %100
53	M47	X	1.3606	1.3606	0	%100
54	M47	Z	-2.3565	-2.3565	0	
55	M48	X	5.1701	5.1701	0	%100
56	M48	Z	-8.9549	-8.9549	0	%100
57	M49	X	5.1701	5.1701	0	%100
58	M49	Z	-8.9549	-8.9549	0	%100

# Member Distributed Loads (BLC 43 : Structure Wo (60 Deg))

Terriber L	//Stripated Louds (LLL)	Direction	Start Magnitude	End Magnitude[I.	.Start Location[ft,	End Location[ft,
	Member Label	X	2.71	2.71	0	%100
1	M1	7	-1.5646	-1.5646	0	%100
2	M1		2.71	2.71	0	%100
3	M2	7	-1.5646	-1.5646	0	%100
4	M2	<del></del>	1.7674	1.7674	0	%100
5	M13	7	-1.0204	-1.0204	0	%100
6	M13		1.7674	1.7674	0	%100
7	M14	<del></del>	-1.0204	-1.0204	0	%100
8	M14	X	1.7674	1.7674	0	%100
9	M15		1			

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

## Member Distributed Loads (BLC 43 : Structure Wo (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude(I	Start Location(ft	End Location(f)
10	M15	Z	-1.0204	-1.0204	O	%100
11	M16	X	1.7674	1.7674	0	%100
12	M16	Z	-1.0204	-1.0204	Ö	%100
13	M17	X	.1358	.1358	0	%100 %100
14	M17	Z	0784	0784	Ö	%100
15	M18	X	.1358	.1358	0	%100
16	M18	Z	0784	0784	Ö	%100
17	M19	X	5.9407	5.9407	Ö	%100
18	M19	Z	-3.4299	-3.4299	Ö	%100
19	M20	X	5.9407	5.9407	Ö	%100
20	M20	Z	-3.4299	-3.4299	0	%100
21	M21	X	.5891	.5891	Ö	%100
22	M21	Z	3401	3401	Ö	%100
23	M22	X	.5891	.5891	Ö	%100
24	M22	Z	3401	3401	Ō	%100
25	M23	X	.5891	.5891	0	%100
26	M23	Z	3401	3401	Ŏ	%100
27	M24	X	.5891	.5891	0	%100
28	M24	Z	3401	3401	Ö	%100
29	M25	X	1.8296	1.8296	0	%100
30	M25	Z	-1.0563	-1.0563	0	%100
31	M26	X	1.8296	1.8296	0	%100
32	M26	Z	-1.0563	-1.0563	0	%100
33	M27	X	2.6857	2.6857	0	%100
34	M27	Z	-1.5506	-1.5506	Ö	%100
35	M28	X	2.6857	2.6857	0	%100
36	M28	Z	-1.5506	-1.5506	0	%100
37	M31	X	6.3326	6.3326	0	%100
38	M31	Z	-3.6562	-3.6562	0	%100
39	MP4A	X	8.9549	8.9549	0	%100
40	MP4A	Z	-5.1701	-5.1701	0	%100
41	MP3A	X	8.9549	8.9549	0	%100
42	MP3A	Z	-5.1701	-5.1701	0	%100
43	MP2A	X	8.9549	8.9549	0	%100
44	MP2A	Z	-5.1701	-5.1701	0	%100
45	MP1A	X	8.9549	8.9549	0	%100
46	MP1A	Z	-5.1701	-5.1701	Ō	%100
47	M44	X	2.3565	2.3565	0	%100
48	M44	Z	-1.3606	-1.3606	0	%100
49	M45	X	2.3565	2.3565	0	%100
50	M45	Z	-1.3606	-1.3606	0	%100
51	M46	X	2.3565	2.3565	0	%100
52	M46	Z	-1.3606	-1.3606	0	%100
53	M47	X	2.3565	2.3565	0	%100
54	M47	Z	-1.3606	-1.3606	0	%100
55	M48	X	8.9549	8.9549	Ō	%100
56	M48	Z	-5.1701	-5.1701	0	%100
57	M49	X	8.9549	8.9549	0	%100
58	M49	Z	-5.1701	-5.1701	0	%100

### Member Distributed Loads (BLC 44 : Structure Wo (90 Deg))

	Member Label	Direction	Start Magnitude	End Magnitude[I.	Start Location(ft	End Location(ft
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	M2	X	0	0	0	%100
4	M2	Z	0	0	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

Member Distributed Loads (BLC 44 : Structure Wo (90 Deg)) (Continued)

	Member Label		Start Magnitude	.End Magnitude[I	Start Location[ft,.	,End Location[ft,
5	M13	X	2.7211	2.7211	0	%100 %100
6	M13	Z	0	0	0	%100
7	M14	X	2.7211	2.7211	0	%100 %100
8	M14	Z	0	0		%100
9	M15	X	2.7211	2.7211	0	%100
10	M15	Z	0	0		%100
11	M16	X	2.7211	2.7211	0	%100
12	M16	Z	0	0	0	%100
13	M17	X	3.0304	3.0304	0	%100
14	M17	Z	0	0	0	%100
15	M18	X	3.0304	3.0304	0	%100
16	M18	Z	0	0		%100
17	M19	X	3.0304	3.0304	0	%100
18	M19	Z	0	0		%100
19	M20	X	3.0304	3.0304	0	%100
20	M20	Z	0	0	0	%100
21	M21	X	0	0	0	%100
22	M21	Z	0	0	0	%100
23	M22	X	0	0	0	%100
24	M22	Z	0	0	0	%100
25	M23	X	0	0	0	%100
26	M23	Z	0	0	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	0	0	0	%100 %100
29	M25	X	2.5364	2.5364	0	%100
30	M25	Z	0	0	0	%100 %100
31	M26	X	2.5364	2.5364	0	%100
32	M26	Z	0	0	0	%100
33	M27	X	2.5364	2.5364	0	%100
34	M27	Z	0	0	0	%100
35	M28	X	2.5364	2.5364	0	%100
36	M28	Z	0	0	0	%100 %100
37	M31	X	10.3159	10.3159	0	%100
38	M31	Z	0	0	0	
39	MP4A	X	10.3402	10.3402	0	%100 %100
40	MP4A	Z	0	0	0	
41	MP3A	X	10.3402	10.3402	0	%100 %100
42	MP3A	Z	0	0	0	%100
43	MP2A	X	10.3402	10.3402	0	%100
44	MP2A	Z	0	0	0	%100
45	MP1A	X	10.3402	10.3402	0	%100 %100
46	MP1A	Z	0	0	0	%100 %100
47	M44	X	2.7211	2.7211	0	
48	M44	Z	0	0	0	%100
49	M45	X	2.7211	2.7211	0	%100
50	M45	Z	0	0	0	%100
51	M46	X	2.7211	2.7211	0	%100
52	M46	Z	0	0	0	%100
53	M47	X	2.7211	2.7211	0	%100
54	M47	Z	0	0	0	%100
55	M48	X	10.3402	10.3402	0	%100
56	M48	Z	0	0	0	%100
57	M49	X	10.3402	10.3402	0	%100
58	M49	Z	0	0	0	%100

Member Distributed Loads (BLC 45 : Structure Wo (120 Deg))



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

## Member Distributed Loads (BLC 45 : Structure Wo (120 Deg)) (Continued)

	Member Label		Start Magnitude			End Location(ft
1	M1	X	2.71	2.71	0	%100
2	M1	X Z	1.5646	1.5646	0	%100
3	M2	X	2.71	2.71	Ō	%100
4	M2	Z	1.5646	1.5646	0	%100
5	M13	X	1.7674	1.7674	0	%100
6	M13	Z	1.0204	1.0204	Ö	%100
7	M14	X	1.7674	1.7674	0	%100
8	M14	Z	1.0204	1.0204	Ö	%100
9	M15	X	1.7674	1.7674	0	%100
10	M15	Z	1.0204	1.0204	0	%100 %100
11	M16	X	1.7674	1.7674	0	%100
12	M16	Z	1.0204	1.0204	Ö	%100
13	M17	X	5.9407	5.9407	0	%100
14	M17	Z	3.4299	3.4299	0	%100 %100
15	M18	X	5.9407	5.9407	0	%100
16	M18	Z	3.4299	3.4299	Ö	%100
17	M19	X	.1358	.1358	0	%100
18	M19	Z	.0784	.0784	Ö	
19	M20	X	.1358	.1358	0	%100 %100
20	M20	Z	.0784	.0784	0	
21	M21	X	.5891	.5891		%100
22	M21	Z	.3401	.3401	0	%100
23	M22	X	.5891	.5891		%100
24	M22	Z	.3401		0	%100
25	M23	X	.5891	.3401 .5891	0	%100
26	M23	Z	.3401		0	%100
27	M24	X	.5891	.3401	0	%100
28	M24	Z	.3401	.5891	0	%100
29	M25	X	2.6857	.3401	0	%100
30	M25	Ž		2.6857	0	%100
31	M26	X	1.5506	1.5506	0	%100
32	M26	Ž	2.6857	2.6857	0	%100
33	M27		1.5506	1.5506	0	%100
34	M27	Z	1.8296	1.8296	0	%100
35	M28	X	1.0563	1.0563	0	%100
36	M28		1.8296	1.8296	0	%100
37	M31	Z	1.0563	1.0563	0	%100
38	M31	Z	7.0838	7.0838	0	%100
39	MP4A		4.0899	4.0899	0	%100
40	MP4A	X	8.9549	8.9549	0	%100
41	MP3A	Z	5.1701	5.1701	0	%100
42	MP3A	X	8.9549	8.9549	0	%100
43	MP2A	Z	5.1701	5.1701	0	%100
44	MP2A	Z	8.9549	8.9549	0	%100
45			5.1701	5.1701	0	%100
46	MP1A	X	8.9549	8.9549	0	%100
47	MP1A	Z	5.1701	5.1701	0	%100
48	M44	<u> </u>	2.3565	2.3565	0	%100
49	M44	Z	1.3606	1.3606	0	%100
50	M45	X	2.3565	2.3565	0	%100
	M45	Z	1.3606	1.3606	0	%100
51	M46	X	2.3565	2.3565	0	%100
52	M46	Z	1.3606	1.3606	0	%100
53	M47	X Z	2.3565	2.3565	0	%100
54	M47		1.3606	1.3606	0	%100
55	M48	X	8.9549	8.9549	0	%100
56	M48	Z	5.1701	5.1701	0	%100
57	M49	X	8.9549	8.9549	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

# Member Distributed Loads (BLC 45 : Structure Wo (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	End Magnitude[l.	.Start Location[ft	.End Location[ft
	Atternation	7	5 1701	5.1701	0	%100
58	M49		0.1101	011191		Haran Carlos and Carlos

# Member Distributed Loads (BLC 46 : Structure Wo (150 Deg))

	Member Label		Start Magnitude.	End Magnitude[	Start Location[ft,	.End Location[ft
1	M1	X	4.6939	4.6939	0	%100
2	M1	Z	8.1301	8.1301	0	%100 %100
3	M2	X	4.6939	4.6939	0	%100 %100
4	M2	Z	8.1301	8.1301	0	%100 %100
5	M13	X	.3401	.3401	0	
6	M13	Z	.5891	.5891	0	%100
7	M14	X	.3401	.3401	0	%100
8	M14	Z	.5891	.5891	0	%100
9	M15	X	.3401	.3401	0	%100
10	M15	Z	.5891	.5891	0	%100
11	M16	X	.3401	.3401	0	%100
12	M16	Z	.5891	.5891	0	%100
13	M17	X	3.9078	3.9078	0	%100
14	M17	Z	6.7684	6.7684	0	%100
15	M18	X	3.9078	3.9078	0	%100
16	M18	Z	6.7684	6.7684	0	%100
17	M19	X	.5563	.5563	0	%100
18	M19	Z	.9636	.9636	0	%100
	M20	X	.5563	.5563	0	%100
19	M20	Z	.9636	.9636	_ 0	%100
20	M21	X	1.0204	1.0204	0	%100
21	M21	Z	1.7674	1.7674	0	%100
22	M22	X	1.0204	1.0204	0	%100
23	M22	Z	1.7674	1.7674	0	%100
24		X	1.0204	1.0204	0	%100
25	M23	Z	1.7674	1.7674	0	%100
26	M23	X	1.0204	1.0204	0	%100
27	M24	Z	1.7674	1.7674	0	%100
28	<u>M24</u>	X	1.6211	1.6211	0	%100
29	M25	Z	2.8078	2.8078	0	%100
30	M25	X	1.6211	1.6211	0	%100
31	M26	Z	2.8078	2.8078	0	%100
32	M26	- X	1.1268	1.1268	0	%100
33	M27	Z	1.9517	1.9517	0	%100
34	M27	X	1.1268	1.1268	0	%100
35	M28		1.9517	1.9517	Ö	%100
36	M28		1.52	1.52	0	%100
37	M31	X		2.6327	0	%100
38	M31	Z	2.6327 5.1701	5.1701	0	%100
39	MP4A	X		8.9549	0	%100
40	MP4A	Z	8.9549	5.1701	0	%100
41	MP3A	X	5.1701	8.9549	ŏ	%100
42	MP3A	Z	8.9549		0	%100
43	MP2A	X	5.1701	5.1701	0	%100
44	MP2A	Z	8.9549	8.9549	0	%100
45	MP1A	X	5.1701	5.1701	0	%100
46	MP1A	Z	8.9549	8.9549		%100
47	M44	X	1.3606	1.3606	0	%100
48	M44	Z	2.3565	2.3565	0	%100
49	M45	X	1.3606	1.3606	0	%100
50	M45	Z	2.3565	2.3565	0	
51	M46	X	1.3606	1.3606	0	%100
52	M46	Z	2.3565	2.3565	0	%100

Project # 23777087 Antenna Mount Analysis

#### Member Distributed Loads (BLC 46 : Structure Wo (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	End Magnitudell.	Start Location[ft	.End Location[ft,
53	M47	X	1.3606	1.3606	0	%100
54	M47	Z	2.3565	2.3565	Ö	%100
55	M48	X	5.1701	5.1701	0	%100
56	M48	Z	8.9549	8.9549	Ů.	%100
57	M49	X	5.1701	5.1701	Ŏ	%100
58	M49	Z	8.9549	8.9549	Ö	%100

