P. Marshall and Associates, LLC
1000 Holcomb Woods Parkway
Suite 210 Roswell, GA 30076
Tel: (678) 280-2325
Fax: (678) 280-2329
Email: info@pmass.com

June 26, 2018

To: Verizon Wireless
2 Verizon Place
Alpharetta, GA 30004

***Subject*:**	**Rigorous Structural Analysis Report**	
***Verizon Designation*:**	**Verizon Co-locate**	
	Carrier Site Name:	**Pen Scenic Heights**
	Carrier Location Code:	**136137**
***Engineering Comp. Designation*:**	**PM&A Project Number:**	**VWT18-111**
Site Data:	**1518 Woodchuck Ave., Pensacola, Escambia County, FL 32504**	
	Latitude: 30° 30' 6.0", Longitude: -87° 10' 23.99"	
	250 ft – Self-Support	

To whom it concerns,

PM&A is pleased to submit this **"Rigorous Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

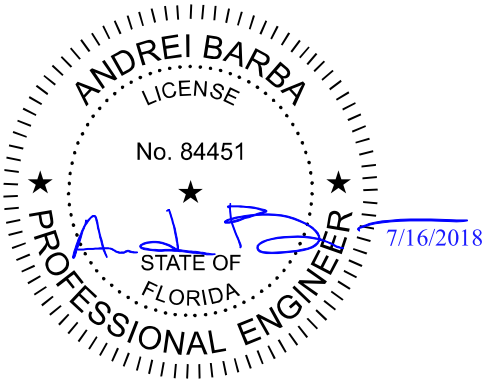
Load Case: **Existing + Proposed** **Sufficient Capacity (93.1%)**
Note: See Section 4 and Section 5 for the proposed and existing loading, respectively.

"This analysis has been performed in accordance with the 2017 Florida Building Code, 6th Edition, based upon an ultimate 3-second gust wind speed of 160 mph converted to a nominal 3-second gust wind speed of 124 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category D and Risk Category III were used in this analysis."

We appreciate the opportunity to work with Verizon and look forward to contributing to the success of this project. If we can be of further assistance, please do not hesitate to contact us at (678) 280-2325.

Sincerely,
PM&A

Andrei Barba, P.E.
Florida Professional Engineer
License Number: 84451
Florida COA #: 27595



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1. Tower Structure

This tower is a 250 ft Self-Support located in Escambia County, FL. The original tower design was unavailable. The original design criteria are unknown. All the information provided by Verizon is assumed to be accurate and complete.

2. Analysis Criteria

This analysis has been performed in accordance with the TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using 3-second gust wind speed of 116 mph, 30 mph with 1/4 inch ice thickness and 60 mph under service loads. Exposure Category D, topographic category of 1 and risk category III were used in this analysis.

3. Documents Provided

This analysis was based off of a limited amount of document resources as shown below. If for some reason additional information becomes readily available that contradicts the current analysis and the information below please notify PM&A.

Document	Remarks	Source
Tower Mapping	PM&A Job #: 180160, dated 03/02/18	PM&A
Previous Structural Analysis	Tower Engineering Professionals, Inc., Job #: 130600.022, dated 10/02/13	
Proposed Carrier Loading Document	Verizon RFDS, PEN SCENIC HEIGHTS, dated 08/07/17	Verizon

4. Proposed Equipment and Feed Lines

Mounting Level (ft.)	Center Line Elevation (ft.)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
200.0	202.0	3	Andrew	LNX-6515DS-A1M	2	1.54	1
		6	Commscope	NHH-65C-R2B			
	200.0	3	Alcatel Lucent	B66A RRH4x45			
		1	Raycap	RCMDC-6627-PF-48			
		1	Commscope	MTC3752T3 w/ (6) SA-B12			

Notes:
1. See appendices for proposed coax layout

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5. Existing Equipment and Feed Lines

Mounting Level (ft.)	Center Line Elevation (ft.)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
246.0	253.0	3	-	10’ Omni	2 2 1	1-1/2 7/8 1-5/8	1
		1	-	15’ Omni			
		1	-	10’ Dipole			
		3	-	Flush Frame Mounts w/ (6) 6’ Standoffs			
236.5	236.5	1	Commscope	PAR8-59W-PXA	1	2” EW	1
		1	-	Mount Pipe			
233.0	236.0	1	-	5’ Omni	1	7/8	1
	233.0	1	-	2’ Standoff			
228.0	228.0	1	Commscope	VHLP2-11W-RR1A	2	3/8	1
		2	-	10”x4” TMA			
215.0	217.0	3	Commscope	SBNH-1D65L-SR	6 1	1-5/8 5/16	1
	215.0	3	Commscope	E15Z01P3901			
		3	-	T-Frame Mount			
200.0	203.0	3	Alcatel Lucent	B13 RRH4X30	6	1-5/8	1
		3	Alcatel Lucent	B25 RRH4X30			
		4	Antel	WPA-80080/8CF E-DIN	6	1-5/8	2
		3	Andrew	LNX-6515DS-R2M			
		5	Antel	HBX-6517DS-VTM			
		3	-	T-Frame Mount			
	204.0	6	-	10”x9-1/2” TMA			
195.0	195.0	1	Commscope	PL4-59-PXA/F	1	2” EW	1
		1	-	Mount Pipe			
176.5	176.5	1	Commscope	PAR6-59W-PXA/A	1	2’ EW	1
		1	-	Mount Pipe			
160.0	166.0	1	-	10’ Dipole	1	1-1/2	1
	160.0	1	-	2’ Standoff			
156.0	156.0	1	Andrew	D6E-2 T6M10H	1	2” EW	1
		1	-	Mount Pipe			
136.0	136.0	1	Commscope	PAR6-59W-PXA	1	2” EW	1
		1	-	2’ Standoff			
93.5	95.0	1	-	3’ Dipole	1	1/2	1
	93.5	1	-	2’ Standoff			

Notes:
1. Existing Equipment
2. Equipment to be Removed

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6. Programs

tnxTower (version 7.05.1), 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 report Appendices.

7. Assumptions and Disclaimers

1) The tower and structures were built and have been maintained in accordance with manufacturer's specifications and drawings.
2) All proposed and future transmission cables are installed in the locations noted on the cable routing per appendices.
3) PM&A shall assume that all tower components are in sufficient condition to carry their full design capacity.
4) We have not based the adequacy of the tower on limitations for antenna twist, tilt, roll, or lateral translation.
5) We have not designed for construction load or tower climber live load.
6) Antenna mounts are not part of this analysis. Antenna mounts and mounting hardware should be verified by carrier to confirm that mounts are in compliance.
7) Tower geometry and existing loading has been modeled based on the Tower Mapping by PM&A Job #: 180160, dated 03/02/18 and is assumed to be accurate.
8) Soils and foundation have been modeled based on the information provided in the previous structural analysis by Tower Engineering Professionals, Inc., Job #: 130600.022, dated 10/02/13 and are assumed to be accurate.
9) Final Carrier loading has been modeled based on the configuration specified in the Verizon RFDS,, titled PEN SCENIC HEIGHTS, dated 08/07/17 Date and is assumed to be accurate.
10) Tower Leg Steel is assumed to be A572-50 based on previous experience with similar structures.
11) Tower Bracing Steel is assumed to be A36 based on previous experience with similar structures.
12) Tower Bolts are assumed to be A325N based on previous experience with similar structures.
13) Anchor Rods are assumed to be A687 based on previous experience with similar structures.