#### Member Distributed Loads (BLC 47 : Structure Wo (180 Deg))

Member Label         Direction         Start Magnitude         End Magnitude [IStart]           1         M1         X         0         0           2         M1         Z         12.5171         12.5171           3         M2         X         0         0           4         M2         Z         12.5171         12.5171           5         M13         X         0         0           6         M13         Z         0         0           7         M14         X         0         0           8         M14         Z         0         0           9         M15         X         0         0           10         M15         Z         0         0           11         M16         X         0         0           12         M16         Z         0         0           13         M17         X         0         0           14         M17         Z         4.942         4.942           15         M18         X         0         0           16         M18         Z         4.942         4.942	0 0 0 0 0 0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
2       M1       Z       12.5171       12.5171         3       M2       X       0       0         4       M2       Z       12.5171       12.5171         5       M13       X       0       0         6       M13       Z       0       0         7       M14       X       0       0         8       M14       Z       0       0         9       M15       X       0       0         10       M15       Z       0       0         11       M16       X       0       0         12       M16       Z       0       0         13       M17       X       0       0         14       M17       Z       4.942       4.942         15       M18       X       0       0         16       M18       Z       4.942       4.942         17       M19       X       0       0	0 0 0 0 0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
4         M2         Z         12.5171         12.5171           5         M13         X         0         0           6         M13         Z         0         0           7         M14         X         0         0           8         M14         Z         0         0           9         M15         X         0         0           10         M15         Z         0         0           11         M16         X         0         0           12         M16         Z         0         0           13         M17         X         0         0           14         M17         Z         4.942         4.942           15         M18         X         0         0           16         M18         Z         4.942         4.942           17         M19         X         0         0	0 0 0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
5         M13         X         0         0           6         M13         Z         0         0           7         M14         X         0         0           8         M14         Z         0         0           9         M15         X         0         0           10         M15         Z         0         0           11         M16         X         0         0           12         M16         Z         0         0           13         M17         X         0         0           14         M17         Z         4.942         4.942           15         M18         X         0         0           16         M18         Z         4.942         4.942           17         M19         X         0         0	0 0 0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
5       M13       X       0       0         6       M13       Z       0       0         7       M14       X       0       0         8       M14       Z       0       0         9       M15       X       0       0         10       M15       Z       0       0         11       M16       X       0       0         12       M16       Z       0       0         13       M17       X       0       0         14       M17       Z       4.942       4.942         15       M18       X       0       0         16       M18       Z       4.942       4.942         17       M19       X       0       0	0 0 0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
6       M13       Z       0       0         7       M14       X       0       0         8       M14       Z       0       0         9       M15       X       0       0         10       M15       Z       0       0         11       M16       X       0       0         12       M16       Z       0       0         13       M17       X       0       0         14       M17       Z       4.942       4.942         15       M18       X       0       0         16       M18       Z       4.942       4.942         17       M19       X       0       0	0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
7       M14       X       0       0         8       M14       Z       0       0         9       M15       X       0       0         10       M15       Z       0       0         11       M16       X       0       0         12       M16       Z       0       0         13       M17       X       0       0         14       M17       Z       4.942       4.942         15       M18       X       0       0         16       M18       Z       4.942       4.942         17       M19       X       0       0	0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
8     M14     Z     0     0       9     M15     X     0     0       10     M15     Z     0     0       11     M16     X     0     0       12     M16     Z     0     0       13     M17     X     0     0       14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
9     M15     X     0     0       10     M15     Z     0     0       11     M16     X     0     0       12     M16     Z     0     0       13     M17     X     0     0       14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100 %100
10     M15     Z     0     0       11     M16     X     0     0       12     M16     Z     0     0       13     M17     X     0     0       14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0 0 0 0 0	%100 %100 %100 %100 %100 %100 %100
11     M16     X     0     0       12     M16     Z     0     0       13     M17     X     0     0       14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0 0 0	%100 %100 %100 %100 %100 %100
12     M16     Z     0     0       13     M17     X     0     0       14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0 0 0	%100 %100 %100 %100 %100
13     M17     X     0     0       14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0 0	%100 %100 %100 %100
14     M17     Z     4.942     4.942       15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0 0	%100 %100 %100
15     M18     X     0     0       16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0 0	%100 %100
16     M18     Z     4.942     4.942       17     M19     X     0     0	0 0	%100
17 M19 X 0 0	0	70100
	0	%100
18 M19 Z 4.942 4.942		%100
19 M20 X 0 0	0	%100
20 M20 7 4 942 4 942	ő	%100
21 M21 X 0 0	0	%100
22 M21 7 2 7211 2 7211	Ö	%100
23 M22 X 0 0	ō	%100
24 M22 7 2.7211 2.7211	0	%100
25 M23 X 0 0	0	%100
26 M23 7 2.7211 2.7211	0	%100
27 M24 X 0 0	0	%100
28 M24 Z 2.7211 2.7211	Ö	%100
29 M25 X 0 0	0	%100
30 M25 Z 2.8184 2.8184	0	%100 %100
31 M26 X 0 0	0	%100
32 M26 7 2.8184 2.8184	Ö	%100
33 M27 X 0 0	0	%100
34 M27 7 2.8184 2.8184	Ö	%100
35 M28 X 0 0	0	%100
36 M28 Z 2.8184 2.8184	0	%100
37 M31 X 0 0	0	%100
38 M31 Z .0364 .0364	Ö	%100
39 MP4A X 0 0	0	%100
40 MP4A Z 10.3402 10.3402	0	%100
41 MP3A X 0 0	0	%100
42 MP3A Z 10.3402 10.3402	0	%100
43 MP2A X 0 0	0	%100
44 MP2A Z 10.3402 10.3402	0	%100
45 MP1A X 0 0	0	%100
46 MP1A Z 10.3402 10.3402	0	%100
47 M44 X 0 0	0	%100 %100

# Member Distributed Loads (BLC 47 : Structure Wo (180 Deg)) (Continued)

		Direction	Start Magnitude.	End Magnitude[I	.Start Location[ft.	End Location[ft
	Member Label	7	2.7211	2.7211	0	%100
48	M44		2.1211	0	0	%100
49	M45		0.7044	2.7211	0	%100
50	M45		2.7211	2.1211	0	%100
51	M46	X	0 7014	0.7044	0	%100
52	M46	Z	2.7211	2.7211	0	%100
53	M47	X	0	0	0	
54	M47	Z	2.7211	2.7211	0	%100
	M48	X	0	0	0	%100
55		7	10,3402	10.3402	0	%100
56	M48		0.0102	0	0	%100
57	M49	7	10.3402	10.3402	0	%100
58	M49		1. 10.0402	10.0102		

Member Distributed Loads (BLC 48 : Structure Wo (210 Deg))

	Member Label		Start Magnitude	End Magnitude[I.	.Start Location[ft,	End Location[1
1	M1	X	-4.6939	-4.6939		%100
2	M1	Z	8.1301	8.1301	0	%100
3	M2	X	-4.6939	-4.6939	0	%100
4	M2	Z	8.1301	8.1301	0	%100
5	M13	X	3401	3401	0	%100
6	M13	Z	.5891	.5891	0	%100
7	M14	X	3401	3401	0	%100
8	M14	Z	.5891	.5891	0	%100
9	M15	X	3401	3401	0	%100
10	M15	Z	.5891	.5891	0	%100
	M16	X	3401	3401	0	%100
11 12	M16	Z	.5891	.5891	0	%100
	M17	X	5563	5563	0	%100
13	M17	Z	.9636	.9636	0	%100
14	M18	X	5563	5563	0	%100
15	M18	Z	.9636	.9636	0	%100
16	M19	X	-3.9078	-3.9078	0	%100
17	M19	Z	6.7684	6.7684	0	%100
18	M20	X	-3.9078	-3.9078	0	%100
19	M20	Z	6.7684	6.7684	0	%100
20	M21	X	-1.0204	-1.0204	0	%100
21	M21	Z	1.7674	1.7674	0	%100
22	M22	X	-1.0204	-1.0204	0	%100
23	M22	Z	1.7674	1.7674	0	%100
24		X	-1.0204	-1.0204	0	%100
25	M23	Z	1.7674	1.7674	0	%100
26	M23	X	-1.0204	-1.0204	Ō	%100
27	M24	Z	1.7674	1.7674	0	%100
28	M24	X	-1.1268	-1.1268	0	%100
29	M25	Z	1.9517	1.9517	0	%100
30	M25	- Z X	-1.1268	-1.1268	Ö	%100
31	M26	Z	1.9517	1.9517	0	%100
32	M26	X	-1.6211	-1.6211	0	%100
33	M27	Ž	2.8078	2.8078	0	%100
34	M27	X	-1.6211	-1.6211	0	%100
35	M28	Z	2.8078	2.8078	0	%100
36	M28		-1.0863	-1.0863	0	%100
37	M31	X	1.8815	1.8815	Ö	%100
38	M31		-5.1701	-5.1701	0	%100
39	MP4A	X	8.9549	8.9549	0	%100
40	MP4A	Z		-5.1701	0	%100
41	MP3A	X	-5.1701	8.9549	0	%100
42	MP3A	Z	8.9549	0.3043		70100

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_\_

### Member Distributed Loads (BLC 48 : Structure Wo (210 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude(I.	Start Location(ft	End Location[ft,
43	MP2A	X	-5.1701	-5.1701	0	%100
44	MP2A	Z	8.9549	8.9549	0	%100
45	MP1A	X	-5.1701	-5.1701	0	%100
46	MP1A	Z	8.9549	8.9549	0	%100
47	M44	X	-1.3606	-1.3606	0	%100
48	M44	Z	2.3565	2.3565	0	%100
49	M45	X	-1.3606	-1.3606	0	%100
50	M45	Z	2.3565	2.3565	0	%100
51	M46	X	-1.3606	-1.3606	0	%100
52	M46	Z	2.3565	2.3565	0	%100
53	M47	X	-1.3606	-1.3606	0	%100
54	M47	Z	2.3565	2.3565	0	%100
55	M48	X	-5.1701	-5.1701	0	%100
56	M48	7	8.9549	8.9549	Ö	%100
57	M49	X	-5.1701	-5.1701	0	%100
58	M49	Z	8.9549	8.9549	0	%100

### Member Distributed Loads (BLC 49 : Structure Wo (240 Deg))

	Member Label	Direction	Start Magnitude.	End Magnitude[I\$	Start Location(ff	End Location
1	M1	X	-2.71	-2.71	0	%100
2	M1	Z	1.5646	1.5646	0	%100
3	M2	X	-2.71	-2.71	0	%100
4	M2	Z	1.5646	1.5646	0	%100
5	M13	X	-1.7674	-1.7674	0	%100
6	M13	Z	1.0204	1.0204	0	%100
7	M14	X	-1.7674	-1.7674	0	%100
8	M14	Z	1.0204	1.0204	0	%100
9	M15	X	-1.7674	-1.7674	0	%100
10	M15	Z	1.0204	1.0204	0	%100
11	M16	X	-1.7674	-1.7674	Ö	%100
12	M16	Z	1.0204	1.0204	Ö	%100
13	M17	X	1358	1358	0	%100
14	M17	Z	.0784	.0784	Ö	%100
15	M18	X	1358	1358	0	%100
16	M18	Z	.0784	.0784	Ö	%100
17	M19	X	-5.9407	-5.9407	Ö	%100
18	M19	Z	3.4299	3.4299	ŏ	%100
19	M20	X	-5.9407	-5.9407	0	%100
20	M20	Z	3.4299	3.4299	Ö	%100
21	M21	X	5891	5891	0	%100
22	M21	Z	.3401	.3401	Ö	%100
23	M22	X	5891	5891	0	%100
24	M22	Ž	.3401	.3401	ő	%100
25	M23	X	5891	5891	0	%100
26	M23	Z	.3401	.3401	0	%100
27	M24	X	5891	5891	0	%100
28	M24	Z	.3401	.3401	0	%100
29	M25	X	-1.8296	-1.8296	0	%100
30	M25	Z	1.0563	1.0563	0	%100
31	M26	X	-1.8296	-1.8296	0	%100
32	M26	Z	1.0563	1.0563	0	%100 %100
33	M27	X	-2.6857	-2.6857	0	%100 %100
34	M27	Z	1.5506	1.5506	0	%100
35	M28	X	-2.6857	-2.6857	0	%100
36	M28	Ž	1.5506	1.5506	0	%100
37	M31	X	-6.3326	-6.3326	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

# Member Distributed Loads (BLC 49 : Structure Wo (240 Deg)) (Continued)

10111201 2	Member Label	Direction	Start Magnitude.	.End Magnitude[I	Start Location[ft,	End Location[ft
20	M31	Z	3.6562	3.6562	0	%100
38	MP4A	X	-8.9549	-8.9549	0	%100
39		7	5.1701	5,1701	0	%100
40	MP4A	X	-8.9549	-8.9549	0	%100
41	MP3A	7	5.1701	5.1701	0	%100
42	MP3A	X	-8.9549	-8.9549	0	%100
43	MP2A	Ž	5.1701	5.1701	0	%100
44	MP2A		-8.9549	-8.9549	0	%100
45	MP1A	X		5.1701	0	%100
46	MP1A	Z	5.1701	-2.3565	0	%100
47	M44	X	-2.3565		0	%100
48	M44	Z	1.3606	1.3606	0	%100
49	M45	X	-2.3565	-2.3565		%100
50	M45	Z	1.3606	1.3606	0	%100
51	M46	X	-2.3565	-2.3565	0	
52	M46	Z	1.3606	1.3606	0	%100
	M47	X	-2.3565	-2.3565	0	%100
53	M47	Z	1.3606	1.3606	0	%100
54	M48	X	-8.9549	-8.9549	0	%100
55		Ž	5,1701	5.1701	0	%100
56	M48	X	-8.9549	-8.9549	0	%100
57 58	M49 M49	Ž	5.1701	5.1701	0	%100

# Member Distributed Loads (BLC 50 : Structure Wo (270 Deg))

	Member Label		Start Magnitude.	.End Magnitude[I	Start Location[ft,	End Location[1
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	M2	X	0	0	0	<u>%100</u>
4	M2	Z	0	0	0	%100
5	M13	X	-2.7211	-2.7211	0	%100
6	M13	Z	0	0	0	%100
7	M14	X	-2.7211	-2.7211	0	%100
8	M14	Z	0	0	0	%100
9	M15	X	-2.7211	-2.7211	0	%100
10	M15	Z	0	0	0	%100
11	M16	X	-2.7211	-2.7211	0	%100
12	M16	Z	0	0	0	%100
	M17	X	-3.0304	-3.0304	0	%100
13	M17	Z	0	0	0	%100
14	M18	X	-3.0304	-3.0304	0	%100
15	M18	Z	0	0	0	%100
16	M19	X	-3.0304	-3.0304	0	%100
17	M19	Z	0	0	0	%100
18	M20	X	-3.0304	-3.0304	0	%100
19	M20	Z	0	0	0	%100
20	M21	X	0	0	0	%100
21	M21	Z	0	0	0	%100
22	M22	X	0	0	0	%100
23	M22 M22	Z	Ö	0	0	%100
24		X	0	0	0	%100
25	M23	Z	0	0	0	%100
26	M23	X	0	0	0	%100
27	M24	Z	0	0	0	%100
28	M24	X	-2.5364	-2.5364	0	%100
29	M25	Ž	-2.5504	0	0	%100
30	M25	X	-2.5364	-2.5364	0	%100
31	M26	Z	-2.5504	0	0	%100
32	M26			. 0		

Company Designer Job Number

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

## Member Distributed Loads (BLC 50 : Structure Wo (270 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	.End MagnitudeII	Start Location(ft	End Location[ft,
33	M27	X	-2.5364	-2.5364	0	%100
34	M27	Z	0	0	0	%100
35	M28	X	-2.5364	-2.5364	0	%100
36	M28	Z	0	0	0	%100
37	M31	X	-10.3159	-10.3159	0	%100
38	M31	Z	0	0	Ö	%100
39	MP4A	X	-10.3402	-10.3402	0	%100
40	MP4A	Z	0	0	0	%100
41	MP3A	X	-10.3402	-10.3402	0	%100
42	MP3A	Z	0	0	0	%100
43	MP2A	X	-10.3402	-10.3402	0	%100
44	MP2A	Z	0	0	Ŏ	%100
45	MP1A	X	-10.3402	-10.3402	0	%100
46	MP1A	Z	0	0	Ö	%100 %100
47	M44	X	-2.7211	-2.7211	0	%100 %100
48	M44	Ž	0	0	0	%100
49	M45	X	-2.7211	-2.7211	0	%100
50	M45	Z	0	0	0	%100 %100
51	M46	X	-2.7211	-2.7211	0	%100 %100
52	M46	Ž	0	0	0	%100 %100
53	M47	X	-2.7211	-2.7211	0	
54	M47	Z	0	-2.1211	0	%100
55	M48	X	-10.3402	-10.3402	0	%100 %100
56	M48	Z	0	-10.3402	0	%100
57	M49	X	-10.3402	-10.3402	0	%100 %100
58	M49	Z	0	0	0	%100 %100

### Member Distributed Loads (BLC 51 : Structure Wo (300 Deg))

	Member Label	Direction	Start Magnitude	.End Magnitudell	.Start Location[ft,	End Location(ff
1	M1	X	-2.71	-2.71	0	%100
2	M1	Z	-1.5646	-1.5646	0	%100
3	M2	X	-2.71	-2.71	0	%100
4	M2	Z	-1.5646	-1.5646	0	%100
5	M13	X	-1.7674	-1.7674	0	%100
6	M13	Z	-1.0204	-1.0204	Ö	%100
7	M14	X	-1.7674	-1.7674	0	%100
8	M14	Z	-1.0204	-1.0204	Ö	%100 %100
9	M15	X	-1.7674	-1.7674	0	%100
10	M15	Z	-1.0204	-1.0204	0	%100 %100
11	M16	X	-1.7674	-1.7674	0	%100
12	M16	Z	-1.0204	-1.0204	0	%100 %100
13	M17	X	-5.9407	-5.9407	0	%100
14	M17	Z	-3.4299	-3.4299	0	%100
15	M18	X	-5.9407	-5.9407	0	%100
16	M18	Ž	-3.4299	-3.4299	0	%100
17	M19	X	1358	1358	0	%100
18	M19	Z	0784	0784	0	%100 %100
19	M20	X	1358	1358	0	%100
20	M20	Z	0784	0784	0	%100
21	M21	X	5891	5891	0	%100
22	M21	Z	3401	3401	0	%100
23	M22	X	5891	5891	0	
24	M22	Z	3401	3401	0	%100
25	M23	X	5891	5891	0	%100
26	M23	Ž	3401	3401	0	%100
27	M24	X	5891	5891	0	%100 %100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

# Member Distributed Loads (BLC 51 : Structure Wo (300 Deg)) (Continued)

nomber b.	Member Label	Direction	Start Magnitude.	End Magnitude[I	Start Location[f	tEnd Location[ft
00	M24	Z	3401	3401	0	%100
28	M25	X	-2.6857	-2.6857	0	%100
29	M25	Z	-1.5506	-1.5506	0	%100
30	M26	X	-2.6857	-2.6857	0	%100
31		Z	-1.5506	-1.5506	0	%100
32	M26	X	-1.8296	-1.8296	0	%100
33	M27	Z	-1.0563	-1.0563	0	%100
34	M27	X	-1.8296	-1.8296	0	%100
35	M28	Z	-1.0563	-1.0563	0	%100
36	M28	X	-7.0838	-7.0838	0	%100
37	M31	Z	-4.0899	-4.0899	0	%100
38	M31	X	-8.9549	-8.9549	0	%100
39	MP4A	Z	-5.1701	-5.1701	0	%100
40	MP4A	X	-8.9549	-8.9549	0	%100
41	MP3A		-5.1701	-5.1701	0	%100
42	MP3A	Z	-8.9549	-8.9549	0	%100
43	MP2A	X	-5.954 <del>9</del> -5.1701	-5.1701	0	%100
44	MP2A	Z		-8.9549	0	%100
45	MP1A	X	-8.9549	-5.1701	0	%100
46	MP1A	Z	-5.1701	-2.3565	0	%100
47	M44	<u> </u>	-2.3565	-1.3606	0	%100
48	M44	Z	-1.3606		0	%100
49	M45	X	-2.3565	-2.3565	0	%100
50	M45	Z	-1.3606	-1.3606	0	%100
51	M46	X	-2.3565	-2.3565	0	%100
52	M46	Z	-1.3606	-1.3606		%100
53	M47	X	-2.3565	-2.3565	0	%100
54	M47	Z	-1.3606	-1.3606	0	%100
55	M48	X	-8.9549	-8.9549	0	%100
56	M48	Z	-5.1701	-5.1701	0	%100 %100
57	M49	X	-8.9549	-8.9549	0	
58	M49	Z	-5.1701	-5.1701	0	%100