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

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8. Analysis Results

Tower Capacity Summary

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	øP$_{allow}$ K	% Capacity	Pass Fail
T1	250 - 240	Leg	8Bay 1.25" Leg K-Brace	3	-3.98	143.06	37.0	Pass
T2	240 - 220	Leg	16Bay 1.25" Leg K-Brace	14	-17.36	143.06	60.9	Pass
T3	220 - 210	Leg	16Bay 1.5" Leg K-Brace	30	-69.15	215.45	88.3	Pass
T4	210 - 200	Leg	16Bay 1.5" Leg K-Brace	42	-99.73	215.45	46.3	Pass
T5	200 - 180	Leg	16Bay 1.75" Leg K-Brace	51	-187.64	301.29	62.3	Pass
T6	180 - 170	Leg	16Bay 2" Leg K-Brace	69	-228.84	400.49	57.1	Pass
T7	170 - 160	Leg	16Bay 2" Leg K-Brace	81	-279.82	400.49	69.9	Pass
T8	160 - 140	Leg	16Bay 2.25" Leg K-Brace	90	-337.28	496.60	67.9	Pass
T9	140 - 120	Leg	16Bay 2.75" Leg K-Brace	99	-439.85	741.99	59.3	Pass
T10	120 - 100	Leg	16Bay 3" Leg K-Brace	108	-527.88	883.14	59.8	Pass
T11	100 - 80	Leg	16Bay 3.25" Leg K-Brace	117	-622.89	1036.61	60.1	Pass
T12	80 - 60	Leg	16Bay 3.25" Leg K-Brace	126	-715.14	1036.61	69.0	Pass
T13	60 - 40	Leg	16Bay 3.5" Leg K-Brace	135	-806.60	1202.40	67.1	Pass
T14	40 - 20	Leg	16Bay 3.75" Leg K-Brace	144	-901.67	1380.53	65.3	Pass
T15	20 - 0	Leg	16Bay 4" Leg K-Brace	153	-987.62	1571.00	62.9	Pass
T1	250 - 240	Diagonal	L2 1/2x2 1/2x1/4	11	-2.70	15.22	17.7 20.8 (b)	Pass
T2	240 - 220	Diagonal	L3x3x1/4	19	-12.82	23.92	53.6 93.1 (b)	Pass
T3	220 - 210	Diagonal	L3x3x3/8	34	-13.84	30.87	44.8 66.5 (b)	Pass
T4	210 - 200	Diagonal	L3x3x3/8	46	-14.87	28.01	53.1 69.0 (b)	Pass
T5	200 - 180	Diagonal	L3 1/2x3 1/2x3/8	58	-20.67	35.57	58.1 85.3 (b)	Pass
T6	180 - 170	Diagonal	L4x4x3/8	73	-23.26	45.90	50.7 91.5 (b)	Pass
T7	170 - 160	Diagonal	L4x4x3/8	83	-20.23	43.32	46.7 83.3 (b)	Pass
T8	160 - 140	Diagonal	2L3 1/2x3 1/2x3/8x1	94	-34.23	67.00	51.1	Pass
T9	140 - 120	Diagonal	2L3 1/2x3 1/2x3/8x1	101	-35.61	61.30	58.1	Pass
T10	120 - 100	Diagonal	2L4x4x5/16x1	110	-36.54	67.33	54.3	Pass
T11	100 - 80	Diagonal	2L4x4x7/16x1	119	-38.53	84.26	45.7	Pass
T12	80 - 60	Diagonal	2L4x4x7/16x1	128	-39.51	75.81	52.1	Pass
T13	60 - 40	Diagonal	2L4x4x7/16x1	140	-41.60	68.33	60.9	Pass
T14	40 - 20	Diagonal	2L5x5x7/16x1	149	-42.20	116.99	36.1	Pass
T15	20 - 0	Diagonal	2L5x5x7/16x1	158	-46.93	107.21	43.8	Pass
T3	220 - 210	Secondary Horizontal	L3x3x1/4	37	-2.23	38.64	5.8 15.8 (b)	Pass
T6	180 - 170	Secondary Horizontal	L3x3x1/4	77	-3.97	32.55	12.2 25.0 (b)	Pass
T1	250 - 240	Top Girt	L2 1/2x2 1/2x1/4	5	-0.13	10.13	1.3 1.6 (b)	Pass
T5	200 - 180	Top Girt	L3x3x1/4	52	-2.49	10.54	23.6	Pass
							Summary	
						Leg (T3)	88.3	Pass
						Diagonal (T2)	93.1	Pass
						Secondary Horizontal (T6)	25.0	Pass
						Top Girt (T5)	23.6	Pass
						Bolt Checks	93.1	Pass
						RATING =	**93.1**	**Pass**

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Component Capacity Summary

Notes	Component	Elevation (ft)	% Capacity	Pass Fail
1	Base Foundation	-	37.3	Pass
1	Anchor Rods	-	65.7	Pass

Structure Rating (max from all components) =	93.1%

*Notes:
1) See additional documentation in Appendices

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9. Recommendations

The tower has sufficient capacity to carry the proposed loads in its existing condition. We have no further recommendations at this time.

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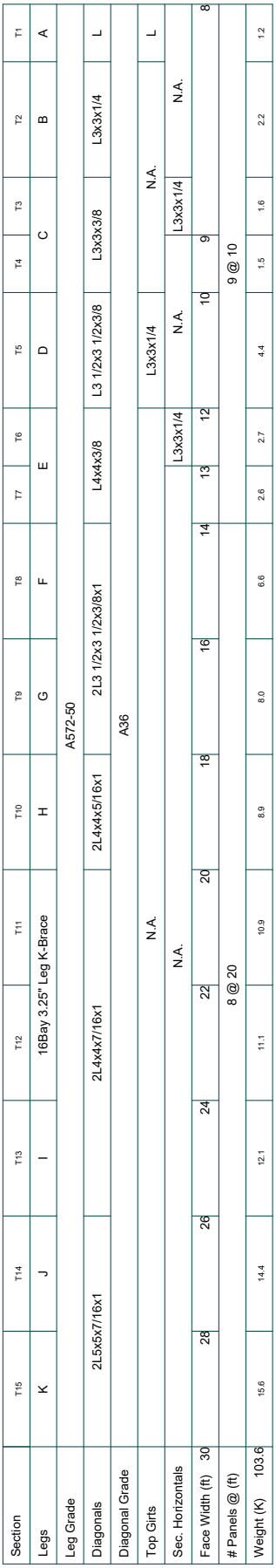
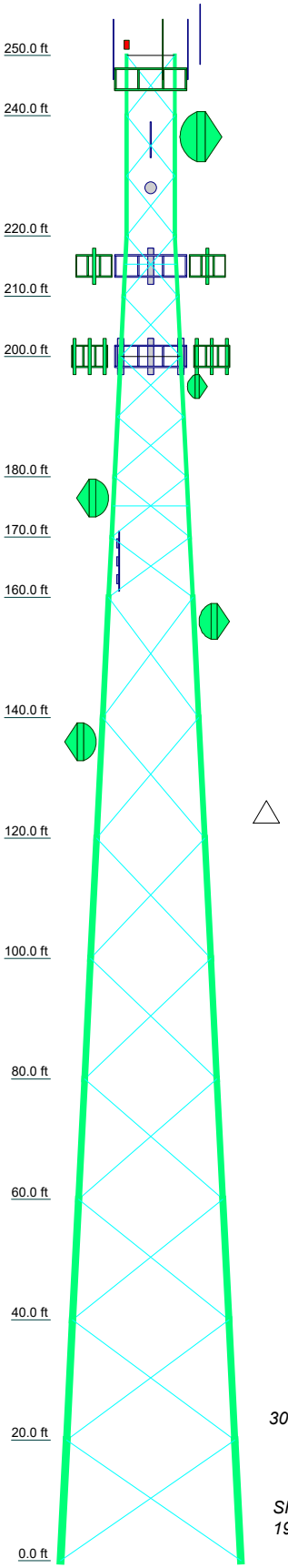
10. Appendices (following this page)





SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	8Bay 1.25" Leg K-Brace	G	16Bay 2.75" Leg K-Brace
B	16Bay 1.25" Leg K-Brace	H	16Bay 3" Leg K-Brace
C	16Bay 1.5" Leg K-Brace	I	16Bay 3.5" Leg K-Brace
D	16Bay 1.75" Leg K-Brace	J	16Bay 3.75" Leg K-Brace
E	16Bay 2" Leg K-Brace	K	16Bay 4" Leg K-Brace
F	16Bay 2.25" Leg K-Brace	L	L2 1/2x2 1/2x1/4

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

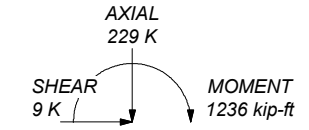
TOWER DESIGN NOTES

1. Tower designed for Exposure D to the TIA-222-G Standard.
2. Tower designed for a 124 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 30 mph basic wind with 0.25 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class III.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 93.1%

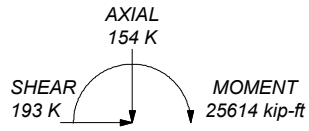
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 1037 K
SHEAR: 122 K