Member Distributed Loads (BLC 52 : Structure Wo (330 Deg))

10111201 2	stributed Loads (BLC 3	Direction	Start Magnitude	.End Magnitude[I	Start Location[ft,	End Location[ft
	Member Label	X	-4.6939	-4.6939	0	%100
1	M1	Z	-8.1301	-8.1301	0	%100
2	<u>M1</u>	X	-4.6939	-4.6939	0	%100
3	M2	Z	-8.1301	-8.1301	0	%100
4	M2	X	3401	3401	0	%100
5	M13		5891	5891	0	%100
6	M13	Z		3401	0	%100
7	M14	X	3401	5891	0	%100
8	M14	Z	5891		0	%100
9	M15	X	3401	3401	0	%100
10	M15	Z	5891	5891	0	%100
11	M16	X	3401	3401	0	%100
12	M16	Z	5891	5891		%100
13	M17	X	-3.9078	-3.9078	0	%100
14	M17	Z	-6.7684	-6.7684	0	THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWIND TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN
15	M18	X	-3.9078	-3.9078	0	%100
16	M18	Z	-6.7684	-6.7684	0	%100
17	M19	X	5563	5563	0	%100
	M19	Z	9636	9636	0	%100
18	M20	X	5563	5563	00	%100
19	M20	Z	9636	9636	0	%100
20		X	-1.0204	-1.0204	0	%100
21	M21 M21	Z	-1.7674	-1.7674	0	%100
22	IVIZI					Dogo 46

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

## Member Distributed Loads (BLC 52 : Structure Wo (330 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	"End Magnitude[IS	Start Location(f	t End Location#
23	M22	X	-1.0204	-1.0204	0	%100
24	M22	Z	-1.7674	-1.7674	0	%100
25	M23	X	-1.0204	-1.0204	0	%100
26	M23	Z	-1.7674	-1.7674	Ö	%100
27	M24	X	-1.0204	-1.0204	0	%100
28	M24	Z	-1.7674	-1.7674	Ö	%100
29	M25	X	-1.6211	-1.6211	Ö	%100
30	M25	Z	-2.8078	-2.8078	Ö	%100 %100
31	M26	X	-1.6211	-1.6211	Ö	%100
32	M26	Z	-2.8078	-2.8078	Ö	%100
33	M27	X	-1.1268	-1.1268	0	%100
34	M27	Z	-1.9517	-1.9517	Ö	%100
35	M28	X	-1.1268	-1.1268	0	%100
36	M28	Z	-1.9517	-1.9517	Ö	%100
37	M31	X	-1.52	-1.52	0	%100 %100
38	M31	Z	-2.6327	-2.6327	0	%100
39	MP4A	X	-5.1701	-5.1701	0	%100
40	MP4A	Z	-8.9549	-8.9549	0	%100 %100
41	MP3A	X	-5.1701	-5.1701	0	%100
42	MP3A	Z	-8.9549	-8.9549	0	%100
43	MP2A	X	-5.1701	-5.1701	0	%100 %100
44	MP2A	Z	-8.9549	-8.9549	0	%100
45	MP1A	X	-5.1701	-5.1701	0	%100
46	MP1A	Ž	-8.9549	-8.9549	0	%100 %100
47	M44	X	-1.3606	-1.3606	0	%100
48	M44	Z	-2.3565	-2.3565	0	%100
49	M45	X	-1.3606	-1.3606	0	%100
50	M45	Z	-2.3565	-2.3565	0	%100
51	M46	X	-1.3606	-1.3606	0	%100
52	M46	Z	-2.3565	-2.3565	0	
53	M47	X	-1.3606	-1.3606	0	%100
54	M47	Ž	-2.3565	-2.3565	0	%100
55	M48	$\frac{1}{x}$	-5.1701	-5.1701	0	%100
56	M48	Z	-8.9549	-8.9549	0	%100 %100
57	M49	X	-5.1701	-5.1701	0	
58	M49	Ž	-8.9549	-8.9549	0	%100 %100

## Member Distributed Loads (BLC 53 : Structure Wi (0 Deg))

	Member Label	Direction	Start Magnitude	.End Magnitude[I	Start Location(ft	End Location(ft
1	M1	X	0	0	0	%100
2	M1	Z	-4.8218	-4.8218	0	%100
3	M2	X	0	0	0	%100
4	M2	Z	-4.8218	-4.8218	Ö	%100
5	M13	X	0	0	0	%100
6	M13	Z	Ō	0	0	%100
7	M14	X	0	Ö	Ō	%100
8	M14	Z	0	0	0	%100
9	M15	X	0	0	0	%100
10	M15	Z	0	0	ŏ	%100
11	M16	X	0	0	0	%100 %100
12	M16	Z	0	Ö	Ö	%100
13	M17	X	0	0	Ö	%100
14	M17	Z	-2.0001	-2.0001	0	%100
15	M18	X	0	0	0	%100
16	M18	Z	-2.0001	-2.0001	ő	%100
17	M19	X	0	0	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

# Member Distributed Loads (BLC 53 : Structure Wi (0 Deg)) (Continued)

	Member Label		Start Magnitude	End MagnitudellS	tart Locationitt.	%100
18	M19	Z	-2.0001	-2.0001	0	%100
19	M20	X	0	0		%100
20	M20	Z	-2.0001	-2.0001	0	%100
21	M21	X	00	0	0	%100
22	M21	Z	-2.0175	-2.0175	0	%100 %100
23	M22	X	0	0	0	%100
24	M22	Z	-2.0175	-2.0175	0	%100 %100
25	M23	X	0	0	0	%100
26	M23	Z	-2.0175	-2.0175	0	%100 %100
27	M24	X	0	0	0	%100 %100
28	M24	Z	-2.0175	-2.0175	0	
29	M25	X	0	0	0	%100
30	M25	Z	-2.3212	-2.3212	0	%100
31	M26	X	0	0	0	%100
	M26	Z	-2.3212	-2.3212	0	%100
32	M27	X	0	0	0	%100
34	M27	Z	-2.3212	-2.3212	0	%100
	M28	X	0	0	0	%100
35	M28	Z	-2.3212	-2.3212	0	%100
36	M31	X	0	0	0	%100
37	M31	Z	0156	0156	0	%100
38	MP4A	X	0	0	0	%100
39	MP4A	Z	-4.3934	-4.3934	0	%100
40	MP3A	X	0	0	0	%100
41	MP3A	Z	-4.3934	-4.3934	0	%100
42	MP2A	X	0	0	0	%100
43	MP2A	Z	-4.3934	-4.3934	0	%100
44	MP1A	X	0	0	0	%100
45	MP1A	Z	-4.3934	-4.3934	0	%100
46		X	0	0	0	%100
47	M44 M44	Z	-2.4547	-2.4547	0	%100
48		X	0	0	0	%100
49	M45	Z	-2.4547	-2.4547	0	%100
50	M45	X	0	0	0	%100
51	M46	Z	-2.4547	-2.4547	0	%100
52	M46	X	0	0	0	%100
53	M47	Z	-2.4547	-2.4547	0	%100
54	M47	X	0	0	0	%100
55	M48	Z	-4.0575	-4.0575	0	%100
56	M48	X	0	1.00.0	0	%100
57	M49 M49	Z	-4.0575	-4.0575	0	%100

Member Distributed Loads (BLC 54 : Structure Wi (30 Deg))

	Member Label	Direction		.End Magnitude[IS	tart Locationin.	%100
1	M1	X	1.8082	1.8082		
-	M1	Z	-3.1318	-3.1318	0	%100
2		X	1.8082	1.8082	0	%100
3	M2	Ž	-3.1318	-3,1318	0	%100
4	M2		.2522	.2522	0	%100
5	M13		4368	4368	0	%100
6	M13	Z		.2522	0	%100
7	M14	X	.2522		0	%100
8	M14	Z	4368	4368	0	
	M15	X	.2522	.2522	0	%100
9	M15	7	4368	4368	0	%100
0		X	.2522	.2522	0	%100
12	M16 M16	7	4368	4368	0	%100

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Distributed Loads (BLC 54 : Structure Wi (30 Deg)) (Continued)

Member Label	Direction	Start Magnitude	End Magnitudell	Start Lagation (4)	Fadlassis to
M17	X	2252	2252	Start Location[it,	%100
M17	7	- 30	30		%100 %100
			2252		%100
	7	- 30	- 30	0	%100
					%100
	7				%100
	Y				%100
	7	2.7202	2.7202		%100
			-2.7393 7FCF		%100
				0	%100
		7505			%100
			./505		%100
		-1.3104	-1.3104		%100
					%100
					%100
					%100
	<u> </u>	-1.3104			%100
					%100
		-1.6073	-1.6073		%100
					%100
		-1.6073			%100
IVIZ/			1.3351		%100
		-2.3125	-2.3125		%100
		1.3351			%100
	Z				%100
			.4668		%100
					%100
	X				%100
				0	%100
	X	2.1967		0	%100
				0	%100
				0	%100
			-3.8048	0	%100
	X		2.1967		%100
	Z	-3.8048	-3.8048	0	%100
		1.2274	1.2274	0	%100
	Z	-2.1259	-2.1259		%100
	X	1.2274	1.2274		%100
	Z		-2.1259	0	%100
	X	1.2274			%100
	Z	-2.1259	-2.1259		%100
	X				%100
	Z	-2.1259	-2.1259		%100 %100
					%100 %100
M48		-3.5139	-3 5139		%100 %100
M49			2 0287		%100 %100
M49	7			0	%100
	M17 M18 M18 M19 M19 M19 M20 M20 M21 M21 M21 M22 M22 M22 M23 M23 M24 M24 M25 M25 M26 M26 M27 M27 M28 M28 M31 M31 M31 MP4A MP4A MP4A MP4A MP3A MP4A MP3A MP4A MP3A MP3A MP2A MP1A MP1A MP1A MP1A MP1A M44 M45 M45 M46 M46 M47 M47 M48 M48 M48 M49	M17         X           M18         X           M18         X           M19         X           M19         X           M20         X           M20         Z           M21         X           M21         X           M22         X           M22         X           M23         X           M23         X           M23         X           M24         X           M25         X           M25         X           M25         X           M26         X           M27         X           M28         X           M29         X           M27         X           M28         X           M29         X           M29         X           M29         X           M29         X           M29         X	M17         X         .2252           M17         Z         .39           M18         X         .2252           M18         Z         .39           M19         X         1.5815           M19         Z         -2.7393           M20         X         1.5815           M20         Z         -2.7393           M20         Z         -2.7393           M21         X         .7565           M21         Z         -1.3104           M22         X         .7565           M21         Z         -1.3104           M22         X         .7565           M22         Z         -1.3104           M23         X         .7565           M24         X         .7565           M23         X         .7565           M24         X         .7565           M25         X         .928           M26         X         .928           M27         X         1.3351           M28         X         1.3351           M28         X         1.3351           M28         X         1.33	M17         X         .2252         .2252           M17         Z        39        39           M18         X         .2252         .2252           M18         Z        39        39           M19         X         1.5815         1.5815           M19         Z         -2.7393         -2.7393           M20         X         1.5815         1.5815           M20         Z         -2.7393         -2.7393           M21         X         .7565         .7565           M21         X         .7565         .7565           M21         X         .7565         .7565           M22         X         .7565         .7565           M22         X         .7565         .7565           M22         X         .7565         .7565           M23         X         .7565         .7565           M24         X         .7565         .7565           M23         X         .7565         .7565           M24         X         .7565         .7565           M24         X         .7565         .7565           M25 <td< td=""><td>M17</td></td<>	M17

## Member Distributed Loads (BLC 55 : Structure Wi (60 Deg))

	Member Label	Direction	Start Magnitude.	End Magnitudell	Start Location(ft	End Location(f)
1	M1	X	1.0439	1.0439	O.	%100
2	M1	Z	6027	6027	0	%100
3	M2	X	1.0439	1.0439	0	%100
4	M2	Z	6027	6027	0	%100
5	M13	X	1.3104	1.3104	ň	%100
6	M13	Z	7565	7565	0	%100
7	M14	X	1.3104	1.3104	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

# Member Distributed Loads (BLC 55 : Structure Wi (60 Deg)) (Continued)

	Member Label		Start Magnitude	End Magnitude(I.	Start Location[ft	End Location 11
8	M14	Z	7565	7565	0	%100
9	M15	X	1.3104	1.3104	0	%100
10	M15	Z	7565	7565	0	%100 %100
11	M16	X	1.3104	1.3104	0	%100 %100
12	M16	Z	7565	7565	0	%100 %100
13	M17	X	.055	.055	0	
14	M17	Z	0317	0317	0	%100 %100
15	M18	X	.055	.055	0	%100
16	M18	Z	0317	0317	0	%100 %100
17	M19	X	2.4043	2.4043	0	
18	M19	Z	-1.3881	-1.3881	0	%100 %100
19	M20	X	2.4043	2.4043	0	
20	M20	Z	-1.3881	-1.3881	0	%100
21	M21	X	.4368	.4368	0	%100
22	M21	Z	2522	2522	0	%100
23	M22	X	.4368	.4368	0	%100
24	M22	Z	2522	2522	0	%100
25	M23	X	.4368	.4368	0	%100
26	M23	Z	2522	2522	0	%100
27	M24	X	.4368	.4368	0	%100
28	M24	Z	2522	2522	0	%100
29	M25	X	1.5068	1.5068	0	%100
30	M25	Z	87	87	0	%100
31	M26	X	1.5068	1.5068	0	%100
32	M26	Z	87	87	0	%100
33	M27	X	2.2119	2.2119	0	%100
34	M27	Z	-1.2771	-1.2771	0	%100
35	M28	X	2.2119	2.2119		%100
36	M28	Z	-1.2771	-1.2771	0	%100
37	M31	X	2.7215	2.7215	0	%100
38	M31	Z	-1.5713	-1.5713	0	%100
39	MP4A	X	3.8048	3.8048	0	%100
40	MP4A	Z	-2.1967	-2.1967	0	%100
41	MP3A	X	3.8048	3.8048	0	%100
42	MP3A	Z	-2.1967	-2.1967	0	%100
43	MP2A	X	3.8048	3.8048	0	%100
44	MP2A	Z	-2.1967	-2.1967	0	%100
45	MP1A	X	3.8048	3.8048	0	%100
46	MP1A	Z	-2.1967	-2.1967	0	%100
47	M44	X	2.1259	2.1259	0	%100
48	M44	Z	-1.2274	-1.2274	0	%100
49	M45	X	2.1259	2.1259	0	%100
50	M45	Z	-1.2274	-1.2274	0	%100
51	M46	X	2.1259	2.1259	0	%100
52	M46	Z	-1.2274	-1.2274	0	%100
53	M47	X	2.1259	2.1259	0	%100
54	M47	Z	-1.2274	-1.2274	0	%100
55	M48	X	3.5139	3.5139	0	%100
	M48	Z	-2.0287	-2.0287	0	%100
56 57	M49	X	3.5139	3.5139	0	%100
58	M49	Z	-2.0287	-2.0287	0	%100

## Member Distributed Loads (BLC 56 : Structure Wi (90 Deg))

member 2.	Member Label	Direction	Start Magnitude	End Magnitude[l	.Start Location[ft	.End Location[ft,
	Member Labor	X	0	0	0	%100
_1	IVI I			0	0	%100
2	M1					70.10