UPLIFT: -905 K
SHEAR: 108 K



TORQUE 2 kip-ft
30 mph WIND - 0.2500 in ICE



TORQUE 41 kip-ft
REACTIONS - 124 mph WIND

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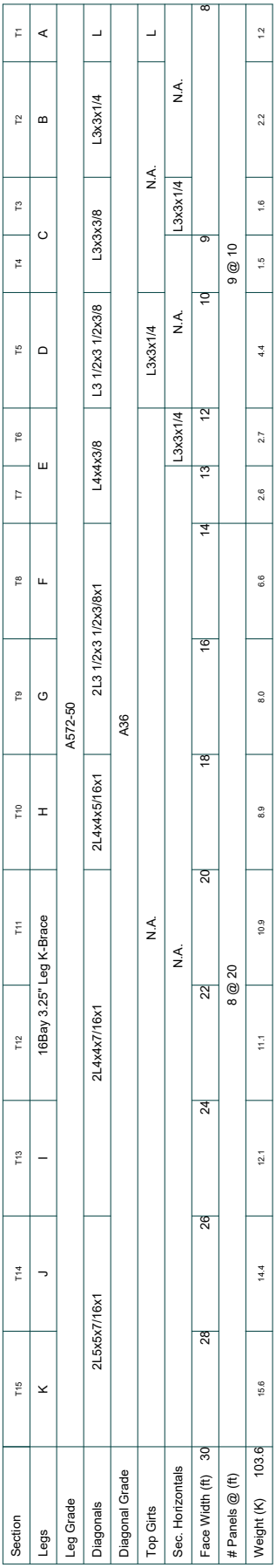
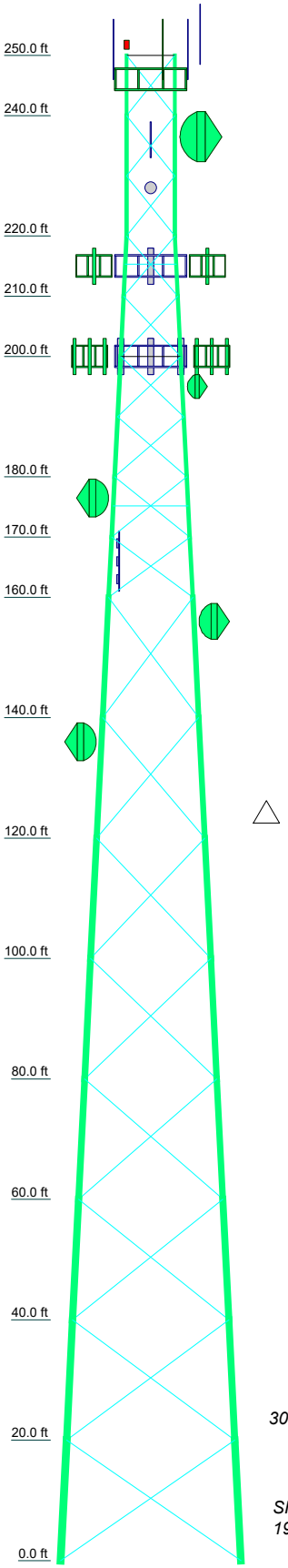
Job: **Scenic Heights**			
Project: ***VWT18-111***			
Client: Verizon Wireless	Drawn by: jb		App'd:
Code: TIA-222-G	Date: 06/26/18		Scale: NTS
Path:			Dwg No. E-1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	250	B13 RRH 4X30	200
10' x 3.5" Omni	246	B13 RRH 4X30	200
10' x 3.5" Omni	246	B25 RRH4X30	200
15' x 2.5" Omni	246	B25 RRH4X30	200
10' x 3" Omni	246	B25 RRH4X30	200
10' x 2" Dipole	246	B66A RRH4X45	200
Flush Sector Mounts	246	B66A RRH4X45	200
(2) 6' Standoff Mounts	246	B66A RRH4X45	200
4.5' x 4" Vertical Pipe	236.5	RCMDC-6627-PF-48	200
PAR8-59W	236.5	Commscope MTC3752T3 (1 Sector)	200
2' Standoff Mount	233	Commscope MTC3752T3 (1 Sector)	200
5' x 2" Omni	233	Commscope MTC3752T3 (1 Sector)	200
(2) 10"x4" TMA	228	LNX-6515DS-A1M	200
VHLP2-11W	228	LNX-6515DS-A1M	200
SBNH-1D65L w/ Mount Pipe	215	4.5' x 4" Vertical Pipe	195
E15Z01P39	215	PL4-59-PXA	195
E15Z01P39	215	4.5' x 4" Vertical Pipe	176.5
E15Z01P39	215	PARX6-59W-PXA/A	176.5
T-Frame Mounts	215	10' x 2" Dipole	160
SBNH-1D65L w/ Mount Pipe	215	2' Standoff Mount	160
SBNH-1D65L w/ Mount Pipe	215	4.5' x 4" Vertical Pipe	156
LNX-6515DS-A1M	200	D6E-2 T6M10H	156
(2) NHH-65C-R2B	200	4.5' x 4" Vertical Pipe	136
(2) NHH-65C-R2B	200	PARX6-59W-PXA/A	136
(2) NHH-65C-R2B	200	3' Yagi	93.5
B13 RRH 4X30	200	2' Standoff Mount	93.5

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MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure D to the TIA-222-G Standard.
2. Tower designed for a 124 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 30 mph basic wind with 0.25 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class III.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 93.1%

ALL REACTI
ARE FAC
MAX. CO
DOWN
SHEAR: 122 K

UPLIFT: -905 K
SHEAR: 108 K

AXIAL
229 K
SHEAR
9 K
MOMENT
1236 kip-ft

TORQUE 2 kip-ft
30 mph WIND - 0.2500 in ICE

AXIAL
154 K
SHEAR
193 K
MOMENT
25614 kip-ft

TORQUE 41 kip-ft
REACTIONS - 124 mph WIND

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Job: **Scenic Heights**			
Project: ***VWT18-111***			
Client: Verizon Wireless	Drawn by: jb		App'd:
Code: TIA-222-G	Date: 06/26/18		Scale: NTS
Path:			Dwg No. E-1

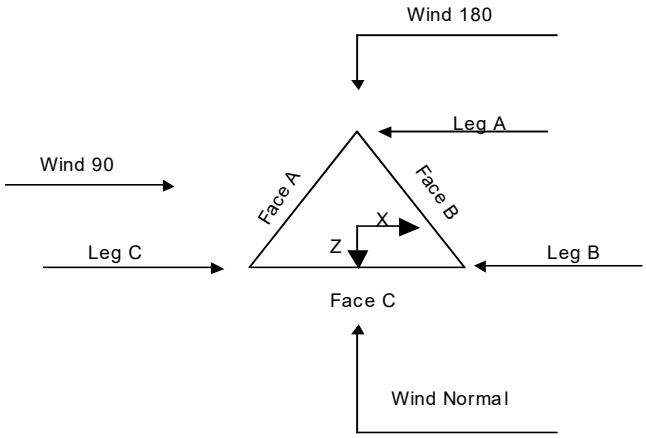
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 250.00 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 8.00 ft at the top and 30.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 124 mph.
Structure Class III.
Exposure Category D.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.2500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 30 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.	√	Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
√	SR Members Are Concentric				



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	250.00-240.00			8.00	1	10.00
T2	240.00-220.00			8.00	1	20.00
T3	220.00-210.00			8.00	1	10.00
T4	210.00-200.00			9.00	1	10.00
T5	200.00-180.00			10.00	1	20.00
T6	180.00-170.00			12.00	1	10.00
T7	170.00-160.00			13.00	1	10.00
T8	160.00-140.00			14.00	1	20.00
T9	140.00-120.00			16.00	1	20.00
T10	120.00-100.00			18.00	1	20.00
T11	100.00-80.00			20.00	1	20.00
T12	80.00-60.00			22.00	1	20.00
T13	60.00-40.00			24.00	1	20.00
T14	40.00-20.00			26.00	1	20.00
T15	20.00-0.00			28.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	250.00-240.00	10.00	X Brace	No	No	0.0000	0.0000
T2	240.00-220.00	10.00	X Brace	No	No	0.0000	0.0000
T3	220.00-210.00	10.00	X Brace	No	Yes	0.0000	0.0000
T4	210.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T5	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T6	180.00-170.00	10.00	X Brace	No	Yes	0.0000	0.0000
T7	170.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T8	160.00-140.00	20.00	X Brace	No	No	0.0000	0.0000
T9	140.00-120.00	20.00	X Brace	No	No	0.0000	0.0000
T10	120.00-100.00	20.00	X Brace	No	No	0.0000	0.0000
T11	100.00-80.00	20.00	X Brace	No	No	0.0000	0.0000
T12	80.00-60.00	20.00	X Brace	No	No	0.0000	0.0000
T13	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T14	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T15	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 250.00-240.00	Truss Leg	8Bay 1.25" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T2 240.00-220.00	Truss Leg	16Bay 1.25" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T3 220.00-210.00	Truss Leg	16Bay 1.5" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T4 210.00-200.00	Truss Leg	16Bay 1.5" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T5 200.00-180.00	Truss Leg	16Bay 1.75" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x3/8	A36 (36 ksi)
T6 180.00-170.00	Truss Leg	16Bay 2" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A36 (36 ksi)
T7 170.00-160.00	Truss Leg	16Bay 2" Leg K-Brace	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A36 (36 ksi)
T8 160.00-140.00	Truss Leg	16Bay 2.25" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x3/8x1	A36 (36 ksi)
T9 140.00-120.00	Truss Leg	16Bay 2.75" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x3/8x1	A36 (36 ksi)
T10 120.00-100.00	Truss Leg	16Bay 3" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L4x4x5/16x1	A36 (36 ksi)
T11 100.00-80.00	Truss Leg	16Bay 3.25" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L4x4x7/16x1	A36 (36 ksi)
T12 80.00-60.00	Truss Leg	16Bay 3.25" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L4x4x7/16x1	A36 (36 ksi)
T13 60.00-40.00	Truss Leg	16Bay 3.5" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L4x4x7/16x1	A36 (36 ksi)
T14 40.00-20.00	Truss Leg	16Bay 3.75" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L5x5x7/16x1	A36 (36 ksi)
T15 20.00-0.00	Truss Leg	16Bay 4" Leg K-Brace	A572-50 (50 ksi)	Double Equal Angle	2L5x5x7/16x1	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 250.00-240.00	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 200.00-180.00	Equal Angle	L3x3x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 220.00-210.00	Equal Angle	L3x3x1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T6 180.00-170.00	Equal Angle	L3x3x1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 250.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 220.00-210.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 210.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 180.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T9 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T10 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T11 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T12 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T13 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T14 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000
T15 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1]: Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
250.00-240.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	0.5	1
220.00-210.00				1	1	1	1	1	0.5	1
T4	Yes	No	1	1	1	1	1	1	1	1
210.00-200.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	0.5	1
180.00-170.00				1	1	1	1	1	0.5	1
T7	Yes	No	1	1	1	1	1	1	1	1
170.00-160.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T11	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T12	Yes	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T13	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T14	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T15	Yes	No	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