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

### Member Distributed Loads (BLC 56 : Structure Wi (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude(I	.Start LocationIft	.End LocationIff
3	M2	X	0	0	0	%100
4	M2	Z	0	0	0	%100
5	M13	X	2.0175	2.0175	0	%100
6	M13	Z	0	0	0	%100
7	M14	X	2.0175	2.0175	0	%100
8	M14	Z	0	0	Ö	%100
9	M15	X	2.0175	2.0175	0	%100
10	M15	Z	0	0	0	%100
11	M16	X	2.0175	2.0175	0	%100
12	M16	Z	0	0	0	%100
13	M17	X	1.2264	1.2264	0	%100
14	M17	Z	0	0	0	
15	M18	X	1.2264	1.2264	0	%100
16	M18	Ž				%100
17	M19	X	1.2264	0	0	%100
18	M19			1.2264	0	%100
19	M20	Z	0	0	0	%100
20	M20	Z	1.2264	1.2264	0	%100
21	M21		0	0	0	%100
22	M21	X	0	0	0	%100
23	M22	Z	0	0	0	%100
24	M22	X	0	0	0	%100
25		Z	0	0	0	%100
26	M23	<u> </u>	0	0	0	%100
	M23	Z	0	0	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	0	0	0	%100
29	M25	X	2.089	2.089	0	%100
30	M25	Z	0	00	0	%100
31	M26	X	2.089	2.089	0	%100
32	M26	Z	0	0	0	%100
33	M27	X	2.089	2.089	0	%100
34	M27	Z	0	0	0	%100
35	M28	X	2.089	2.089	0	%100
36	M28	Z	0	0	0	%100
37	M31	X	4.4334	4.4334	0	%100
38	M31	Z	0	0	0	%100
39	MP4A	X	4.3934	4.3934	0	%100
40	MP4A	Z	0	0	0	%100
41	MP3A	X	4.3934	4.3934	0	%100
42	MP3A	Z	0	0	0	%100 %100
43	MP2A	X	4.3934	4.3934	0	%100
44	MP2A	Z	0	0	0	%100 %100
45	MP1A		4.3934	4.3934	0	%100
46	MP1A	Z	0	4.5954	0	
47	M44	X	2.4547	2.4547		%100 %100
48	M44	7	2.4547	2.4547	0	%100 %100
49	M45	Z	2.4547	2.4547	0	%100
50	M45	Z			0	%100
51	M46	X	0 2.4547	0	0	%100
52	M46	Z		2.4547	0	%100
53	M47		0	0	0	%100
54	M47	X	2.4547	2.4547	0	%100
55	M48	Z	0	0	0	%100
56		X	4.0575	4.0575	0	%100
57	M48	Z	0	0	0	%100
58	M49	X	4.0575	4.0575	0	%100
30	M49	Z	0	0	0	%100



Colliers Engineering & Design

Project # 23777087
Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_\_

# Member Distributed Loads (BLC 57 : Structure Wi (120 Deg))

Member Dis	stributed Loads (BLC :	or . Structure i	TIZO Deu	Carl Marathura	Start Location#	End Location(ft
	Member Label	Direction	Start Magnitude.	End Magnitude[I	Start Location[it.	%100
1	M1	X Z	.6027	.6027	0	%100
2	<u>M</u> 1		1.0439	1.0439	0	%100
3	M2	Z	.6027	.6027	Ŏ	%100
4	M2	X	1.3104	1.3104	0	%100
5	M13	Z	.7565	.7565	0	%100
6	M13	X	1.3104	1.3104	0	%100
7	M14	Z	.7565	.7565	0	%100
8	M14	X	1.3104	1.3104	0	%100
9	M15	Z	.7565	.7565	0	%100
10	M15	X	1.3104	1.3104	0	%100
11	M16		.7565	.7565	Ö	%100
12	M16	Z	2,4043	2.4043	0	%100
13	M17	X	1.3881	1.3881	0	%100
14	M17	Z	2.4043	2.4043	0	%100
15	M18	X Z	1.3881	1.3881	0	%100
16	M18	X	.055	.055	0	%100
17	M19		.0317	.0317	0	%100
18	M19	Z	.055	.055	0	%100
19	M20	X	.0317	.0317	0	%100
20	M20	Z	.4368	.4368	0	%100
21	M21	X	.2522	.2522	0	%100
22	M21	X	.4368	.4368	0	%100
23	M22		.2522	.2522	0	%100
24	M22	Z	.4368	.4368	0	%100
25	M23	X Z	.2522	.2522	Ö	%100
26	M23		.4368	.4368	0	%100
27	M24	X	.2522	.2522	Ö	%100
28	M24	Z	2.2119	2.2119	0	%100
29	M25	X Z	1.2771	1.2771	Ö	%100
30	M25		2.2119	2.2119	0	%100
31	M26	X	1.2771	1.2771	Ů,	%100
32	M26	ZX	1.5068	1.5068	0	%100
33	M27	Z	.87	.87	Ö	%100
34	M27		1.5068	1.5068	0	%100
35	M28	X	.87	.87	Ŏ	%100
36	M28	Z	3.0444	3.0444	0	%100
37	M31	X	1.7577	1.7577	Ŏ	%100
38	M31	Z	3.8048	3.8048	0	%100
39	MP4A	X	2.1967	2.1967	Ö	%100
40	MP4A	Z	3.8048	3.8048	0	%100
41	мрза	X	2.1967	2.1967	Ö	%100
42	MP3A	Z	3.8048	3.8048	Ö	%100
43	MP2A	X		2.1967	Ö	%100
44	MP2A	Z	2.1967 3.8048	3.8048	0	%100
45	MP1A	X	2.1967	2.1967	0	%100
46	MP1A	Z	2.1259	2.1259	0	%100
47	M44	X		1.2274	0	%100
48	M44	Z	1.2274	2.1259	0	%100
49	M45	X	2.1259	1.2274	Ö	%100
50	M45	Z	1.2274	2.1259	0	%100
51	M46	X	2.1259	1.2274	0	%100
52	M46	Z	1.2274	2.1259	0	%100
53	M47	X	2.1259	1.2274	0	%100
54	M47	Z	1.2274	3.5139	0	%100
55	M48	X	3.5139	2.0287	0	%100
56	M48	Z	2.0287 3.5139	3.5139	0	%100
57	M49	X	3.5138	3.5108		Page 54

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

### Member Distributed Loads (BLC 57 : Structure Wi (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitudell.	Start Location(ft.	End Location[ft,
58	M49	Z	2.0287	2.0287	0	%100

### Member Distributed Loads (BLC 58 : Structure Wi (150 Deg))

	Member Label	Direction	Start Magnitude	End Magnitude[I.	.Start Location[ft	.End Location[ft,
1	<u>M1</u>	X	1.8082	1.8082	0	%100
2	M1	Z	3.1318	3.1318	0	%100
3	M2	X	1.8082	1.8082	0	%100
4	M2	Z	3.1318	3.1318	0	%100
5	M13	X	.2522	.2522	0	%100
6	M13	Z	.4368	.4368	0	%100
7	M14	X	.2522	.2522	0	%100
8	M14	Z	.4368	.4368	0	%100
9	M15	X	.2522	.2522	0	%100
10	M15	Z	.4368	.4368	0	%100
11	M16	X	.2522	.2522	0	%100
12	M16	Z	.4368	.4368	0	%100
13	M17	X	1.5815	1.5815	0	%100
14	M17	Z	2.7393	2.7393	0	%100
15	M18	X	1.5815	1.5815	0	%100
16	M18	Z	2.7393	2.7393	ŏ	%100
17	M19	X	.2252	.2252	0	%100
18	M19	Z	.39	.39	Ö	%100
19	M20	X	.2252	.2252	0	%100
20	M20	Z	.39	.39	Ö	%100
21	M21	<u> </u>	.7565	.7565	0	%100
22	M21	Z	1.3104	1.3104	0	
23	M22	X	.7565	.7565		%100
24	M22	Ž	1.3104	1 2104	0	%100
25	M23	X	.7565	1.3104 .7565	0	%100
26	M23	Z	1.3104		0	%100
27	M24	X		1.3104	0	%100
28	M24		.7565	.7565	_0	%100
29	M25	<u>Z</u>	1.3104	1.3104	0	%100
30	M25	X	1.3351	1.3351	0	%100
31	M26	Z	2.3125	2.3125	0	%100
32	M26	X	1.3351	1.3351	0	%100
33	M27	Z	2.3125	2.3125	0	%100
34		X	.928	.928	0	%100_
35	M27	Z	1.6073	1.6073	0	%100
36	M28	X	.928	.928	0	%100
	M28	Z	1.6073	1.6073	0	%100
37	M31	X	.6532	.6532	0	%100
	M31	Z	1.1314	1.1314	0	%100
39	MP4A	X	2.1967	2.1967	0	%100
40	MP4A	Z	3.8048	3.8048	0	%100
41	MP3A	X	2.1967	2.1967	0	%100
42	MP3A	Z	3.8048	3.8048	0	%100
43	MP2A	X Z	2.1967	2.1967	0	%100
44	MP2A		3.8048	3.8048	0	%100
45	MP1A	X	2.1967	2.1967	0	%100
46	MP1A	Z	3.8048	3.8048	0	%100
47	M44	X	1.2274	1.2274	0	%100
48	M44	Z	2.1259	2.1259	0	%100
49	M45	X	1.2274	1.2274	0	%100
50	M45	Z	2.1259	2.1259	Ō	%100
51	M46	X	1.2274	1.2274	0	%100
52	M46	Z	2.1259	2.1259	Ö	%100

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

# Member Distributed Loads (BLC 58 : Structure Wi (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[l.	.Start Location[ft,	End Location[ft
=0	M47	X	1.2274	1.2274	0	%100
53 54		7	2.1259	2.1259	0	%100
54	M47	<del></del>	2.0287	2.0287	0	%100
55	M48	7	3.5139	3.5139	0	%100
56	M48			2.0287	0	%100
57	M49	X	2.0287		0	%100
58	M49	Z	3.5139	3.5139	0	/0100

Member Distributed Loads (BLC 59 : Structure Wi (180 Deg))

<u>Member Dis</u>	stributed Loads (BLC 5	9 : Structure		Fad Manaitudall	Start Location(ft	End Locationift
	Member Label		Start Magnitude	C O	0	%100
1	M1	X		4.8218	o	%100
2	<u>M1</u>	Z	4.8218	0	0	%100
3	M2	X	0	4.8218	0	%100
4	M2	Z	4.8218		0	%100
5	M13	X	0	0	0	%100
6	M13	Z	0	0	0	%100
7	M14	X	0	0	0	%100
8	M14	Z	0	0	0	%100
9	M15	X	0	0	0	%100
10	M15	Z	0	0	0	%100
11	M16	X	0	0		%100
12	M16	Z	0	0	0	%100
13	M17	X	0	0	0	%100
14	M17	Z	2.0001	2.0001	0	%100 %100
15	M18	X	0	0	0	%100
16	M18	Z	2.0001	2.0001	0	%100
17	M19	X	0	0	0	%100
18	M19	Z	2.0001	2.0001	0	%100
19	M20	X	0	0	0	%100
20	M20	Z	2.0001	2.0001	0	%100
21	M21	X	0	0	0	%100
22	M21	Z	2.0175	2.0175	0	%100
23	M22	X	0	0	0	%100
24	M22	Z	2.0175	2.0175	0	%100
25	M23	X	0	0	0	%100
26	M23	Z	2.0175	2.0175	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	2.0175	2.0175	0	%100
29	M25	X	0	0	0	%100
30	M25	Z	2.3212	2.3212	0	%100
	M26	X	0	0	0	%100
31	M26	Z	2.3212	2.3212	0	%100
32	M27	X	0	0	0	%100
33	M27	Z	2.3212	2.3212	0	%100
34	M28	X	0	0	0	%100
35	M28	Z	2.3212	2.3212	0	%100
36	M31	X	0	0	0	%100
37		Z	.0156	.0156	0	%100
38	M31	X	0	0	0	%100
39	MP4A	Z	4.3934	4.3934	0	%100
40	MP4A	X	0	0	0	%100
41	MP3A	Z	4.3934	4.3934	0	%100
42	MP3A	X	0	0	0	%100
43	MP2A		4.3934	4.3934	0	%100
44	MP2A	Z	4.3934	0	0	%100
45	MP1A	X	4.3934	4.3934	0	%100
46	MP1A	Z	4.3934	4.3934	Ö	%100
47	M44	Λ	0			



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

### Member Distributed Loads (BLC 59 : Structure Wi (180 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude(I	Start LocationIft	End Location[ft,
48	M44	Z	2.4547	2.4547	0	%100
49	M45	X	0	0	0	%100
50	M45	Z	2.4547	2.4547	ŏ	%100
51	M46	X	0	0	0	%100
52	M46	Z	2.4547	2.4547	Ů	%100
53	M47	X	0	0	0	%100
54	M47	Z	2,4547	2.4547	0	%100
55	M48	X	0	0	0	%100
56	M48	Z	4.0575	4.0575	0	%100
57	M49	X	0	0	0	%100
58	M49	Z	4.0575	4.0575	0	%100

Member Distributed Loads (BLC 60 : Structure Wi (210 Deg))

	Member Label	Direction	Start Magnitude.	.End Magnitudell	.Start LocationIft	End Location(ff
1	M1	X	-1.8082	-1.8082	0	%100
2	M1	Z	3.1318	3.1318	0	%100
3	M2	X	-1.8082	-1.8082	0	%100
4	M2	Z	3.1318	3.1318	Ö	%100
5	M13	X	2522	2522	0	%100
6	M13	Z	.4368	.4368	Ö	%100
7	M14	X	2522	2522	0	%100
8	M14	Z	.4368	.4368	0	%100
9	M15	X	2522	2522	0	%100
10	M15	Z	.4368	.4368	0	%100
11	M16	X	2522	2522	0	%100
12	M16	Z	.4368	.4368	0	%100
13	M17	X	2252	2252	0	%100
14	M17	Z	.39	.39	0	%100
15	M18	X	2252	2252	0	%100
16	M18	Z	.39	.39	0	%100
17	M19	X	-1.5815	-1.5815	0	%100 %100
18	M19	Z	2.7393	2.7393	0	%100
19	M20	X	-1.5815	-1.5815	0	%100
20	M20	Z	2.7393	2.7393	0	%100 %100
21	M21	X	7565	7565	0	%100
22	M21	Z	1.3104	1.3104	0	%100 %100
23	M22	X	7565	7565	Ö	%100
24	M22	Z	1.3104	1.3104	Ö	%100
25	M23	X	7565	7565	0	%100 %100
26	M23	Z	1.3104	1.3104	0	%100 %100
27	M24	X	7565	7565	0	%100 %100
28	M24	Ž	1.3104	1.3104	0	%100
29	M25	X	928	928	0	%100
30	M25	Z	1.6073	1.6073	0	%100
31	M26	X	928	928	0	%100 %100
32	M26	Z	1.6073	1.6073	0	
33	M27	X	-1.3351	-1.3351	0	%100
34	M27	Z	2.3125	2.3125		%100
35	M28	X	-1.3351	-1.3351	0	%100
36	M28	Z	2.3125		0	%100
37	M31	X	4668	2.3125	0	%100
38	M31	Ž	4668 8086	4668	0	%100
39	MP4A			.8086	0	%100
40	MP4A	X	-2.1967	-2.1967	0	%100
41	MP3A		3.8048	3.8048	0	%100
42	MP3A	X	-2.1967	-2.1967	0	%100
74	IVIFOA	Z	3.8048	3.8048	0	%100

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Distributed Loads (BLC 60 : Structure Wi (210 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[I.	.Start Location[ft.	.End Location[ft
40	MP2A	X	-2.1967	-2.1967	0	%100
43	MP2A	Z	3.8048	3.8048	0	%100
44	MP1A	$\frac{1}{x}$	-2.1967	-2.1967	0	%100
45	MP1A	7	3.8048	3.8048	0	%100
46		X	-1.2274	-1.2274	0	%100
47	M44 M44	7	2.1259	2.1259	0	%100
48		X	-1.2274	-1.2274	0	%100
49	M45	7	2.1259	2.1259	0	%100
50	M45	Y	-1.2274	-1.2274	0	%100
51	M46	Z	2.1259	2.1259	0	%100
52	M46	X	-1.2274	-1.2274	0	%100
53	M47		2.1259	2.1259	Ŏ	%100
54	M47	X	-2.0287	-2.0287	0	%100
55	M48	Z	3.5139	3.5139	0	%100
56	M48		-2.0287	-2.0287	0	%100
57 58	M49 M49	X Z	3.5139	3.5139	Ö	%100

Member Distributed Loads (BLC 61 : Structure Wi (240 Deg))

Wember D	istributed Loads (BLC 6	Direction	Start Magnitude	End Magnitude[l	Start LocationIft.	End Location[ft,
	Member Label	X	-1.0439	-1.0439	0	%100
_ 1	M1	Z	.6027	.6027	0	%100
2	M1 M2	X	-1.0439	-1.0439	0	%100
3		Z	.6027	.6027	0	%100
4	M2	X	-1.3104	-1.3104	0	%100
5	M13	Z	.7565	.7565	0	%100
6	M13	X	-1.3104	-1.3104	0	%100
7	M14	Z	.7565	.7565	0	%100
8	M14	X	-1.3104	-1.3104	0	%100
9	M15	Z	.7565	.7565	0	%100
10	M15	X	-1.3104	-1.3104	0	%100
11	M16	Z	.7565	.7565	0	%100
12	M16	X	055	055	0	%100
13	M17	Ž	.0317	.0317	0	%100
14	M17	X	055	055	0	%100
15	M18	Ž	.0317	.0317	0	%100
16	M18		-2.4043	-2.4043	0	%100
17	M19	X Z	1.3881	1.3881	0	%100
18	M19	X	-2.4043	-2.4043	0	%100
19	M20		1.3881	1.3881	Ö	%100
20	M20	Z	4368	4368	0	%100
21	M21	X	.2522	.2522	Ö	%100
22	M21	Z	-,4368	4368	0	%100
23	M22	X	.2522	.2522	0	%100
24	M22	Z		4368	0	%100
25	M23	X	4368	.2522	0	%100
26	M23	Z	.2522	4368	0	%100
27	M24	X	4368	.2522	0	%100
28	M24	Z	.2522	-1.5068	0	%100
29	M25	X	-1.5068		0	%100
30	M25	Z	.87	.87	0	%100
31	M26	X	-1.5068	-1.5068		%100
32	M26	Z	.87	.87	0	%100
33	M27	X	-2.2119	-2.2119		%100
34	M27	Z	1.2771	1.2771	0	%100 %100
35	M28	X	-2.2119	-2.2119	0	%100 %100
36	M28	Z	1.2771	1.2771	0	%100 %100
37	M31	X	-2.7215	-2.7215	0	% 100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