[1]*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)*

Truss-Leg K Factors	
Truss-Legs Used As Leg Members	Truss-Legs Used As Inner Members

Tower Elevation ft	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
T1 250.00-240.00	1	0.5	0.85	1	0.5	0.85
T2 240.00-220.00	1	0.5	0.85	1	0.5	0.85
T3 220.00-210.00	1	0.5	0.85	1	0.5	0.85
T4 210.00-200.00	1	0.5	0.85	1	0.5	0.85
T5 200.00-180.00	1	0.5	0.85	1	0.5	0.85
T6 180.00-170.00	1	0.5	0.85	1	0.5	0.85
T7 170.00-160.00	1	0.5	0.85	1	0.5	0.85
T8 160.00-140.00	1	0.5	0.85	1	0.5	0.85
T9 140.00-120.00	1	0.5	0.85	1	0.5	0.85
T10 120.00-100.00	1	0.5	0.85	1	0.5	0.85
T11 100.00-80.00	1	0.5	0.85	1	0.5	0.85
T12 80.00-60.00	1	0.5	0.85	1	0.5	0.85
T13 60.00-40.00	1	0.5	0.85	1	0.5	0.85
T14 40.00-20.00	1	0.5	0.85	1	0.5	0.85
T15 20.00-0.00	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	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 250.00-240.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 240.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 220.00-210.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 210.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 180.00-170.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 170.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	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
T9 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 250.00-240.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 240.00-220.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 220.00-210.00	Flange	0.7500 A325N	0	1.0000 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	2
T4 210.00-200.00	Flange	1.0000 A325N	6	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 200.00-180.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 180.00-170.00	Flange	0.7500 A325N	0	1.2500 A325N	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	2
T7 170.00-160.00	Flange	1.2500 A325N	6	1.2500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 160.00-140.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 140.00-120.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 120.00-100.00	Flange	1.2500 A325N	12	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 100.00-80.00	Flange	1.2500 A325N	24	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 80.00-60.00	Flange	1.2500 A325N	24	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 60.00-40.00	Flange	1.2500 A325N	24	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 40.00-20.00	Flange	1.2500 A325N	24	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 20.00-0.00	Flange	0.7500 A325N	0	1.0000 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
3/4" conduit *****	A	No	Ar (CaAa)	250.00 - 11.00	0.0000	0.5	1	1	0.5000	0.7500		2.80
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	246.00 - 8.00	-13.0000	0.37	1	1	0.5000	1.9800		0.82
LDF7-50A(1 1/2")	A	No	Ar (CaAa)	246.00 - 8.00	-13.5000	0.38	2	2	0.5000	1.5000		0.82
02725(9/16")	A	No	Ar (CaAa)	246.00 - 8.00	-14.0000	0.39	1	1	0.5000	0.5950		0.23
LDF5-50A (7/8 FOAM)	A	No	Ar (CaAa)	246.00 - 8.00	-14.5000	0.4	1	1	0.5000	1.0900		0.33
LDF5-50A (7/8 FOAM)	A	No	Ar (CaAa)	233.00 - 8.00	-15.0000	0.41	1	1	0.5000	1.0900		0.33
LDF2-50A (3/8 FOAM)	A	No	Ar (CaAa)	228.00 - 8.00	-15.5000	0.42	2	2	0.2500	0.4400		0.08
EW52	A	No	Af (CaAa)	236.50 - 195.00	-12.0000	0.42	1	1	0.5000	1.7426		0.59
EW52	A	No	Af (CaAa)	195.00 - 176.50	-12.0000	0.42	2	2	0.5000	1.7426		0.59
EW52	A	No	Af (CaAa)	176.50 - 166.00	-12.0000	0.42	3	3	0.5000	1.7426		0.59
EW52	A	No	Af (CaAa)	166.00 - 156.00	-12.0000	0.42	4	4	0.5000	1.7426		0.59
EW52	A	No	Af (CaAa)	156.00 - 136.00	-12.0000	0.42	5	5	0.5000	1.7426		0.59
EW52	A	No	Af (CaAa)	136.00 - 8.00	-12.0000	0.42	6	6	0.5000	1.7426		0.59
LDF4.5-50 (5/8 FOAM)	A	No	Ar (CaAa)	126.00 - 11.00	-16.0000	0.43	1	1	0.8700	0.8700		0.15
LDF4P-50A (1/2 FOAM) *****	A	No	Ar (CaAa)	93.50 - 8.00	-16.5000	0.44	1	1	0.6300	0.6300		0.15
ATCB-B01-001(5/16)	C	No	Ar (CaAa)	215.00 - 0.00	-15.0000	0.38	1	1	0.3150	0.3150		0.07
LDF7-50A (1-5/8 FOAM) *****	C	No	Ar (CaAa)	215.00 - 3.00	-14.0000	0.4	6	6	0.5000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CaAa)	200.00 - 3.00	-10.0000	0.4	6	6	0.5000	1.9800		0.82
HB114-U6S12-xxx-LI(1-1/4") *****	C	No	Ar (CaAa)	200.00 - 3.00	-10.0000	0.4	2	2	0.5000	1.5400		1.70
Feedline Ladder (Af)	A	No	Af (CaAa)	250.00 - 3.00	0.0000	0.35	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	Af (CaAa)	250.00 - 8.00	-15.0000	0.42	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	B	No	Af (CaAa)	250.00 - 3.00	-15.0000	0.42	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	250.00 - 3.00	0.0000	-0.35	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	200.00 - 3.00	0.0000	0	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	215.00 - 3.00	-15.0000	0.42	1	1	3.0000	3.0000		8.40

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	250.00-240.00	A	0.000	0.000	14.749	0.000	0.21
		B	0.000	0.000	5.000	0.000	0.08
		C	0.000	0.000	5.000	0.000	0.08
T2	240.00-220.00	A	0.000	0.000	41.743	0.000	0.47
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	10.000	0.000	0.17
T3	220.00-210.00	A	0.000	0.000	22.289	0.000	0.24
		B	0.000	0.000	5.000	0.000	0.08
		C	0.000	0.000	13.598	0.000	0.15
T4	210.00-200.00	A	0.000	0.000	22.289	0.000	0.24
		B	0.000	0.000	5.000	0.000	0.08
		C	0.000	0.000	22.195	0.000	0.22
T5	200.00-180.00	A	0.000	0.000	48.935	0.000	0.48
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T6	180.00-170.00	A	0.000	0.000	27.081	0.000	0.25
		B	0.000	0.000	5.000	0.000	0.08
		C	0.000	0.000	42.155	0.000	0.39
T7	170.00-160.00	A	0.000	0.000	29.840	0.000	0.25
		B	0.000	0.000	5.000	0.000	0.08
		C	0.000	0.000	42.155	0.000	0.39
T8	160.00-140.00	A	0.000	0.000	66.651	0.000	0.52
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T9	140.00-120.00	A	0.000	0.000	72.982	0.000	0.53
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T10	120.00-100.00	A	0.000	0.000	75.361	0.000	0.54
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T11	100.00-80.00	A	0.000	0.000	76.212	0.000	0.54
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T12	80.00-60.00	A	0.000	0.000	76.621	0.000	0.54
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T13	60.00-40.00	A	0.000	0.000	76.621	0.000	0.54
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T14	40.00-20.00	A	0.000	0.000	76.621	0.000	0.54
		B	0.000	0.000	10.000	0.000	0.17
		C	0.000	0.000	84.310	0.000	0.77
T15	20.00-0.00	A	0.000	0.000	47.987	0.000	0.36
		B	0.000	0.000	8.500	0.000	0.14
		C	0.000	0.000	71.758	0.000	0.65

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	250.00-240.00	A	0.764	0.000	0.000	24.682	0.000	0.37
		B		0.000	0.000	6.527	0.000	0.13
		C		0.000	0.000	6.527	0.000	0.13
T2	240.00-220.00	A	0.759	0.000	0.000	75.663	0.000	0.93
		B		0.000	0.000	13.036	0.000	0.26
		C		0.000	0.000	13.036	0.000	0.26
T3	220.00-210.00	A	0.754	0.000	0.000	41.871	0.000	0.49

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	6.508	0.000	0.13
		C		0.000	0.000	20.839	0.000	0.29
T4	210.00-200.00	A	0.750	0.000	0.000	41.789	0.000	0.49
		B		0.000	0.000	6.500	0.000	0.13
		C		0.000	0.000	35.138	0.000	0.45
T5	200.00-180.00	A	0.745	0.000	0.000	88.028	0.000	1.00
		B		0.000	0.000	12.978	0.000	0.25
		C		0.000	0.000	138.526	0.000	1.65
T6	180.00-170.00	A	0.738	0.000	0.000	46.351	0.000	0.51
		B		0.000	0.000	6.477	0.000	0.13
		C		0.000	0.000	69.157	0.000	0.82
T7	170.00-160.00	A	0.734	0.000	0.000	48.779	0.000	0.53
		B		0.000	0.000	6.468	0.000	0.13
		C		0.000	0.000	69.082	0.000	0.82
T8	160.00-140.00	A	0.727	0.000	0.000	103.756	0.000	1.11
		B		0.000	0.000	12.909	0.000	0.25
		C		0.000	0.000	137.921	0.000	1.63
T9	140.00-120.00	A	0.717	0.000	0.000	110.147	0.000	1.15
		B		0.000	0.000	12.867	0.000	0.25
		C		0.000	0.000	137.562	0.000	1.62
T10	120.00-100.00	A	0.705	0.000	0.000	113.862	0.000	1.17
		B		0.000	0.000	12.820	0.000	0.25
		C		0.000	0.000	137.150	0.000	1.61
T11	100.00-80.00	A	0.691	0.000	0.000	115.855	0.000	1.17
		B		0.000	0.000	12.764	0.000	0.25
		C		0.000	0.000	136.664	0.000	1.59
T12	80.00-60.00	A	0.674	0.000	0.000	116.210	0.000	1.16
		B		0.000	0.000	12.695	0.000	0.24
		C		0.000	0.000	136.068	0.000	1.57
T13	60.00-40.00	A	0.652	0.000	0.000	114.971	0.000	1.13
		B		0.000	0.000	12.606	0.000	0.24
		C		0.000	0.000	135.295	0.000	1.55
T14	40.00-20.00	A	0.619	0.000	0.000	113.169	0.000	1.10
		B		0.000	0.000	12.476	0.000	0.24
		C		0.000	0.000	134.171	0.000	1.51
T15	20.00-0.00	A	0.555	0.000	0.000	67.660	0.000	0.66
		B		0.000	0.000	10.386	0.000	0.19
		C		0.000	0.000	112.578	0.000	1.23

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	250.00-240.00	1.8593	-1.7024	2.2173	-1.8725
T2	240.00-220.00	1.8459	-2.6469	2.2333	-3.0648
T3	220.00-210.00	0.2283	-2.0433	0.6671	-2.4730
T4	210.00-200.00	-1.1209	-1.6117	-0.6281	-2.0974
T5	200.00-180.00	-2.9276	-0.1724	-2.0537	0.0471
T6	180.00-170.00	-3.0977	-0.5204	-2.2555	0.2808
T7	170.00-160.00	-3.3562	-1.0020	-2.4839	0.3479
T8	160.00-140.00	-3.6605	-1.6977	-2.7914	0.4459
T9	140.00-120.00	-4.0086	-2.4404	-3.0834	0.4643
T10	120.00-100.00	-4.3677	-2.8413	-3.3489	0.3412
T11	100.00-80.00	-4.8061	-3.1633	-3.6677	0.2143
T12	80.00-60.00	-5.2841	-3.4657	-4.0386	0.1960
T13	60.00-40.00	-5.7208	-3.6910	-4.4054	0.2973

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T14	40.00-20.00	-5.9898	-3.8111	-4.7113	0.4264
T15	20.00-0.00	-6.3721	-0.7598	-5.2120	2.7329

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	3/4" conduit	240.00 - 250.00	0.6000	0.5695
T1	3	LDF7-50A (1-5/8 FOAM)	240.00 - 246.00	0.6000	0.5695
T1	4	LDF7-50A(1 1/2")	240.00 - 246.00	0.6000	0.5695
T1	5	02725(9/16")	240.00 - 246.00	0.6000	0.5695
T1	6	LDF5-50A (7/8 FOAM)	240.00 - 246.00	0.6000	0.5695
T1	25	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.5695
T1	26	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.5695
T1	27	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.5695
T1	28	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.5695
T2	1	3/4" conduit	220.00 - 240.00	0.6000	0.6000
T2	3	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.6000
T2	4	LDF7-50A(1 1/2")	220.00 - 240.00	0.6000	0.6000
T2	5	02725(9/16")	220.00 - 240.00	0.6000	0.6000
T2	6	LDF5-50A (7/8 FOAM)	220.00 - 240.00	0.6000	0.6000
T2	7	LDF5-50A (7/8 FOAM)	220.00 - 233.00	0.6000	0.6000
T2	8	LDF2-50A (3/8 FOAM)	220.00 - 228.00	0.6000	0.6000
T2	9	EW52	220.00 - 236.50	0.6000	0.6000
T2	25	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	26	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	27	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	28	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T3	1	3/4" conduit	210.00 - 220.00	0.6000	0.5861
T3	3	LDF7-50A (1-5/8 FOAM)	210.00 - 220.00	0.6000	0.5861
T3	4	LDF7-50A(1 1/2")	210.00 - 220.00	0.6000	0.5861