### Member Distributed Loads (BLC 61 : Structure Wi (240 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[I.	.Start Location[ft.	End Location[ft
38	M31	Z	1.5713	1.5713	0	%100
39	MP4A	X	-3.8048	-3.8048	0	%100
40	MP4A	Z	2.1967	2.1967	0	%100
41	MP3A	X	-3.8048	-3,8048	0	%100
42	MP3A	Z	2.1967	2.1967	0	%100
43	MP2A	X	-3.8048	-3.8048	0	%100
44	MP2A	Z	2.1967	2.1967	0	%100
45	MP1A	X	-3.8048	-3.8048	0	%100
46	MP1A	Z	2.1967	2.1967	0	%100
47	M44	X	-2.1259	-2.1259	0	%100
48	M44	Z	1.2274	1.2274	0	%100
49	M45	X	-2.1259	-2.1259	0	%100
50	M45	Z	1.2274	1.2274	0	%100
51	M46	X	-2.1259	-2.1259	0	%100
52	M46	Z	1.2274	1.2274	0	%100
53	M47	X	-2.1259	-2.1259	0	%100
54	M47	Z	1.2274	1.2274	0	%100
55	M48	X	-3.5139	-3.5139	0	%100
56	M48	Z	2.0287	2.0287	0	%100
57	M49	X	-3.5139	-3.5139	0	%100
58	M49	Z	2.0287	2.0287	0	%100

### Member Distributed Loads (BLC 62 : Structure Wi (270 Deg))

	Member Label	Direction	Start Magnitude	.End Magnitudell.	Start Location(ft	End Location(ft
1	M1	X	O	0	0	%100
2	M1	Z	0	0	0	%100
3	M2	X	0	0	0	%100
4	M2	Z	0	Ö	0	%100
5	M13	X	-2.0175	-2.0175	0	%100
6	M13	Z	0	0	0	%100
_7	M14	X	-2.0175	-2.0175	0	%100
8	M14	Z	0	0	0	%100
9	M15	X	-2.0175	-2.0175	0	%100
10	M15	Z	0	0	0	%100
11	M16	X	-2.0175	-2.0175	0	%100
12	M16	Z	0	0	0	%100
13	M17	X	-1.2264	-1.2264	0	%100
14	M17	Z	0	0	0	%100
15	M18	X	-1.2264	-1.2264	0	%100
16	M18	Z	0	0	0	%100
17	M19	X	-1.2264	-1.2264	0	%100
18	M19	Z	0	0	0	%100
19	M20	X	-1.2264	-1.2264	0	%100
20	M20	Z	0	0	0	%100
21	M21	X	0	Ö	0	%100
22	M21	Z	0	0	Ö	%100
23	M22	X	0	0	0	%100
24	M22	Z	0	Ö	Ö	%100
25	M23	X	0	0	0	%100
26	M23	Z	0	0	0	%100
27	M24	X	0	Ō	0	%100
28	M24	Z	0	0	Ö	%100
29	M25	X	-2.089	-2.089	Ö	%100
30	M25	Z	0	0	Ö	%100
31	M26	X	-2.089	-2.089	0	%100
32	M26	X	0	0	Ö	%100

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Distributed Loads (BLC 62 : Structure Wi (270 Deg)) (Continued)

	Member Label		Start Magnitude	End Magnitude[IS	tart Location[II.	<u>End Location</u>
33	M27	X	-2.089	-2.089	0	%100
34	M27	Z	0	0	0	The state of the s
35	M28	X	-2.089	-2.089	0	%100
36	M28	Z	0	0	0	%100
37	M31	X	-4.4334	-4.4334	0	%100
38	M31	Z	0	0	0	%100
	MP4A	X	-4.3934	-4.3934	0	%100
39	MP4A	Z	0	0	0	%100
40	MP3A	X	-4.3934	-4.3934	0	%100
41	MP3A	Z	0	0	0	%100
42	MP2A	X	-4.3934	-4.3934	0	%100
43	MP2A	Ž	0	0	0	%100
44		X	-4.3934	-4.3934	0	%100
45	MP1A	Z	0	0	0	%100
46	MP1A	X	-2.4547	-2.4547	0	%100
47	M44	Ž	0	0	0	%100
48	M44	X	-2.4547	-2.4547	0	%100
49	M45	7	0	0	0	%100
50	M45	X	-2.4547	-2.4547	0	%100
51	M46		0	0	0	%100
52	M46	X	-2.4547	-2.4547	0	%100
53	M47	7	0	0	0	%100
54	M47		-4.0575	-4.0575	0	%100
55	M48	X	-4.0575	-4.0373	Ŏ	%100
56	M48	Z		-4.0575	0	%100
57	M49	X	-4.0575	-4.0373	0	%100
58	M49	Z	0	U		70.00

## Member Distributed Loads (BLC 63 : Structure Wi (300 Deg))

	Member Label	Direction		End Magnitude[IS	Start Location[ft.	End Location
1	M1	X	-1.0439	-1.0439	0	%100
2	M1	Z	6027	6027	0	%100
	M2	X	-1.0439	-1.0439	0	%100
3	M2	Z	6027	6027	0	%100
4	M13	X	-1.3104	-1.3104	0	%100
5	M13	Z	7565	-,7565	0	%100
6	M14	X	-1.3104	-1.3104	0	%100
7	M14	Z	7565	7565	0	%100
8	M15	X	-1.3104	-1.3104	0	%100
9	M15	Z	7565	7565	0	%100
10		X	-1.3104	-1.3104	0	%100
11	M16	Z	7565	7565	0	%100
12	M16	- X	-2.4043	-2.4043	0	%100
13	M17	7	-1.3881	-1.3881	0	%100
14	M17	X	-2.4043	-2.4043	0	%100
15	M18	7	-1.3881	-1.3881	0	%100
16	M18	X	055	055	0	%100
17	M19	7	0317	0317	0	%100
18	M19	X	055	055	0	%100
19	M20	Ż	0317	0317	0	%100
20	M20		4368	4368	0	%100
21	M21	X	2522	2522	0	%100
22	M21	Z		4368	0	%100
23	M22	X	4368	2522	0	%100
24	M22	Z	2522	4368	0	%100
25	M23	X	4368		0	%100
26	M23	Z	2522	2522	0	%100
27	M24	X	4368	4368	<u> </u>	70100

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:

## Member Distributed Loads (BLC 63 : Structure Wi (300 Deg)) (Continued)

Member Label	Direction	Start Magnitude	End Magnitudell	Start Location(ff	End Location#
M24	Z	2522	- 2522		%100
M25					%100
M25					%100
M26					%100
M26					%100
M27					%100
M27					%100 %100
M28					%100
M28					%100
M31					%100
M31					%100 %100
MP4A					%100
MP4A					%100
MP3A	X				%100
					%100
MP2A					%100
	7				%100 %100
	7				%100
M44					%100
M44	7				%100 %100
M45					
	7				%100
					%100
	7				%100
					%100
					%100
					%100
					%100
					%100
	7				%100 %100
	M24 M25 M25 M26 M26 M27 M27 M27 M28 M28 M31 M31 M94A MP4A MP4A MP4A MP4A MP3A MP3A MP3A MP3A MP2A MP2A MP1A MP1A MP1A	M24         Z           M25         X           M26         X           M26         Z           M27         X           M27         Z           M28         X           M28         Z           M31         X           M31         Z           MP4A         X           MP4A         X           MP4A         Z           MP3A         X           MP3A         Z           MP2A         X           MP1A         X           MP1A         X           MP1A         X           M44         X           M45         X           M46         X           M47         X           M48         X           M49         X	M24         Z        2522           M25         X         -2.2119           M26         X         -2.2119           M26         Z         -1.2771           M27         X         -1.5068           M27         Z        87           M28         X         -1.5068           M28         Z        87           M31         X         -3.0444           M31         Z         -1.7577           MP4A         X         -3.8048           MP4A         Z         -2.1967           MP3A         X         -3.8048           MP3A         Z         -2.1967           MP2A         X         -3.8048           MP2A         X         -3.8048           MP2A         X         -3.8048           MP1A         X         -2.1967           M44         X         -2.1259           M	M24         Z        2522        2522           M25         X         -2.2119         -2.2119           M26         X         -2.2119         -2.2119           M26         X         -2.2119         -2.2119           M26         Z         -1.2771         -1.2771           M27         X         -1.5068         -1.5068           M27         Z        87        87           M28         X         -1.5068         -1.5068           M28         X         -3.8048         -3.8048         -3.8048           MP30         X         -3.	M24         Z        2522        2522         0           M25         X         -2.2119         -2.2119         0           M25         Z         -1.2771         -1.2771         0           M26         X         -2.2119         -2.2119         0           M26         Z         -1.2771         0         0           M27         X         -1.5068         -1.5068         0           M27         Z         -87         -87         0           M28         X         -1.5068         0         0           M28         Z         -87         -87         0           M31         X         -3.8048

#### Member Distributed Loads (BLC 64 : Structure Wi (330 Deg))

	Member Label	Direction	Start Magnitude	End Magnitudell	.Start Location[ft,	End Location#
1	M1	X	-1.8082	-1.8082	0	%100
2	M1	Z	-3.1318	-3.1318	0	%100
3	M2	X	-1.8082	-1.8082	0	%100
4	M2	Z	-3.1318	-3.1318	0	%100
5	M13	X	2522	2522	0	%100
6	M13	Z	4368	4368	0	%100 %100
7	M14	X	2522	2522	0	
8	M14	Z	4368	4368		%100
9	M15	X	2522		0	%100
10	M15	Z		2522	0	%100
11	M16	X	4368	4368	0	%100
12	M16		2522	2522	0	%100
13		Z	4368	4368	0	%100
14	M17	X	-1.5815	-1.5815	0	%100
	M17	Z	-2.7393	-2.7393	0	%100
15	M18	X	-1.5815	-1.5815	0	%100
16	M18	Z	-2.7393	-2.7393	0	%100
17	M19	X	2252	2252	0	%100
18	M19	Z	39	39	0	%100
19	M20	X	2252	2252	0	%100
20	M20	Z	39	39	0	%100
21	M21	X	7565	7565	0	%100
22	M21	Ž	-1.3104	-1.3104	0	%100

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

## Member Distributed Loads (BLC 64 : Structure Wi (330 Deg)) (Continued)

	Member Label		Start Magnitude	End Magnitude[IS	tart Locationijit.	%100
23	M22	X	7565	7565	0	%100
24	M22	Z	-1.3104	-1.3104	0	%100
25	M23	X	7565	7565	0	%100 %100
26	M23	Z	-1.3104	-1.3104	0	%100 %100
27	M24	X	7565	7565	0	
28	M24	Z	-1.3104	-1.3104	0	%100 %100
29	M25	X	-1.3351	-1.3351	0	
30	M25	Z	-2.3125	-2.3125	0	%100
31	M26	X	-1.3351	-1.3351	0	%100
32	M26	Z	-2.3125	-2.3125	0	%100
33	M27	X	928	928	0	%100
34	M27	Z	-1.6073	-1.6073	0	%100
35	M28	X	928	928	0	%100
36	M28	Z	-1.6073	-1.6073	0	%100
37	M31	X	6532	6532	0	%100
38	M31	Z	-1.1314	-1.1314	0	%100
39	MP4A	X	-2.1967	-2.1967	0	%100
40	MP4A	Z	-3.8048	-3.8048	0	%100
41	MP3A	X	-2.1967	-2.1967	0	%100
42	MP3A	Z	-3.8048	-3.8048	0	%100
43	MP2A	X	-2.1967	-2.1967	0	%100
	MP2A	Z	-3.8048	-3.8048	0	%100
44	MP1A	X	-2.1967	-2.1967	0	%100
45	MP1A	Z	-3.8048	-3.8048	0	%100
46	M44	X	-1.2274	-1.2274	0	%100
47	M44	Z	-2.1259	-2.1259	0	%100
48	M45	X	-1.2274	-1.2274	0	%100
49	M45	Z	-2.1259	-2.1259	0	%100
50	M46	X	-1.2274	-1.2274	0	%100
51	M46	Z	-2.1259	-2.1259	0	%100
52	M47	X	-1.2274	-1.2274	0	%100
53	M47	Z	-2.1259	-2.1259	0	%100
54		$\frac{z}{x}$	-2.0287	-2.0287	0	%100
55	M48 M48	Z	-3.5139	-3.5139	0	%100
56		X	-2.0287	-2.0287	0	%100
57 58	M49 M49	Z	-3.5139	-3.5139	0	%100

## Member Distributed Loads (BLC 65 : Structure Wm (0 Deg))

	Member Label	Direction	Start Magnitude.	.End Magnitude[I.	.Start Location[ft,	End Location[ft,
		X	0	0	0	%100
1	M1M1	Z	7823	7823	0	%100
2		-	0	0	0	%100
3	M2	7	7823	7823	0	%100
4	M2	X	0	0	0	%100
5	M13	7	0	0	0	%100
6	M13	X	1 0	i o	0	%100
7	M14	7	0	0	0	%100
8	M14	X	0	0	0	%100
9	M15	Z	+ 0	0	0	%100
10	M15		1 - 0	0	0	%100
11	M16	X	0	0	0	%100
12	M16		0	0	0	%100
13	M17	X	3089	3089	0	%100
14	M17		3009	5003	0	%100
15	M18	X	2000	3089	0	%100
16	M18	Z	3089	3069	0	%100
17	M19	X	0		0	

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_\_

#### Member Distributed Loads (BLC 65 : Structure Wm (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude[]	Start Location(f)	End Location(ft
18	M19	Z	3089	3089	0	%100
19	M20	X	0	0	0	%100
20	M20	Z	3089	3089	Ö	%100
21	M21	X	0	0	0	%100
22	M21	Z	1701	1701	0	%100
23	M22	X	0	0	0	%100
24	M22	Z	1701	1701	0	%100
25	M23	X	0	0	0	%100
26	M23	Z	1701	1701	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	1701	1701	0	%100
29	M25	X	0	0	0	%100
30	M25	Z	1761	1761	0	%100
31	M26	X	0	0	0	%100
32	M26	Z	1761	1761	Ö	%100
33	M27	X	0	0	0	%100
34	M27	Z	1761	1761	0	%100
35	M28	X	0	0	0	%100
36	M28	Z	1761	1761	0	%100
37	M31	X	0	0	0	%100
38	M31	Z	0023	0023	0	%100
39	MP4A	X	0	0	0	%100
40	MP4A	Z	6463	6463	0	%100
41	MP3A	X	0	0	0	%100
42	MP3A	Z	6463	6463	Ö	%100
43	MP2A	X	0	0	Ö	%100
44	MP2A	Z	6463	6463	0	%100
45	MP1A	X	0	0	0	%100
46	MP1A	Z	6463	6463	Ö	%100
47	M44	X	0	0	0	%100
48	M44	Z	1701	1701	0	%100
49	M45	X	0	0	0	%100
50	M45	Z	1701	1701	0	%100
51	M46	X	0	0	0	%100
52	M46	Z	1701	1701	0	%100
53	M47	X	0	0	0	%100
54	M47	Ž	1701	1701	Ö	%100
55	M48	X	0	0	Ö	%100
56	M48	Z	6463	6463	Ö	%100
57	M49	X	0	0	0	%100
58	M49	Z	6463	6463	0	%100

#### Member Distributed Loads (BLC 66 : Structure Wm (30 Deg))

	Member Label	Direction	Start Magnitude	.End Magnitude[I.	.Start Location[ft.	End Location(ft
1	M1	X	.2934	.2934	0	%100
2	M1	Z	5081	5081	0	%100
3	M2	X	.2934	.2934	0	%100
4	M2	Z	5081	5081	0	%100
5	M13	X	.0213	.0213	0	%100
6	M13	Z	0368	0368	0	%100
7	M14	X	.0213	.0213	0	%100
8	M14	Z	0368	0368	0	%100
9	M15	X	.0213	.0213	0	%100
10	M15	Z	0368	0368	0	%100
11	M16	X	.0213	.0213	0	%100
12	M16	Z	0368	0368	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