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	5	02725(9/16")	210.00 - 220.00	0.6000	0.5861
T3	6	LDF5-50A (7/8 FOAM)	210.00 - 220.00	0.6000	0.5861
T3	7	LDF5-50A (7/8 FOAM)	210.00 - 220.00	0.6000	0.5861
T3	8	LDF2-50A (3/8 FOAM)	210.00 - 220.00	0.6000	0.5861
T3	9	EW52	210.00 - 220.00	0.6000	0.5861
T3	18	ATCB-B01-001(5/16)	210.00 - 215.00	0.6000	0.5861
T3	19	LDF7-50A (1-5/8 FOAM)	210.00 - 215.00	0.6000	0.5861
T3	25	Feedline Ladder (Af)	210.00 - 220.00	0.6000	0.5861
T3	26	Feedline Ladder (Af)	210.00 - 220.00	0.6000	0.5861
T3	27	Feedline Ladder (Af)	210.00 - 220.00	0.6000	0.5861
T3	28	Feedline Ladder (Af)	210.00 - 220.00	0.6000	0.5861
T3	30	Feedline Ladder (Af)	210.00 - 215.00	0.6000	0.5861
T4	1	3/4" conduit	200.00 - 210.00	0.6000	0.6000
T4	3	LDF7-50A (1-5/8 FOAM)	200.00 - 210.00	0.6000	0.6000
T4	4	LDF7-50A(1 1/2")	200.00 - 210.00	0.6000	0.6000
T4	5	02725(9/16")	200.00 - 210.00	0.6000	0.6000
T4	6	LDF5-50A (7/8 FOAM)	200.00 - 210.00	0.6000	0.6000
T4	7	LDF5-50A (7/8 FOAM)	200.00 - 210.00	0.6000	0.6000
T4	8	LDF2-50A (3/8 FOAM)	200.00 - 210.00	0.6000	0.6000
T4	9	EW52	200.00 - 210.00	0.6000	0.6000
T4	18	ATCB-B01-001(5/16)	200.00 - 210.00	0.6000	0.6000
T4	19	LDF7-50A (1-5/8 FOAM)	200.00 - 210.00	0.6000	0.6000
T4	25	Feedline Ladder (Af)	200.00 - 210.00	0.6000	0.6000
T4	26	Feedline Ladder (Af)	200.00 - 210.00	0.6000	0.6000
T4	27	Feedline Ladder (Af)	200.00 - 210.00	0.6000	0.6000
T4	28	Feedline Ladder (Af)	200.00 - 210.00	0.6000	0.6000
T4	30	Feedline Ladder (Af)	200.00 - 210.00	0.6000	0.6000
T5	1	3/4" conduit	180.00 - 200.00	0.6000	0.6000
T5	3	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T5	4	LDF7-50A(1 1/2")	180.00 - 200.00	0.6000	0.6000
T5	5	02725(9/16")	180.00 - 200.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	6	LDF5-50A (7/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T5	7	LDF5-50A (7/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T5	8	LDF2-50A (3/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T5	9	EW52	195.00 - 200.00	0.6000	0.6000
T5	10	EW52	180.00 - 195.00	0.6000	0.6000
T5	18	ATCB-B01-001(5/16)	180.00 - 200.00	0.6000	0.6000
T5	19	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T5	22	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
T5	23	HB114-U6S12-xxx-LI(1-1/4")	180.00 - 200.00	0.6000	0.6000
T5	25	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T5	26	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T5	27	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T5	28	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T5	29	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T5	30	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T6	1	3/4" conduit	170.00 - 180.00	0.6000	0.6000
T6	3	LDF7-50A (1-5/8 FOAM)	170.00 - 180.00	0.6000	0.6000
T6	4	LDF7-50A(1 1/2")	170.00 - 180.00	0.6000	0.6000
T6	5	02725(9/16")	170.00 - 180.00	0.6000	0.6000
T6	6	LDF5-50A (7/8 FOAM)	170.00 - 180.00	0.6000	0.6000
T6	7	LDF5-50A (7/8 FOAM)	170.00 - 180.00	0.6000	0.6000
T6	8	LDF2-50A (3/8 FOAM)	170.00 - 180.00	0.6000	0.6000
T6	10	EW52	176.50 - 180.00	0.6000	0.6000
T6	11	EW52	170.00 - 176.50	0.6000	0.6000
T6	18	ATCB-B01-001(5/16)	170.00 - 180.00	0.6000	0.6000
T6	19	LDF7-50A (1-5/8 FOAM)	170.00 - 180.00	0.6000	0.6000
T6	22	LDF7-50A (1-5/8 FOAM)	170.00 - 180.00	0.6000	0.6000
T6	23	HB114-U6S12-xxx-LI(1-1/4")	170.00 - 180.00	0.6000	0.6000
T6	25	Feedline Ladder (Af)	170.00 - 180.00	0.6000	0.6000
T6	26	Feedline Ladder (Af)	170.00 - 180.00	0.6000	0.6000
T6	27	Feedline Ladder (Af)	170.00 - 180.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	28	Feedline Ladder (Af)	170.00 - 180.00	0.6000	0.6000
T6	29	Feedline Ladder (Af)	170.00 - 180.00	0.6000	0.6000
T6	30	Feedline Ladder (Af)	170.00 - 180.00	0.6000	0.6000
T7	1	3/4" conduit	160.00 - 170.00	0.6000	0.6000
T7	3	LDF7-50A (1-5/8 FOAM)	160.00 - 170.00	0.6000	0.6000
T7	4	LDF7-50A(1 1/2")	160.00 - 170.00	0.6000	0.6000
T7	5	02725(9/16")	160.00 - 170.00	0.6000	0.6000
T7	6	LDF5-50A (7/8 FOAM)	160.00 - 170.00	0.6000	0.6000
T7	7	LDF5-50A (7/8 FOAM)	160.00 - 170.00	0.6000	0.6000
T7	8	LDF2-50A (3/8 FOAM)	160.00 - 170.00	0.6000	0.6000
T7	11	EW52	166.00 - 170.00	0.6000	0.6000
T7	12	EW52	160.00 - 166.00	0.6000	0.6000
T7	18	ATCB-B01-001(5/16)	160.00 - 170.00	0.6000	0.6000
T7	19	LDF7-50A (1-5/8 FOAM)	160.00 - 170.00	0.6000	0.6000
T7	22	LDF7-50A (1-5/8 FOAM)	160.00 - 170.00	0.6000	0.6000
T7	23	HB114-U6S12-xxx-LI(1-1/4")	160.00 - 170.00	0.6000	0.6000
T7	25	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T7	26	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T7	27	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T7	28	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T7	29	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T7	30	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T8	1	3/4" conduit	140.00 - 160.00	0.6000	0.6000
T8	3	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T8	4	LDF7-50A(1 1/2")	140.00 - 160.00	0.6000	0.6000
T8	5	02725(9/16")	140.00 - 160.00	0.6000	0.6000
T8	6	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T8	7	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T8	8	LDF2-50A (3/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T8	12	EW52	156.00 - 160.00	0.6000	0.6000
T8	13	EW52	140.00 - 156.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	18	ATCB-B01-001(5/16)	140.00 - 160.00	0.6000	0.6000
T8	19	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T8	22	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T8	23	HB114-U6S12-xxx-LI(1-1/4")	140.00 - 160.00	0.6000	0.6000
T8	25	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	26	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	27	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	28	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	29	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T8	30	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T9	1	3/4" conduit	120.00 - 140.00	0.6000	0.6000
T9	3	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T9	4	LDF7-50A(1 1/2")	120.00 - 140.00	0.6000	0.6000
T9	5	02725(9/16")	120.00 - 140.00	0.6000	0.6000
T9	6	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T9	7	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T9	8	LDF2-50A (3/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T9	13	EW52	136.00 - 140.00	0.6000	0.6000
T9	14	EW52	120.00 - 136.00	0.6000	0.6000
T9	15	LDF4.5-50 (5/8 FOAM)	120.00 - 126.00	0.6000	0.6000
T9	18	ATCB-B01-001(5/16)	120.00 - 140.00	0.6000	0.6000
T9	19	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T9	22	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T9	23	HB114-U6S12-xxx-LI(1-1/4")	120.00 - 140.00	0.6000	0.6000
T9	25	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	26	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	27	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	28	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	29	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T9	30	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T10	1	3/4" conduit	100.00 - 120.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	3	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	4	LDF7-50A(1 1/2")	100.00 - 120.00	0.6000	0.6000
T10	5	02725(9/16")	100.00 - 120.00	0.6000	0.6000
T10	6	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	7	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	8	LDF2-50A (3/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	14	EW52	100.00 - 120.00	0.6000	0.6000
T10	15	LDF4.5-50 (5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	18	ATCB-B01-001(5/16)	100.00 - 120.00	0.6000	0.6000
T10	19	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	22	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T10	23	HB114-U6S12-xxx-LI(1-1/4")	100.00 - 120.00	0.6000	0.6000
T10	25	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	26	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	27	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	28	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	29	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T10	30	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T11	1	3/4" conduit	80.00 - 100.00	0.6000	0.6000
T11	3	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	4	LDF7-50A(1 1/2")	80.00 - 100.00	0.6000	0.6000
T11	5	02725(9/16")	80.00 - 100.00	0.6000	0.6000
T11	6	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	7	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	8	LDF2-50A (3/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	14	EW52	80.00 - 100.00	0.6000	0.6000
T11	15	LDF4.5-50 (5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	16	LDF4P-50A (1/2 FOAM)	80.00 - 93.50	0.6000	0.6000
T11	18	ATCB-B01-001(5/16)	80.00 - 100.00	0.6000	0.6000
T11	19	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	22	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T11	23	HB114-U6S12-xxx-LI(1-1/4")	80.00 - 100.00	0.6000	0.6000
T11	25	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	26	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	27	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	28	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	29	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T11	30	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T12	1	3/4" conduit	60.00 - 80.00	0.6000	0.6000
T12	3	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	4	LDF7-50A(1 1/2")	60.00 - 80.00	0.6000	0.6000
T12	5	02725(9/16")	60.00 - 80.00	0.6000	0.6000
T12	6	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	7	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	8	LDF2-50A (3/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	14	EW52	60.00 - 80.00	0.6000	0.6000
T12	15	LDF4.5-50 (5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	16	LDF4P-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	18	ATCB-B01-001(5/16)	60.00 - 80.00	0.6000	0.6000
T12	19	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	22	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T12	23	HB114-U6S12-xxx-LI(1-1/4")	60.00 - 80.00	0.6000	0.6000
T12	25	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	26	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	27	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	28	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	29	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T12	30	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T13	1	3/4" conduit	40.00 - 60.00	0.6000	0.6000
T13	3	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	4	LDF7-50A(1 1/2")	40.00 - 60.00	0.6000	0.6000
T13	5	02725(9/16")	40.00 - 60.00	0.6000	0.6000
T13	6	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	7	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	8	LDF2-50A (3/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	14	EW52	40.00 - 60.00	0.6000	0.6000
T13	15	LDF4.5-50 (5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	16	LDF4P-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	18	ATCB-B01-001(5/16)	40.00 - 60.00	0.6000	0.6000
T13	19	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	22	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T13	23	HB114-U6S12-xxx-LI(1-1/4")	40.00 - 60.00	0.6000	0.6000
T13	25	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	26	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	27	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	28	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	29	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T13	30	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T14	1	3/4" conduit	20.00 - 40.00	0.6000	0.6000
T14	3	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	4	LDF7-50A(1 1/2")	20.00 - 40.00	0.6000	0.6000
T14	5	02725(9/16")	20.00 - 40.00	0.6000	0.6000
T14	6	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	7	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	8	LDF2-50A (3/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	14	EW52	20.00 - 40.00	0.6000	0.6000
T14	15	LDF4.5-50 (5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	16	LDF4P-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	18	ATCB-B01-001(5/16)	20.00 - 40.00	0.6000	0.6000
T14	19	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	22	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T14	23	HB114-U6S12-xxx-LI(1-1/4")	20.00 - 40.00	0.6000	0.6000
T14	25	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	26	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	27	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	28	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	29	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T14	30	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T15	1	3/4" conduit	11.00 - 20.00	0.6000	0.6000
T15	3	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T15	4	LDF7-50A(1 1/2")	8.00 - 20.00	0.6000	0.6000
T15	5	02725(9/16")	8.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	6	LDF5-50A (7/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T15	7	LDF5-50A (7/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T15	8	LDF2-50A (3/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T15	14	EW52	8.00 - 20.00	0.6000	0.6000
T15	15	LDF4.5-50 (5/8 FOAM)	11.00 - 20.00	0.6000	0.6000
T15	16	LDF4P-50A (1/2 FOAM)	8.00 - 20.00	0.6000	0.6000
T15	18	ATCB-B01-001(5/16)	0.00 - 20.00	0.6000	0.6000
T15	19	LDF7-50A (1-5/8 FOAM)	3.00 - 20.00	0.6000	0.6000
T15	22	LDF7-50A (1-5/8 FOAM)	3.00 - 20.00	0.6000	0.6000
T15	23	HB114-U6S12-xxx-LI(1-1/4")	3.00 - 20.00	0.6000	0.6000
T15	25	Feedline Ladder (Af)	3.00 - 20.00	0.6000	0.6000
T15	26	Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T15	27	Feedline Ladder (Af)	3.00 - 20.00	0.6000	0.6000
T15	28	Feedline Ladder (Af)	3.00 - 20.00	0.6000	0.6000
T15	29	Feedline Ladder (Af)	3.00 - 20.00	0.6000	0.6000
T15	30	Feedline Ladder (Af)	3.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Flash Beacon Lighting	C	From Leg	0.00 0.00 1.00	0.0000	250.00	No Ice 1/2" Ice	2.70 3.10	2.70 3.10	0.05 0.07
*****									
10' x 3.5" Omni	A	From Face	6.00 2.00 5.00	0.0000	246.00	No Ice 1/2" Ice	2.23 4.54	2.23 4.54	0.07 0.09
10' x 3.5" Omni	B	From Face	6.00 -2.00 5.00	0.0000	246.00	No Ice 1/2" Ice	2.23 4.54	2.23 4.54	0.07 0.09
15' x 2.5" Omni	B	From Face	6.00 2.00 7.50	0.0000	246.00	No Ice 1/2" Ice	3.35 5.28	3.35 5.28	0.05 0.08
10' x 3" Omni	C	From Face	6.00 -2.00 5.00	0.0000	246.00	No Ice 1/2" Ice	2.23 4.03	2.23 4.03	0.05 0.07
10' x 2" Dipole	C	From Face	6.00 2.00 5.00	0.0000	246.00	No Ice 1/2" Ice	2.00 3.02	2.00 3.02	0.04 0.05
Flush Sector Mounts	C	None		0.0000	246.00	No Ice 1/2" Ice	26.69 37.60	26.69 37.60	1.08 1.49
(2) 6' Standoff Mounts	C	None		0.0000	246.00	No Ice 1/2" Ice	4.51 7.78	4.51 7.78	0.16 0.24
*****									
4.5' x 4" Vertical Pipe	B	From Leg	0.00 0.00 0.00	0.0000	236.50	No Ice 1/2" Ice	1.01 1.82	1.01 1.82	0.01 0.03
*****									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
5' x 2" Omni	A	From Leg	2.00 0.00 3.00	0.0000	233.00	No Ice 1/2" Ice	1.20 1.80	1.20 1.80	0.03 0.04
2' Standoff Mount	A	From Leg	1.00 0.00 0.00	0.0000	233.00	No Ice 1/2" Ice	0.63 1.00	0.94 1.45	0.02 0.03
*****									
(2) 10"x4" TMA	A	From Leg	0.00 0.00 0.00	0.0000	228.00	No Ice 1/2" Ice	0.50 0.59	0.33 0.41	0.01 0.01
*****									
SBNH-1D65L w/ Mount Pipe	A	From Leg	3.00 0.00 2.00	0.0000	215.00	No Ice 1/2" Ice	11.91 12.73	10.07 11.69	0.09 0.18
SBNH-1D65L w/ Mount Pipe	B	From Leg	3.00 0.00 2.00	0.0000	215.00	No Ice 1/2" Ice	11.91 12.73	10.07 11.69	0.09 0.18
SBNH-1D65L w/ Mount Pipe	C	From Leg	3.00 0.00 2.00	0.0000	215.00	No Ice 1/2" Ice	11.91 12.73	10.07 11.69	0.09 0.18
E15Z01P39	A	From Leg	0.00 0.00 0.00	0.0000	215.00	No Ice 1/2" Ice	0.66 0.76	0.31 0.39	0.02 0.02
E15Z01P39	B	From Leg	0.00 0.00 0.00	0.0000	215.00	No Ice 1/2" Ice	0.66 0.76	0.31 0.39	0.02 0.02
E15Z01P39	C	From Leg	0.00 0.00 0.00	0.0000	215.00	No Ice 1/2" Ice	0.66 0.76	0.31 0.39	0.02 0.02
T-Frame Mounts	C	None		0.0000	215.00	No Ice 1/2" Ice	23.96 34.06	23.96 34.06	1.10 1.60
*****									
LNX-6515DS-A1M	A	From Leg	3.00 0.00 2.00	0.0000	200.00	No Ice 1/2" Ice	11.41 12.03	7.70 8.29	0.05 0.12
LNX-6515DS-A1M	B	From Leg	3.00 0.00 2.00	0.0000	200.00	No Ice 1/2" Ice	11.41 12.03	7.70 8.29	0.05 0.12
LNX-6515DS-A1M	C	From Leg	3.00 0.00 2.00	0.0000	200.00	No Ice 1/2" Ice	11.41 12.03	7.70 8.29	0.05 0.12
(2) NHH-65C-R2B	A	From Leg	3.00 0.00 2.00	0.0000	200.00	No Ice 1/2" Ice	11.39 12.01	7.66 8.25	0.05 0.12
(2) NHH-65C-R2B	B	From Leg	3.00 0.00 2.00	0.0000	200.00	No Ice 1/2" Ice	11.39 12.01	7.66 8.25	0.05 0.12
(2) NHH-65C-R2B	C	From Leg	3.00 0.00 2.00	0.0000	200.00	No Ice 1/2" Ice	11.39 12.01	7.66 8.25	0.05 0.12
B13 RRH 4X30	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.06 2.24	1.32 1.48	0.06 0.07
B13 RRH 4X30	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.06 2.24	1.32 1.48	0.06 0.07
B13 RRH 4X30	C	From Leg	3.00	0.0000	200.00	No Ice	2.06	1.32	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00			1/2" Ice	2.24	1.48	0.07
B25 RRH4X30	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.20 2.39	1.74 1.92	0.06 0.08
B25 RRH4X30	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.20 2.39	1.74 1.92	0.06 0.08
B25 RRH4X30	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.20 2.39	1.74 1.92	0.06 0.08
B66A RRH4X45	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.58 2.79	1.63 1.81	0.07 0.09
B66A RRH4X45	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.58 2.79	1.63 1.81	0.07 0.09
B66A RRH4X45	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	2.58 2.79	1.63 1.81	0.07 0.09
RCMDC-6627-PF-48	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	4.06 4.32	3.10 3.34	0.03 0.07
Commscope MTC3752T3 (1 Sector)	A	From Leg	1.50 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	24.84 35.09	17.25 24.85	0.80 1.36
Commscope MTC3752T3 (1 Sector)	B	From Leg	1.50 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	24.84 35.09	17.25 24.85	0.80 1.36
Commscope MTC3752T3 (1 Sector)	C	From Leg	1.50 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	24.84 35.09	17.25 24.85	0.80 1.36
*****									
4.5' x 4" Vertical Pipe	B	From Leg	0.00 0.00 0.00	0.0000	195.00	No Ice 1/2" Ice	1.02 1.82	1.02 1.82	0.01 0.03
*****									
4.5' x 4" Vertical Pipe	C	From Leg	0.00 0.00 0.00	0.0000	176.50	No Ice 1/2" Ice	1.02 1.82	1.02 1.82	0.01 0.03
*****									
10' x 2" Dipole	A	From Face	2.00 0.00 6.00	0.0000	160.00	No Ice 1/2" Ice	2.00 3.02	2.00 3.02	0.04 0.05
2' Standoff Mount	A	From Leg	1.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice	0.63 1.00	0.94 1.45	0.02 0.03
*****									
4.5' x 4" Vertical Pipe	B	From Leg	0.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice	1.03 1.82	1.03 1.82	0.01 0.03
*****									
4.5' x 4" Vertical Pipe	C	From Leg	0.00 0.00 0.00	0.0000	136.00	No Ice 1/2" Ice	1.04 1.82	1.04 1.82	0.01 0.03
*****									
3' Yagi	A	From Leg	2.00	0.0000	93.50	No Ice	0.88	0.88	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
2' Standoff Mount	A	From Leg	0.00 1.50 1.00 0.00 0.00	0.0000	93.50	1/2" Ice No Ice 1/2" Ice	1.31 0.63 1.00	1.31 0.94 1.45	0.04 0.02 0.03