## Member Distributed Loads (BLC 66 : Structure Wm (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude[IS	tart Location(it.	%100
13	M17	X	.0348	.0348	0	%100 %100
14	M17	Z	0602	0602	0	%100 %100
5	M18	X	.0348	.0348	0	%100
16	M18	Z	0602	0602	0	%100 %100
7	M19	X	.2442	.2442		%100
8	M19	Z	423	423	0	%100
19	M20	X	.2442	.2442	0	%100 %100
20	M20	Z	423	423	0	%100 %100
21	M21	X	.0638	.0638	0	%100
22	M21	Z	1105	1105	0	%100 %100
23	M22	X	.0638	.0638	0	%100
24	M22	Z	1105	1105	0	%100 %100
25	M23	X	.0638	.0638	0	
26	M23	Z	1105	1105	0	%100
27	M24	X	.0638	.0638	0	%100
28	M24	Z	1105	1105	0	%100
29	M25	X	.0704	.0704	0	%100
30	M25	Z	122	122	0	%100
31	M26	X	.0704	.0704	00	%100
32	M26	Z	122	122	0	%100
33	M27	X	.1013	.1013	0	%100
34	M27	Z	1755	1755	0	%100
35	M28	X	.1013	.1013	0	%100
36	M28	Z	1755	1755	0	%100
37	M31	X	.0679	.0679	0	%100
38	M31	Z	1176	1176	0	%100
39	MP4A	X	.3231	.3231	0	%100
40	MP4A	Z	5597	5597	0	%100
41	MP3A	X	.3231	.3231	0	%100
42	MP3A	Z	5597	5597	0	%100
43	MP2A	X	.3231	.3231	0	%100
44	MP2A	Z	5597	5597	0	%100
45	MP1A	X	.3231	.3231	0	%100
46	MP1A	Z	5597	5597	0	%100
47	M44	X	.085	.085	0	%100
48	M44	Z	1473	1473	0	%100
49	M45	X	.085	.085	0	%100
50	M45	Z	1473	1473	0	%100
51	M46	X	.085	.085	0	%100
52	M46	Z	1473	1473	0	%100
53	M47	X	.085	.085	0	%100
	M47	Z	1473	1473	0	%100
54 55	M48	X	.3231	.3231	0	%100
	M48	Z	5597	5597	0	%100
56	M49	X	.3231	.3231	0	%100
57 58	M49	Ž	5597	5597	0	%100

## Member Distributed Loads (BLC 67 : Structure Wm (60 Deg))

HOMBO! E	Member Label	Direction	Start Magnitude.	End Magnitude[l.	.Start Location[ft.	End Location[ft
	Member Laber	X	.1694	.1694	0	%100
1	IVII	7	0978	0978	0	%100
2	M1	Y	.1694	.1694	0	%100
3	M2	7	0978	0978	0	%100
4	M2		.1105	.1105	0	%100
5	M13		0638	0638	0	%100
6	M13		.1105	.1105	0	%100
7	M14		.1103	.1100		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

#### Member Distributed Loads (BLC 67 : Structure Wm (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[I.	.Start Location[ft,	.End Location[ft,
8	M14	Z	0638	0638	0	%100
9	M15	X	.1105	.1105	0	%100
10	M15	Z	0638	0638	0	%100
11	M16	X	.1105	.1105	0	%100
12	M16	Z	0638	0638	0	%100
13	M17	X	.0085	.0085	0	%100
14	M17	Z	0049	0049	0	%100
15	M18	X	.0085	.0085	0	%100
16	M18	Z	0049	0049	0	%100
17	M19	X	.3713	.3713	0	%100
18	M19	Z	2144	2144	0	%100
19	M20	X	.3713	.3713	0	%100
20	M20	Z	2144	2144	0	%100
21	M21	X	.0368	.0368	O O	%100
22	M21	Z	0213	0213	0	%100
23	M22	X	.0368	.0368	0	%100
24	M22	Z	0213	0213	Ŏ	%100
25	M23	X	.0368	.0368	0	%100
26	M23	Ž	0213	0213	Ö	%100
27	M24	X	.0368	.0368	Ö	%100
28	M24	Z	0213	0213	Ö	%100 %100
29	M25	X	.1143	.1143	0	%100 %100
30	M25	Z	066	066	0	%100 %100
31	M26	X	.1143	.1143	0	%100
32	M26	Z	066	066	0	%100 %100
33	M27	X	.1679	.1679	0	%100
34	M27	Z	0969	0969	0	%100 %100
35	M28	X	.1679	.1679	0	%100 %100
36	M28	Z	0969	0969	0	%100 %100
37	M31	X	.3958	.3958	0	%100 %100
38	M31	Z	2285	2285	0	
39	MP4A	X	.5597	.5597	0	%100
40	MP4A	Ž	3231	3231		%100
41	MP3A	X	.5597	.5597	0	%100
42	MP3A	Z	3231	3231	0	%100
43	MP2A	X	.5597	.5597	0	%100
44	MP2A	Z	3231		0	%100
45	MP1A	X	.5597	3231 .5597	0	%100
46	MP1A	Z	3231		0	%100
47	M44	X	.1473	3231	0	%100
48	M44	Z		.1473	0	%100
49	M45	X	085	085	0	%100
50	M45		.1473	.1473	0	%100
51	M46	Z	085	085	0	%100
52	N46	X	.1473	.1473	0	%100
53		Z	085	085	0	%100
54	M47	X	.1473	.1473	0	%100
55	M47	Z	085	085	0	%100
56	M48	X	.5597	.5597	0	%100
	M48	Z	3231	3231	0	%100
57 58	M49	X	.5597	.5597	0	%100
00	M49	Z	3231	3231	0	%100

#### Member Distributed Loads (BLC 68 : Structure Wm (90 Deg))

r r	Member Label	Direction	Start Magnitude	End Magnitude[I	Start Location(ft	End Location[ft
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100

# Member Distributed Loads (BLC 68 : Structure Wm (90 Deg)) (Continued)

	Member Label		Start Magnitude	End Magnitude[I	Start Location[ft.	%100
3	M2	X Z	0	0	0	%100
4	M2		0	0	0	%100
5	M13	X	.1701	.1701	0	
6	M13	Z	0	0	0	%100
7	M14	X	.1701	.1701	0	%100
8	M14	Z	0	0	0	%100
9	M15	X	.1701	.1701	0	%100
10	M15	Z	0	0	0	%100
11	M16	X	.1701	.1701	0	%100
12	M16	Z	0	0	0	%100
	M17	X	.1894	.1894	0	%100
13	M17	Z	0	0	0	%100
14	M18	X	.1894	.1894	0	%100
15	M18	Z	0	0	0	%100
16	M19	X	.1894	.1894	0	%100
17	M19	Z	0	0	0	%100
18	M20	X	.1894	.1894	0	%100
19	M20	Z	0	0	0	%100
20	M21	X	0	0	0	%100
21	M21	Ž	0	0	0	%100
22		X	0	0	0	%100
23	M22	Z	Ö	0	0	%100
24	M22	X	0	0	0	%100
25	M23	Z	Ö	0	0	%100
26	M23	X	0	0	0	%100
27	M24	Z	0	0	0	%100
28	M24	X	.1585	.1585	0	%100
29	M25	Z	0	0	0	%100
30	M25	X	.1585	.1585	0	%100
31	M26		0	0	0	%100
32	M26	Z	.1585	.1585	0	%100
33	M27	X	.1363	0	0	%100
34	M27	Z		.1585	0	%100
35	M28	X	.1585	0	0	%100
36	M28	Z	0	.6447	0	%100
37	M31	X	.6447	0	0	%100
38	M31	Z	0	.6463	0	%100
39	MP4A	X	.6463		0	%100
40	MP4A	Z	0	0	0	%100
41	MP3A	X	.6463	.6463	0	%100
42	MP3A	Z	0	0	0	%100
43	MP2A	X	.6463	.6463	0	%100
44	MP2A	Z	0	0		%100
45	MP1A	X	.6463	.6463	0	%100
46	MP1A	Z	0	0		%100
47	M44	X	.1701	1701	0	
48	M44	Z	0	0	0	%100
49	M45	X	.1701	.1701	0	%100
50	M45	Z	0	0	0	%100
51	M46	X	.1701	.1701	0	%100
52	M46	Z	0	0	0	%100
	M47	X	.1701	.1701	0	%100
53	M47	Z	0	0	0	%100
54	M48	X	.6463	.6463	0	%100
55	M48	Z	0	0	0	%100
56	M49	X	.6463	.6463	0	%100
57 58	M49	7	0	0	0	%100



Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_\_

## Member Distributed Loads (BLC 69 : Structure Wm (120 Deg))

r . r	Member Label	Direction	Start Magnitude	End Magnitude[I	Start LocationIft	.End Locationift
1	M1	X	.1694	.1694	0	%100
2	M1	Z	.0978	.0978	0	%100
3	M2	X	.1694	.1694	0	%100
4	M2	Z	.0978	.0978	0	%100
5	M13	X	.1105	.1105	0	%100
6	M13	Z	.0638	.0638	0	%100
7	M14	X	.1105	.1105	0	%100
8	M14	Z	.0638	.0638	0	%100
9	M15	X	.1105	.1105	0	%100
10	M15	Z	.0638	.0638	0	%100
11	M16	X	.1105	.1105	0	%100
12	M16	Z	.0638	.0638	0	%100
13	M17	X	.3713	.3713	0	%100
14	M17	Z	.2144	.2144	0	%100
15	M18	X	.3713	.3713	0	%100
16	M18	Z	.2144	.2144	Ö	%100
17	M19	X	.0085	.0085	0	%100
18	M19	Z	.0049	.0049	Ö	%100
19	M20	X	.0085	.0085	0	%100
20	M20	Z	.0049	.0049	0	%100
21	M21	X	.0368	.0368	0	%100
22	M21	Z	.0213	.0213	Ö	%100
23	M22	X	.0368	.0368	0	%100
24	M22	Z	.0213	.0213	0	%100
25	M23	X	.0368	.0368	0	%100
26	M23	Z	.0213	.0213	o o	%100
27	M24	X	.0368	.0368	0	%100
28	M24	Z	.0213	.0213	Ö	%100
29	M25	X	.1679	.1679	0	%100 %100
30	M25	Z	.0969	.0969	Ö	%100 %100
31	M26	X	.1679	.1679	0	%100 %100
32	M26	Z	.0969	.0969	0	%100
33	M27	X	.1143	.1143	0	%100 %100
34	M27	Z	.066	.066	0	%100
35	M28		.1143	.1143	0	%100
36	M28	X Z	.066	.066	0	%100
37	M31	X	.4427	.4427	0	%100 %100
38	M31	Z	.2556	.2556	0	%100 %100
39	MP4A	X	.5597	.5597	0	%100 %100
40	MP4A	Ž	.3231	.3231	0	%100 %100
41	MP3A	X	.5597	.5597	0	
42	MP3A	Z	.3231	.3231	0	%100 %100
43	MP2A	X	.5597	.5597		The second secon
44	MP2A	Z	.3231	.3231	0	%100 %100
45	MP1A	X	.5597	.5597		%100
46	MP1A	Z	.3231		0	%100
47	M44	X	.1473	.3231	0	%100
48	M44	Ž	.085	.085	0	%100
49	M45	X	.1473		0	<u>%100</u>
50	M45	Ž	.085	.1473	0	%100
51	M46	X	.1473	.1473	0	%100 %100
52	M46	Z			0	%100
53	M47	X	.085	.085	0	%100
54	M47	Z	.1473	.1473	0	%100
55	M48		.085	.085	0	%100
56	M48	X Z	.5597	.5597	0	%100
57	M49	X	.3231	.3231	0	%100
	IVI73		.5597	.5597	0	%100

: Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis

July 19, 2023 5:04 PM Checked By:\_

# Member Distributed Loads (BLC 69 : Structure Wm (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude[]	Start Location[ft.	End Location[ft,
58	M49	Z	.3231	.3231	0	%100

	istributed Loads (BLC 7	Direction	Start Magnitude.	End Magnitude[I.	.Start Location[ft,.	.End Location
1	M1	X	.2934	.2934	0	%100
1	M1	Z	.5081	.5081	0	%100
2	M2	X	.2934	.2934	0	%100
3	M2	Z	.5081	.5081	0	%100
4	M13	X	.0213	.0213	0	%100
5	M13	Z	.0368	.0368	0	%100
6	M14	X	.0213	.0213	0	%100
7		Z	.0368	.0368	0	%100
8	M14	X	.0213	.0213	0	%100
9	M15	Z	.0368	.0368	0	%100
10	M15	X	.0213	.0213	0	%100
11	M16	Z	.0368	.0368	0	%100
2	M16	X	.2442	.2442	0	%100
13	M17	Z	.423	.423	0	%100
14	M17	X	.2442	.2442	0	%100
15	M18	Z	.423	.423	0	%100
16	M18	X	.0348	.0348	0	%100
7	M19	Ž	.0602	.0602	0	%100
18	M19		.0348	.0348	0	%100
19	M20	X Z	.0602	.0602	0	%100
20	M20		.0638	.0638	0	%100
21	M21	X	.1105	.1105	0	%100
22	M21	Z	.0638	.0638	0	%100
23	M22	X	.1105	.1105	0	%100
24	M22	<u>Z</u>		.0638	0	%100
25	M23	X	.0638	.1105	0	%100
26	M23	Z	.1105	.0638	0	%100
27	M24	X	.0638		0	%100
28	M24	Z	.1105	.1105	0	%100
29	M25	<u> </u>	.1013	.1013	0	%100
30	M25	Z	.1755	.1755	0	%100
31	M26	X	.1013	.1013	0	%100
32	M26	Z	.1755	.1755	0	%100 %100
33	M27	X	.0704	.0704		%100
34	M27	Z	.122	.122	0	%100
35	M28	X	.0704	.0704	0	%100
36	M28	Z	.122	.122	0	%100
37	M31	X	.095	.095	0	
38	M31	Z	.1645	.1645	0	%100
39	MP4A	X	.3231	.3231	0	%100
40	MP4A	Z	.5597	.5597	0	%100
41	MP3A	X	.3231	.3231	0	%100
42	MP3A	Z	.5597	.5597	0	%100
43	MP2A	X	.3231	.3231	0	%100
44	MP2A	Z	.5597	.5597	0	%100
45	MP1A	X	.3231	.3231	0	%100
46	MP1A	Z	.5597	.5597	0	%100
47	M44	X	.085	.085	0	%100
48	M44	Z	.1473	.1473	0	%100
49	M45	X	.085	.085	0	%100
50	M45	Z	.1473	.1473	0	%100
51	M46	X	.085	.085	0	%100
52	M46	Z	.1473	.1473	0	%100

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

#### Member Distributed Loads (BLC 70 : Structure Wm (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	End Magnitude(I.	Start Location(ft	End Location[ft
53	M47	X	.085	.085	0	%100
54	M47	Z	.1473	.1473	Ô	%100
55	M48	X	.3231	.3231	0	%100
56	M48	Z	.5597	.5597	Ŏ	%100
57	M49	X	.3231	.3231	0	%100
58	M49	Z	.5597	.5597	0	%100

#### Member Distributed Loads (BLC 71 : Structure Wm (180 Deg))

	Member Label	Direction	Start Magnitude	End Magnitudel	IStart Location[ft,.	End Location(ft
1	M1	X	0	0	0	%100
2	M1	Z	.7823	.7823	0	%100
3	M2	X	0	0	0	%100
4	M2	Z	.7823	.7823	0	%100
5	M13	X	0	0	0	%100
6	M13	Z	0	0	0	%100
7	M14	X	0	0	0	%100
8	M14	Z	0	0	0	%100
9	M15	X	0	0	0	%100
10	M15	Z	0	0	0	%100
11	M16	X	0	0	0	%100
12	M16	Z	0	0	0	%100
13	M17	X	0	0	0	%100
14	M17	Z	.3089	.3089	0	%100
15	M18	X	0	0	Ō	%100
16	M18	Z	.3089	.3089	0	%100
17	M19	X	0	0	0	%100
18	M19	Z	.3089	.3089	0	%100
19	M20	X	0	0	0	%100
20	M20	Z	.3089	.3089	0	%100
21	M21	X	0	0	0	%100
22	M21	Z	.1701	.1701	0	%100
23	M22	X	0	0	0	%100
24	M22	Z	.1701	.1701	0	%100
25	M23	X	0	0	0	%100
26	M23	Z	.1701	.1701	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	.1701	.1701	0	%100
29	M25	X	0	0	0	%100
30	M25	Z	.1761	.1761	0	%100
31	M26	X	0	0	0	%100
32	M26	Z	.1761	.1761	0	%100
33	M27	X	0	0	0	%100
34	M27	Z	.1761	.1761	0	%100
35	M28	X	0	0	0	%100
36	M28	Z	.1761	.1761	0	%100
37	M31	X	0	0	0	%100
38	M31	Z	.0023	.0023	0	%100
39	MP4A	X	0	0	0	%100
40	MP4A	Z	.6463	.6463	0	%100
41	MP3A	X	0	0	0	%100
42	MP3A	Z	.6463	.6463	0	%100
43	MP2A	X	0	0	0	%100
44	MP2A	Z	.6463	.6463	0	%100
45	MP1A	X	0	0	0	%100
46	MP1A	Z	.6463	.6463	0	%100
47	M44	X	0	0	0	%100

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

## Member Distributed Loads (BLC 71: Structure Wm (180 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[I.	.Start Location[ft.	End Location[ft,
10	M44	Z	.1701	.1701	0	%100
48	M45	X	0	0	0	%100
49	M45	7	.1701	.1701	0	%100
50	M46	X	0	0	0	%100
51		7	.1701	.1701	0	%100
52	M46	Y Y	1101	0	0	%100
53	M47	7	.1701	.1701	0	%100
54	M47	- V	1701	0	0	%100
55	M48		.6463	.6463	Ů	%100
56	M48	<del></del>	.0403	.0400	n	%100
57	M49	7	.6463	.6463	0	%100
58	M49		.0403	.0403		70100

## Member Distributed Loads (BLC 72 : Structure Wm (210 Deg))

	Member Label	Direction	Start Magnitude	End Magnitude[I.,S	Start Location[f	End Location[ft
1	M1	X	2934	2934	0	%100
2	M1	Z	.5081	.5081	0	%100
3	M2	X	2934	2934	0	%100
4	M2	Z	.5081	.5081	0	%100
5	M13	X	0213	0213	0	%100
6	M13	Z	.0368	.0368	0	%100
7	M14	X	0213	0213	0	%100
8	M14	Z	.0368	.0368	0	%100
9	M15	X	0213	0213	0	%100
10	M15	Z	.0368	.0368	0	%100
11	M16	X	0213	0213	0	%100
12	M16	Z	.0368	.0368	0	%100
13	M17	X	0348	0348	0	%100
	M17	Z	.0602	.0602	0	%100
14 15	M18	X	0348	0348	0	%100
16	M18	Z	.0602	.0602	0	%100
	M19	X	- 2442	2442	0	%100
17 18	M19	Z	.423	.423	0	%100
19	M20	X	2442	2442	0	%100
	M20	Z	.423	.423	0	%100
20 21	M21	X	0638	0638	0	%100
22	M21	Z	.1105	.1105	0	%100
	M22	X	0638	0638	0	%100
23	M22	Z	.1105	.1105	0	%100
24	M23	X	0638	0638	0	%100
25	M23	Z	.1105	.1105	0	%100
26	M24	X	0638	0638	0	%100
27	M24	Z	.1105	.1105	0	%100
28	M25	X	0704	0704	0	%100
29	M25	Z	.122	.122	0	%100
30	M26	X	0704	0704	Ō	%100
31	M26	Z	.122	.122	0	%100
32	M27	X	1013	1013	0	%100
33	M27	Z	.1755	.1755	0	%100
34		X	1013	1013	0	%100
35	M28	Z	.1755	.1755	0	%100
36	M28	X	0679	0679	0	%100
37	M31	Z	.1176	.1176	0	%100
38	M31	X	3231	3231	0	%100
39	MP4A	Ž	.5597	.5597	Ō	%100
40	MP4A	X	3231	3231	0	%100
41	MP3A	7	.5597	.5597	Ö	%100
42	MP3A		.0001	.0001		

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_\_

#### Member Distributed Loads (BLC 72 : Structure Wm (210 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitudell.	.Start Location[ft.	End Location[ft,
43	MP2A	X	3231	3231	0	%100
44	MP2A	Z	.5597	.5597	0	%100
45	MP1A	X	3231	3231	0	%100
46	MP1A	Z	.5597	.5597	0	%100
47	M44	X	085	085	0	%100
48	M44	Z	.1473	.1473	0	%100
49	M45	X	085	085	0	%100
50	M45	Z	.1473	.1473	0	%100
51	M46	X	085	085	0	%100
52	M46	Z	.1473	.1473	0	%100
53	M47	X	085	085	0	%100
54	M47	Z	.1473	.1473	0	%100
55	M48	X	3231	3231	0	%100
56	M48	Z	.5597	.5597	0	%100
57	M49	X	3231	3231	0	%100
58	M49	Z	.5597	.5597	0	%100

#### Member Distributed Loads (BLC 73 : Structure Wm (240 Deg))

	Member Label	Direction	Start Magnitude.	.End Magnitude[I	Start Location(ft	End Location(ff
_1	M1	X	1694	1694	0	%100
2	M1	Z	.0978	.0978	0	%100
3	M2	X	1694	1694	0	%100
4	M2	Z	.0978	.0978	0	%100
5	M13	X	1105	1105	0	%100
6	M13	Z	.0638	.0638	0	%100
7	M14	X	1105	1105	0	%100
8	M14	Z	.0638	.0638	0	%100
9	M15	X	1105	1105	0	%100
10	M15	Z	.0638	.0638	0	%100
11	M16	X	1105	1105	0	%100
12	M16	Z	.0638	.0638	0	%100
13	M17	X	0085	0085	0	%100
14	M17	Z	.0049	.0049	Ŏ	%100
15	M18	X	0085	0085	0	%100
16	M18	Z	.0049	.0049	Ö	%100
17	M19	X	3713	3713	Ö	%100
18	M19	Ž	.2144	.2144	0	%100
19	M20	X	3713	3713	0	%100
20	M20	Z	.2144	.2144	Ö	%100
21	M21	X	0368	0368	0	%100
22	M21	Z	.0213	.0213	Ŏ	%100
23	M22	X	0368	0368	0	%100
24	M22	Z	.0213	.0213	0	%100
25	M23	X	0368	0368	Ö	%100
26	M23	Z	.0213	.0213	Ö	%100
27	M24	X	0368	0368	0	%100
28	M24	Z	.0213	.0213	0	%100
29	M25	X	1143	1143	Ö	%100
30	M25	Ž	.066	.066	0	%100
31	M26	X	1143	1143	Ö	%100
32	M26	Z	.066	.066	0	%100
33	M27	X	1679	1679	0	%100 %100
34	M27	Z	.0969	.0969	0	%100
35	M28	X	1679	1679	0	%100
36	M28	Ž	.0969	.0969	0	%100
37	M31	X	3958	3958	0	%100

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

# Member Distributed Loads (BLC 73 : Structure Wm (240 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude[]	Start Location[ft,	End Location[ft
00	M31	Z	.2285	.2285	0	%100
38	MP4A	X	5597	5597	0	%100
39		Z	3231	.3231	0	%100
40	MP4A	X	5597	5597	0	%100
41	MP3A	Z	.3231	.3231	0	%100
42	MP3A		5597	5597	0	%100
43	MP2A	X 7		.3231	Ö	%100
44	MP2A		.3231	5597	0	%100
45	MP1A	X	5597		0	%100
46	MP1A	Z	.3231	.3231		%100
47	M44	X	1473	1473	0	
48	M44	Z	.085	.085	0	%100
49	M45	X	1473	1473	0	%100
	M45	Z	.085	.085	0	%100
50	M46	X	1473	1473	0	%100
51		7	.085	.085	0	%100
52	M46	X	1473	1473	0	%100
53	M47	Z	.085	.085	0	%100
54	M47	X	5597	5597	0	%100
55	M48	Z	.3231	.3231	0	%100
56	M48			5597	0	%100
57	M49	X	5597	The second secon	0	%100
58	M49	Z	.3231	.3231	U	70100

Member Distributed Loads (BLC 74 : Structure Wm (270 Deg))

	Member Label	Direction	Start Magnitude.	End Magnitude[I	Start Location[ft	End Location[II
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	M2	X	0	0	0	%100
	M2	Z	0	0	0	<u>%100</u>
4	M13	X	1701	1701	0	%100
5	M13	Z	0	0	0	%100
7	M14	X	1701	1701	0	%100
	M14	Z	0	0	0	%100
8	M15	X	1701	1701	0	%100
9	M15	Z	0	0	0	%100
10	M16	X	1701	1701	0	%100
11	M16	Ž	0	0	0	%100
12		X	1894	1894	0	%100
13	M17 M17	Z	0	0	0	%100
14		X	1894	1894	0	%100
15	M18	Z	0	0	0	%100
16	M18	X	1894	- 1894	0	%100
17	M19	Z	0	0	0	%100
18	M19	X	1894	1894	0	%100
19	M20	Z	0	0	0	%100
20	M20	X	1 0	0	0	%100
21	M21	Z	0	0	0	%100
22	M21	X	0	0	0	%100
23	M22		0	0	0	%100
24	M22	Z	0	0	Ö	%100
25	M23	X	0	0	Ö	%100
26	M23	Z		0	0	%100
27	M24	X	0	0	0	%100
28	M24	Z	0	1585	0	%100
29	M25	X	1585		0	%100
30	<u>M25</u>	Z	0	1505	0	%100
31	M26	X	1585	1585	0	%100
32	M26	Z	0	0	U	/0 100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_

## Member Distributed Loads (BLC 74 : Structure Wm (270 Deg)) (Continued)

	Member Label	Direction	Start Magnitude.	.End Magnitude(I	Start Location(ft	End Location#
33	M27	X	1585	1585	0	%100
34	M27	Z	0	0	0	%100
35	M28	X	1585	1585	0	%100
36	M28	Z	0	0	0	%100
37	M31	X	6447	6447	0	%100
38	M31	Z	0	0	0	%100
39	MP4A	X	6463	6463	0	%100
40	MP4A	Z	0	0	0	%100 %100
41	MP3A	X	6463	6463	0	%100
42	MP3A	Z	0	0	0	%100
43	MP2A	X	6463	6463	0	%100
44	MP2A	Z	0	0	0	%100
45	MP1A	X	6463	6463	0	%100
46	MP1A	Z	0	0	0	%100
47	M44	X	1701	1701	0	%100
48	M44	Ž	0	0	0	%100
49	M45	X	1701	1701	0	%100
50	M45	Z	0	0	Ö	%100 %100
51	M46	X	1701	1701	0	%100 %100
52	M46	Z	0	0	0	
53	M47	X	1701	1701	0	%100 %100
54	M47	Z	1701	1701	0	
55	M48	X	6463	6463	0	%100 %100
56	M48	Z	0403	0403	0	%100 %100
57	M49	X	6463	6463	0	%100 %100
58	M49	Z	0	6463	0	%100 %100

### Member Distributed Loads (BLC 75 : Structure Wm (300 Deg))

	Member Label	Direction	Start Magnitude.	End Magnitudell	Start Location(ff	End Location#
1	M1	X	1694	1694	0	%100
2	M1	Z	0978	0978	0	%100
3	M2	X	1694	1694	0	%100
4	M2	Z	0978	0978	0	%100
5	M13	X	1105	1105	0	%100
6	M13	Z	0638	0638	0	%100 %100
7	M14	X	1105	1105	0	%100
8	M14	Z	0638	0638	0	%100
9	M15	X	1105	1105	0	%100
10	M15	Z	0638	0638	0	%100
11	M16	X	1105	1105	0	%100
12	M16	Z	0638	0638	0	%100
13	M17	X	3713	3713	0	%100 %100
14	M17	Z	2144	2144	0	%100
15	M18	X	3713	3713	Ö	%100 %100
16	M18	7	- 2144	2144	0	%100 %100
17	M19	X	0085	0085	Ö	%100
18	M19	Z	0049	0049	Ö	%100 %100
19	M20	X	0085	0085	Ö	%100
20	M20	Z	0049	0049	ŏ	%100
21	M21	$\bar{x}$	0368	0368	0	%100
22	M21	Z	0213	0213	Ö	%100
23	M22	X	0368	0368	0	%100
24	M22	Z	0213	0213	0	
25	M23	X	0368	0368	0	%100 %100
26	M23	7	0213	0213	0	
27	M24	X	0368	0368	0	%100 %100

Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

## Member Distributed Loads (BLC 75 : Structure Wm (300 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude[I	.Start Location[ft,	.End Location[fl
28	M24	Z	0213	0213	0	%100
29	M25	X	1679	1679	0	%100
30	M25	Z	0969	0969	0	%100
	M26	X	1679	1679	0	%100
31	M26	Z	0969	0969	0	%100
32	M27	X	1143	1143	0	%100
33	M27	Z	066	066	0	%100
34	M28	X	1143	1143	0	%100
35	M28	Z	066	066	0	%100
36	M31	X	4427	4427	0	%100
37	M31	Z	2556	2556	0	%100
38		X	5597	5597	0	%100
39	MP4A	7	3231	3231	0	%100
40	MP4A	X	5597	5597	0	%100
41	MP3A	Z	3231	3231	0	%100
42	MP3A	X	5597	5597	Ō	%100
43	MP2A	Z	3231	3231	0	%100
44	MP2A	X	5597	5597	0	%100
45	MP1A	Z	3231	3231	Ö	%100
46	MP1A	X	1473	1473	0	%100
47	M44	Z	085	085	0	%100
48	M44		1473	1473	0	%100
49	M45	X Z	1473	085	0	%100
50	M45		1473	1473	0	%100
51	M46	X		085	Ö	%100
52	M46	Z	085		0	%100
53	M47	X	1473	1473	0	%100
54	M47	Z	085	085	0	%100
55	M48	X	5597	5597	0	%100
56	M48	Z	3231	3231		%100
57	M49	X	5597	5597	0	%100
58	M49	Z	3231	3231	. U	76 100

## Member Distributed Loads (BLC 76 : Structure Wm (330 Deg))

	Member Label	Direction	Start Magnitude.			.End Location[fi
1	M1	X	2934	2934	0	%100
2	M1	Z	5081	5081	0	%100
3	M2	X	2934	2934	0	%100_
4	M2	Z	5081	5081	0	%100
5	M13	X	0213	0213	0	%100
6	M13	Z	0368	0368	0	%100
7	M14	X	0213	0213	0	%100
8	M14	Z	0368	0368	00	%100
9	M15	X	0213	0213	0	%100
	M15	Z	0368	0368	0	%100
10	M16	X	0213	0213	0	%100
	M16	Z	0368	0368	0	%100
12	M17	X	2442	2442	0	%100
13	M17	Z	423	423	0	%100
14	M18	X	2442	2442	0	%100
15	M18	Z	423	423	0	%100
16	M19	X	0348	0348	0	%100
17	M19	Z	0602	0602	0	%100
18		X	0348	0348	0	%100
19	M20 M20	Z	0602	0602	0	%100
20		X	0638	0638	0	%100
21	M21 M21	Z	1105	1105	0	%100



Colliers Engineering & Design

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_

#### Member Distributed Loads (BLC 76 : Structure Wm (330 Deg)) (Continued)

	Member Label	Direction	Start Magnitude	End Magnitude(I	.Start Location[ft,	.End Location(ft
23	M22	X	0638	0638	0	%100
24	M22	Z	1105	1105	0	%100
25	M23	X	0638	0638	0	%100
26	M23	Z	1105	1105	0	%100
27	M24	X	0638	0638	0	%100
28	M24	Z	1105	1105	0	%100
29	M25	X	1013	1013	0	%100
30	M25	Z	1755	1755	0	%100
31	M26	X	1013	1013	0	%100
32	M26	Z	1755	1755	0	%100
33	M27	X	0704	0704	0	%100
34	M27	Z	122	122	0	%100
35	M28	X	0704	0704	Ō	%100
36	M28	Z	122	122	0	%100
37	M31	X	095	095	0	%100
38	M31	Z	1645	1645	Ö	%100
39	MP4A	X	3231	3231	0	%100
40	MP4A	Z	5597	5597	Ö	%100
41	MP3A	X	3231	3231	Ů Ů	%100
42	MP3A	Z	5597	5597	0	%100
43	MP2A	X	3231	3231	0	%100
44	MP2A	Z	5597	5597	0	%100
45	MP1A	X	3231	3231	0	%100
46	MP1A	Z	5597	5597	Ö	%100
47	M44	X	085	085	0	%100
48	M44	Ž	1473	1473	0	%100
49	M45	X	085	085	0	%100
50	M45	Ž	1473	1473	Ö	%100
51	M46	X	085	085	0	%100
52	M46	Z	1473	1473	Ö	%100 %100
53	M47	X	085	085	0	%100
54	M47	Z	1473	1473	0	%100 %100
55	M48	X	3231	3231	0	%100 %100
56	M48	Z	5597	5597	0	%100 %100
57	M49	X	3231	3231	0	%100 %100
58	M49	Z	5597	5597	0	%100

#### Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
				to Print	0.00,720,00,0	magintado[ttor]

#### **Envelope Joint Reactions**

	Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-f	111	MZ [k-ft]	LC
1	N35	745.546	50	1464.715	17	1869.547	13	344	73	0	75	.059	50
2	237	-253.932	27	368.099	73	109.168	7	-1.402	17	0	1	226	33
3	N36	1054.307	11	1427.776	13	2178.359	12	331	69	0	75	.059	50
4	L	-1330.837	5	363.021	70	-3260.624	6	-1.341	24	0	1	225	35
5	N75	105.21	10	79.128	23	1151.692	5	0	75	0	75	0	75
6		-101.623	4	-19.23	5	-1160.475	11	0	1	0	1	0	1
7	Totals:	1506.54	11	2945.296	19	2557.61	1						<u> </u>
8		-1506.544	5	748.636	64	-2557.612	7						D

Project # 23777087 Antenna Mount Analysis July 19, 2023 5:04 PM Checked By:\_\_\_

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

LIIV		Shape	Code Check		LC	Shear Check	Lo	. LC	phi*Pncphi*Pn			Cb	Eqn
1	M1	PIPE 2.5	.236	8	12	.114	8	6	14558.7. 5071	-	3.596	2.128	H1
2	M2	PIPE 2.5	.563	8	6	.161	8	6	14558.7 5071		3.596	2.767	H1
3	M13	PL5/8X3.5	.214	.422	19	.257	.378 y	7	66184.77 68906		5.024	1.667	H1
4		PL5/8X3.5	.175	.422	19	.075	.422 y	2	66184.77 68906		5.024	1.667	H1
5	M15	PL5/8X3.5	.196	0	44	.071	.422 y	12	66184.77 68906		5.024	1.667	H1
6		PL5/8X3.5	.321	.422	6	.414	.422 y	6	66184.77 68906		5.024	1.667	H1
7	M17	PIPE 2.0	.261	0	7	.077	0	13	31128.25 3213		1.872	2.256	H1
8	M18	PIPE 2.0	.120	2	21	.093	0	19	31128.25 3213		1.872	1.238	H1
9	M19	PIPE 2.0	.160	2	24	.102	0	18	31128.25 3213		1.872	1.202	H1
10	M20	PIPE 2.0	.432	2	6	.112	1.25	12	31128.25 3213		1.872	2.122	H1
11	M21	PL5/8X3.5	.314	.531	20	.108	.531 y		67591.76 68906		5.024	1.931	H1
12	M22	PL5/8X3.5	.550	.531	18	.176	.531 y	6	67591.76 68906		5.024	1.38	H1
13	M23	PL5/8X3.5	.302	.531	14	.041	.531 y	1	67591.76 68906		5.024	2.147	H1
14	M24	PL5/8X3.5	.483	.531	24	.065	.531 y	12	67591.76 68906		5.024	1.388	H1
15	M25	SR 0.75	.000	0	75	.012	4	12	2863.854 13916		.174	1.136	H1
16	M26	SR 0.75	.061	0	19	.008	4	24	2863.854 13916		.174	1.136	H1
17	M27	SR 0.75	.000	0	75	.012	4	12	2863.854 13916		.174	1.136	H1
18	M28	SR 0.75	.076	4	18	.014	4	16	2863.854 13916		.174	1.136	H1
19	M31	PIPE 2.0	,136	5	4	.007	0	16	9152.381 3213		1.872	1.136	H1
20	MP4A	PIPE 2.0	.172	2	21	.074	5	6	17855.0. 3213		1.872	2.061	H1
21	MP3A	PIPE 2.0	.293	2	7	.082	2	6	17855.0 3213		1.872	2.292	H1
22	MP2A	PIPE 2.0	.359	2	6	.126	2	6	17855.0 3213		1,872	2.104	H1
23	MP1A	PIPE 2.0	.247	5	50	.110	2	6	17855.0 3213		1.872	2.158	H1
24	M44	SR 0.625	.051	1	1	.015	0	6	2158.31 9664.0		.101	1_	H1
25	M45	SR 0.625	.053	1	7	.023	0	50	2158.31 9664.0		.101	1 100	H1
26	M46	SR 0.625	.058	1	6	.020	0	50	2158.31 9664.0		.101	1.136	H1
27	M47	SR 0.625	.056	1	2	.006	0	38	2158.31 9664.0		.101	1.136	H1
28	M48	PIPE 2.0	.037	2.5	7	.028	4	8	23808.54 3213		1.872	1_	H1
29	M49	PIPE 2.0	.037	2.5	7	.059	4	6	23808.54 3213	30 1.872	1.872	11	H1

#### VzW SMART Tool<sup>©</sup> Vendor

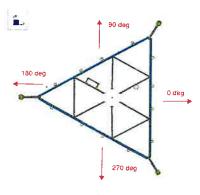
Custom Orientation Required

Client:	Verizon Wireless	Date: 7/19/2023
Site Name:	WINDSOR CT	
MDG #:	5000385159	
Fuze ID #:	17123870	Page: 1
		Version 1.01

#### I. Mount-to-Tower Connection Check

Yes

Nodes	Orientation
(labeled per Risa)	(per graphic of typical platform)
N36	340
N35	340
	D Dell Agree See 1 See See See
	The same of the first
THE RESERVE	



#### Tower Connection Bolt Checks

#### **Bolt Orientation**

Bolt Quantity per Reaction:

 $d_x$  (in) (Delta X of typ. bolt config. sketch):  $d_y$  (in) (Delta Y of typ. bolt config. sketch): Bolt Type:

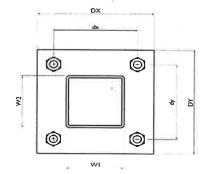
Bolt Diameter (in):

Required Tensile Strength / bolt (kips):
Required Shear Strength / bolt (kips):
Tensile Capacity / bolt (kips):
Shear Capacity / bolt (kips):
Bolt Overall Utilization:

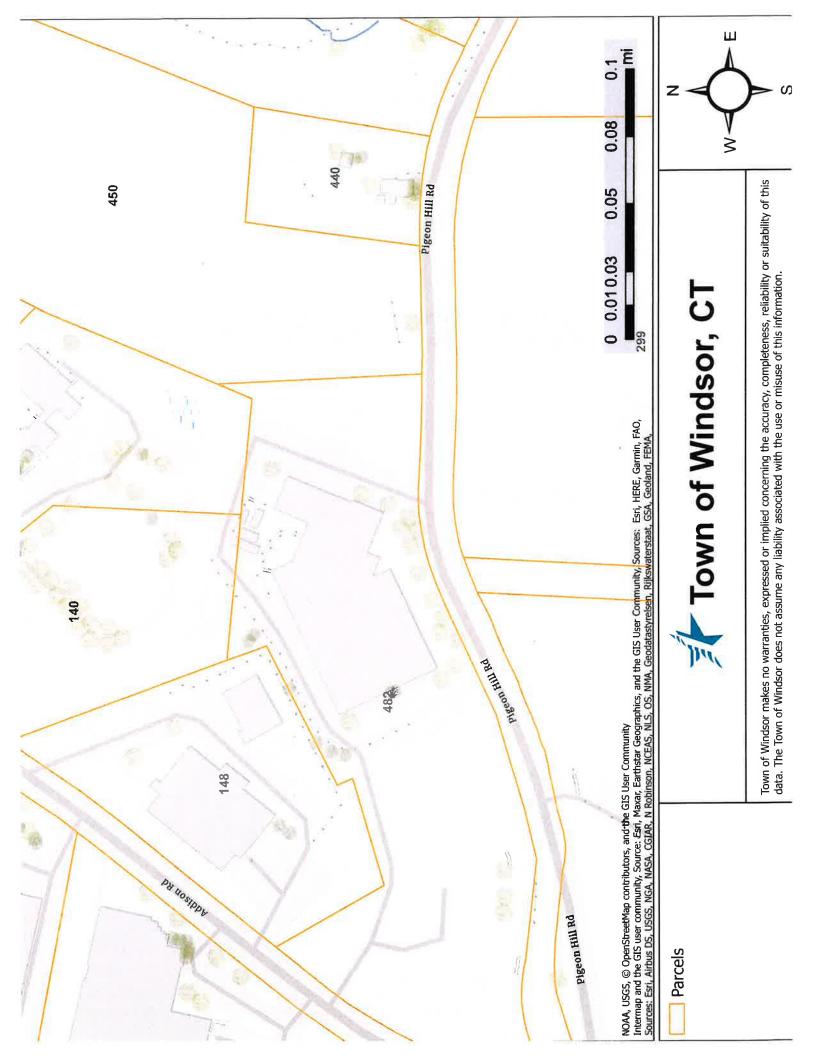
Tower Connection Baseplate Checks

# Yes

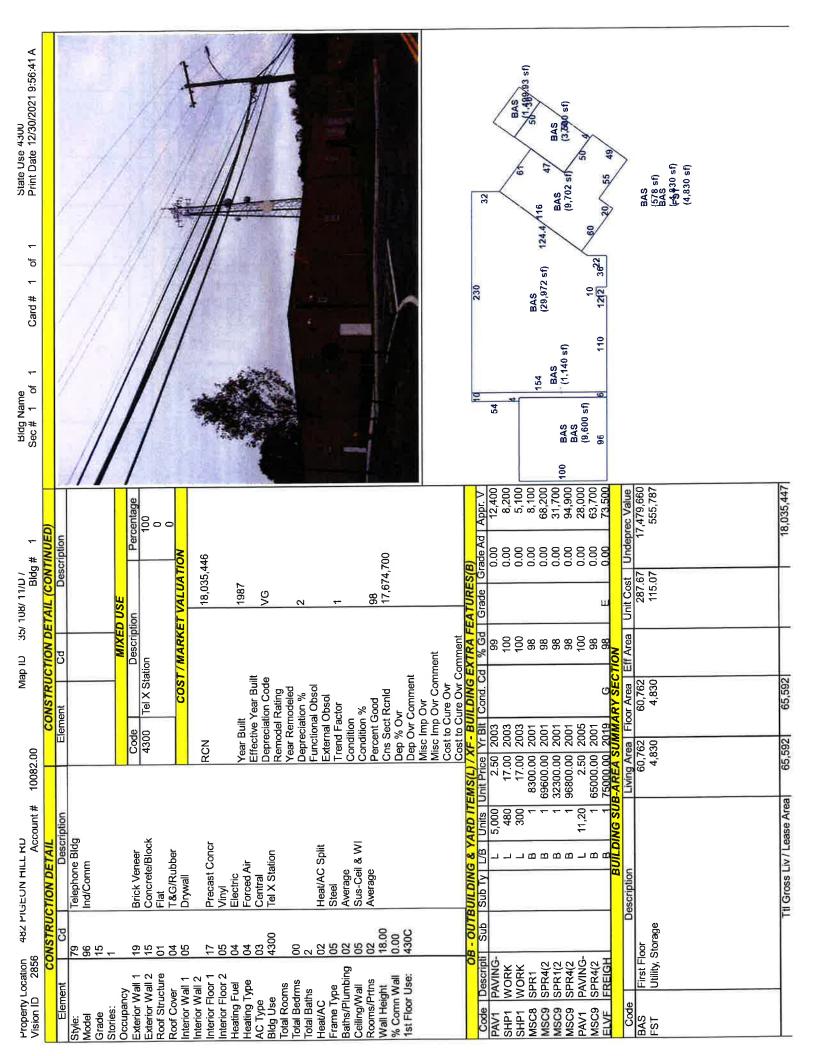
Paranei	
4	N.
11	
4.5	
A307	
0.625	
2.3	
0.6	
10.4	
6.2	
21.8%	
No	



# **ATTACHMENT 4**



Code   Appraised   Assessed   A	Vision ID 2856 Account #	# 10082.00		_	# go		Sec# 1 of		- 5 -		rint Date	Print Date 12/30/2021 9:56:40 A	:56:40 A
Total   Appraised Bidg, Value (Card)   Appraised Sizes   Appraised Percel (Value Bidg)   Appraised Sizes   Appraised Percel (Value Bidg)   Appraised Sizes   Appraised Percel (Value Bidg)   Appraised Sizes   Appraised Sizes	NER 1	OPO			7		Description		raised	Asse	sed 200 750	6164	4
NOCC   CORLOCK   STATE PRIZE   CORPUS   CORPUS   STATE PRIZE   CORPUS   CORPUS   STATE PRIZE   CORPUS   CORPUS   STATE PRIZE   CORPUS			SUPPLEMEN	TAL DATA	4735.01		TL OUTBL		53,700 53,700	12	37,590 37,590	WINDSOR, CT	JR, CT
Original   Commercial   Comme	75001	U/OCC 2761430		CBLOCK DIST HEART GL YEAR								VISION	NO
Total Name   BULDING PERMIT RECORD   ASSESSING Name   Assessed				1	#				8,631,000	13,	041,700	e e	
Color   Colo	D OF OWNERSHIP	BK-VOL/PAG	_	0/0	SALE PRICE	, C	Code	ΕV	ASSESS/ Code	Assesse	STORY)	r Code	Assessed
Commercial   Com	CTS OF HTFD INC		10-16-1986		2000	ე 	4-7 4-3	999		393,7 9,007,3 37,5	999		393,750 1,335,180 37,590
Part							Total	13.041.700	Total		730	Total	1.766.520
Total   ASSESSING NEIGHBORHOOD   Sub   Appraised Bidg. Value (Bidg)   Appraised Control (Bidg)   App	EXEMPTIONS Description	Amount	Ħ	Oescription	HER ASSES	SIMENTS Amou			cnowledges	a visit by a D	ata Collecto	or or Assessor	
Sub   Nibhd Name   ASSESSING NEIGHBORHOOD   Nibhd Name   Abhraised Clarid Value (Bidg)   Appraised Clarid Value (Bidg)   Apprais									APPR	AISED VAL	UE SUM	MARY	
Sub   Nbhd Name   ASSESSING NEIGHBORHOOD   Sub   Nature (Bldg)		Otal	000					Appraised Bldg	. Value (C	ard)			17,674,700
Notice   N			G NEIGHBORI				_	Appraised Xf (E	3) Value (B	(gp)			340,100
NOTES   NOTE		me	æ	ב	acing		Batch	Appraised Ob (	B) Value (	Bidg)			53,700
Name	¥	-	NOTES					Appraised Lanc	y Value (Bi	dg)			562,500
Part   Post Appraised Parcel Value   Post Appraised Parcel Value	3-11D		MERGED		ARCEL 10-1-1	10		Special Land V	alue				0
BUILDING PERMIT RECORD   Comments   Comments   Amount   Insp Date   Wish Comp   Comments   Secription   Secription   Amount   Insp Date   Wish Comp   Comments   Secription   Secriptio	LESS		REF:V18	12 PG 704				I otal Appraised	Parcel Va	alue			18,631,000
BUILDING PERMIT RECORD   Comments   Comments   Sulface   Value   Comments   Commercial   Amount   Insp Date   % Comp   Date Comp   Comments   Solid   Commercial   42,000   08-18-2021   100   10-01-2021   Reinove existing roof (not the Commercial   17,902   08-18-2021   100   10-01-2021   Raise HVAC water piping on roop   Commercial   30,000   08-18-2021   100   10-01-2021   Modify existing AT&T and refune   Commercial   104,401   08-26-2021   100   10-01-2021   Electrical work for the Verizon   12-03-2009   SK   20	L MERGED SEL 10/99 3							Valuation Meth	8				O
EL         Electric         29,535         08-18-2021         100         10-01-2021         Temporary Electric to an office         OB-18-2021         LL         20           CM         Commercial         42,000         08-18-2021         100         10-01-2021         Remove existing roof (not the Commercial Action)         08-18-2021         LL         20           CM         Commercial         42,000         08-18-2021         100         10-01-2021         Remove existing roof (not the Commercial Action)         10-01-2021         Remove existing roof (not the Commercial Action)         10-01-2021         Remove existing on roof (not the Commercial Action)         10-01-2021         Raise HVAC water piping on roof (not the Commercial Action)         10-01-2021         Raise HVAC water piping on roof (not the Commercial Action)         10-01-2021	IGEON HILL RD							Total Appraise	d Parcel V	aine			18,631,000
1ype   Description			S PERMIT REC	ORD	(					IT/CHAN	GE HIST	ORY	
CM         Commercial         42,000         08-18-2021         100         10-01-2021         Changing six antenna-Adding (no no n	EL PPE	TA S	35	1	1 -	Temporary Remove ex	Comments Electric to an office visting roof (not the		1			Purposvkesult Bldg Permit Insp Bldg Permit Insp	Kesult
	P Z P Z P Z P Z			5555		Changing Raise HVA Modify exis	six antenna-Adding oc rC water piping on retting AT&T antenna ew supply and retur		3 <b>L</b> F F			Bldg Permit Insp Bldg Permit Insp Bldg Permit Insp Change - Reinspection Rer	ection Rer
LAND LINE VALUATION SECTION		139			ND LINE VALUAT	Flectrical VION SEC	vork for the Verizon	12-03-2009	XK -	-		Bida Permit Insp	
nn Zone Land Type Land Units Unit Price I. Factor Site Index Cond. Nbhd. Nhbd Adj Notes Location Adjustment	n Zone			I. Factor	$\overline{}$	Nbhd.	Nhbd Adj	Notes	Lor	cation Adjus	$\neg$	Adj Unit Pric	Land Value
Tel X Station I 1.000 AC 82,000.00 1.00000 1 1.00 100 1.200  Tel X Station II 5.660 AC 82,000.00 1.0000 0 1.00 5 1.00 0 0 0		1.000 /				2 2	1.200				0		98,400 464,100
Total Card Linits 6 660 AC Parcel Total Land Area: 6 660 Total	Total Card Land			arcel Total Lan	od Area: 6 660				1	1	Total	Total Land Value	562 500



# **ATTACHMENT 5**



## **Certificate of Mailing — Firm**

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender of Pieces Received a		Affix Stamp Here			
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	Postmaster, per (name of receiving employee)	ON STATE HO IS TO SECURE.				
USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift	
2. 3,	Peter Souza, Town Manager Town of Windsor 275 Broad Street Windsor, CT 06095 Eric Barz, AICP, Town Planner Town of Windsor 275 Broad Street Windsor, CT 06095					
4,	*******					
5.						
6.						