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
PAR8-59W	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	60.0000		236.50	8.38	No Ice 1/2" Ice	55.09 56.19	0.25 0.54
*****											
VHLP2-11W	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-90.0000		228.00	2.16	No Ice 1/2" Ice	3.66 3.95	0.03 0.05
*****											
PL4-59-PXA	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		195.00	4.00	No Ice 1/2" Ice	12.57 13.10	0.24 0.07
*****											
PARX6-59W-PXA/A	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		176.50	6.36	No Ice 1/2" Ice	31.75 32.59	0.15 0.32
*****											
D6E-2 T6M10H	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	60.0000		156.00	6.00	No Ice 1/2" Ice	28.27 29.05	0.14 0.29
*****											
PARX6-59W-PXA/A	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	30.0000		136.00	6.36	No Ice 1/2" Ice	31.75 32.59	0.15 0.32

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
8Bay 1.25" Leg K-Brace	1046.3729	2580.9173	0.54	0.45	7.2665	17.9230	3.6816
16Bay 1.25" Leg K-Brace	2217.8407	4773.4123	0.47	0.83	7.7008	16.5743	3.6816
16Bay 1.5" Leg	2344.7782	4978.6438	0.58	0.89	8.1416	17.2870	5.3014

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diameter	Equiv. Diameter Ice	Leg Area
	in^2	in^2	K	K	in	in	in^2
K-Brace 16Bay 1.5" Leg K-Brace	2344.7782	4958.9904	0.58	0.88	8.1416	17.2187	5.3014
16Bay 1.75" Leg K-Brace	2518.7257	5292.8329	0.91	0.92	8.7456	18.3779	7.2158
16Bay 2" Leg K-Brace	2652.5991	5511.1604	1.06	0.93	9.2104	19.1360	9.4248
16Bay 2" Leg K-Brace	2652.5991	5485.0774	1.06	0.92	9.2104	19.0454	9.4248
16Bay 2.25" Leg K-Brace	3196.8731	5822.9836	1.37	1.09	11.1003	20.2187	11.9282
16Bay 2.75" Leg K-Brace	3457.2908	6161.4312	1.76	1.10	12.0045	21.3939	17.8187
16Bay 3" Leg K-Brace	3681.2010	6491.6585	2.07	1.12	12.7819	22.5405	21.2058
16Bay 3.25" Leg K-Brace	3818.7670	6624.2485	2.32	1.11	13.2596	23.0009	24.8873
16Bay 3.25" Leg K-Brace	3818.7670	6528.2631	2.32	1.07	13.2596	22.6676	24.8873
16Bay 3.5" Leg K-Brace	3959.5588	6616.4736	2.58	1.03	13.7485	22.9739	28.8634
16Bay 3.75" Leg K-Brace	4103.8684	6650.8505	2.87	1.02	14.2495	23.0932	33.1340
16Bay 4" Leg K-Brace	4251.9717	6516.2700	3.18	0.89	14.7638	22.6259	37.6991

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	250 - 240	Leg	Max Tension	7	2.10	-2.96	-0.61
			Max. Compression	10	-4.21	2.83	-0.17
			Max. Mx	2	-3.98	3.40	-0.93
			Max. My	8	-1.13	0.22	-3.94
			Max. Vy	2	-1.23	3.40	-0.93
			Max. Vx	8	1.15	0.00	0.00
		Diagonal	Max Tension	23	2.53	0.00	0.00
			Max. Compression	2	-2.70	0.00	0.00
			Max. Mx	27	-0.00	0.03	-0.00
			Max. My	24	-2.13	0.01	0.00
			Max. Vy	27	-0.02	0.03	-0.00
			Max. Vx	24	-0.00	0.02	0.00
		Top Girt	Max Tension	10	0.20	0.00	0.00
			Max. Compression	9	-0.13	0.00	0.00
			Max. Mx	26	0.02	-0.07	0.00
			Max. Vy	26	-0.04	0.00	0.00
T2	240 - 220	Leg	Max Tension	7	34.79	-1.15	-0.28
			Max. Compression	2	-41.30	2.39	-0.43
			Max. Mx	2	-17.37	3.40	-0.93
			Max. My	5	-1.69	-0.08	4.38
			Max. Vy	2	1.50	3.40	-0.93
			Max. Vx	5	-1.95	0.01	-2.07
		Diagonal	Max Tension	25	12.61	0.00	0.00
			Max. Compression	24	-12.82	0.00	0.00
			Max. Mx	2	10.81	0.08	-0.01
			Max. My	3	7.63	0.01	-0.03
			Max. Vy	31	-0.03	0.05	-0.00
			Max. Vx	3	0.00	0.00	0.00
T3	220 - 210	Leg	Max Tension	7	58.26	-2.17	-0.14
			Max. Compression	2	-69.15	-0.92	0.02

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	2	-67.64	7.03	0.08
			Max. My	4	-3.95	-0.51	-7.69
			Max. Vy	2	3.01	7.03	0.08
			Max. Vx	4	1.92	-0.51	-7.69
		Diagonal	Max Tension	25	13.53	0.07	-0.04
			Max. Compression	24	-13.84	0.00	0.00
			Max. Mx	24	11.14	0.10	-0.02
			Max. My	2	-13.59	-0.04	-0.05
			Max. Vy	28	0.04	0.05	0.00
			Max. Vx	2	-0.01	0.00	0.00
		Secondary Horizontal	Max Tension	2	2.52	-0.01	-0.01
			Max. Compression	25	-2.23	0.03	0.02
			Max. Mx	4	-1.99	0.04	0.02
			Max. My	24	-2.20	0.03	0.02
			Max. Vy	33	-0.03	0.02	0.01
			Max. Vx	24	-0.01	0.00	0.00
T4	210 - 200	Leg	Max Tension	7	85.66	-0.04	0.14
			Max. Compression	2	-99.73	5.77	-0.22
			Max. Mx	2	-99.73	5.77	-0.22
			Max. My	4	-4.45	-0.51	-7.69
			Max. Vy	2	-1.02	5.77	-0.22
			Max. Vx	25	1.19	-0.38	7.62
		Diagonal	Max Tension	25	14.02	0.00	0.00
			Max. Compression	2	-14.87	0.00	0.00
			Max. Mx	2	6.73	0.15	-0.03
			Max. My	2	6.73	0.15	-0.03
			Max. Vy	2	-0.04	0.15	-0.03
			Max. Vx	2	0.01	0.00	0.00
T5	200 - 180	Leg	Max Tension	15	162.46	-4.39	0.12
			Max. Compression	2	-187.64	1.76	0.09
			Max. Mx	2	-137.42	5.77	-0.22
			Max. My	4	-7.47	-0.26	-7.26
			Max. Vy	22	-4.29	-4.64	-0.02
			Max. Vx	20	-3.53	0.51	0.87
		Diagonal	Max Tension	24	20.83	0.00	0.00
			Max. Compression	24	-20.67	0.00	0.00
			Max. Mx	2	14.95	0.23	-0.03
			Max. My	24	-19.64	-0.08	-0.05
			Max. Vy	2	-0.06	0.23	-0.03
			Max. Vx	24	0.01	0.00	0.00
		Top Girt	Max Tension	6	2.69	0.00	0.00
			Max. Compression	3	-2.49	0.00	0.00
			Max. Mx	26	0.52	-0.13	0.00
			Max. My	26	0.46	0.00	0.00
			Max. Vy	26	0.05	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T6	180 - 170	Leg	Max Tension	15	200.48	-2.03	-0.08
			Max. Compression	2	-228.84	3.04	0.24
			Max. Mx	2	-228.76	14.20	-0.34
			Max. My	25	-6.01	-0.18	6.99
			Max. Vy	10	-3.15	13.23	0.48
			Max. Vx	12	-1.79	-0.26	-6.90
		Diagonal	Max Tension	25	22.56	0.21	0.01
			Max. Compression	24	-23.26	0.00	0.00
			Max. Mx	2	15.68	0.31	0.03
			Max. My	2	13.23	0.30	-0.05
			Max. Vy	2	-0.07	0.31	0.03
			Max. Vx	2	0.01	0.00	0.00
		Secondary Horizontal	Max Tension	2	3.97	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	2	-3.97	0.02	-0.01
			Max. Mx	2	-1.24	0.06	0.01
			Max. My	24	-2.89	0.03	0.02
			Max. Vy	27	0.04	0.05	0.01
			Max. Vx	24	-0.00	0.00	0.00
T7	170 - 160	Leg	Max Tension	7	245.54	-2.64	0.08
			Max. Compression	2	-279.82	11.79	-0.44
			Max. Mx	3	-276.97	11.86	-0.45
			Max. My	4	-11.74	-0.32	-15.89
			Max. Vy	14	1.29	-11.50	0.43
			Max. Vx	4	2.09	-0.32	-15.89
		Diagonal	Max Tension	8	20.53	0.00	0.00
			Max. Compression	9	-20.23	0.00	0.00
			Max. Mx	4	7.90	0.34	-0.02
			Max. My	8	-19.99	-0.10	-0.08
			Max. Vy	4	0.08	0.34	-0.02
			Max. Vx	8	0.01	0.00	0.00
T8	160 - 140	Leg	Max Tension	7	298.18	-11.30	-0.18
			Max. Compression	2	-337.28	17.50	-0.03
			Max. Mx	6	293.79	-17.77	-0.05
			Max. My	4	-13.76	-0.37	-24.39
			Max. Vy	6	1.34	-17.77	-0.05
			Max. Vx	5	1.50	-0.26	-24.39
		Diagonal	Max Tension	25	32.23	0.00	0.00
			Max. Compression	2	-34.23	0.00	0.00
			Max. Mx	6	28.74	-0.57	0.01
			Max. My	24	-32.82	0.07	0.13
			Max. Vy	37	-0.14	-0.37	-0.06
			Max. Vx	24	-0.01	0.00	0.00
T9	140 - 120	Leg	Max Tension	7	388.80	-17.65	-0.05
			Max. Compression	2	-439.85	20.61	0.75
			Max. Mx	2	-439.85	20.61	0.75
			Max. My	4	-16.68	-0.37	-24.39
			Max. Vy	6	-1.50	-17.77	-0.05
			Max. Vx	12	-2.41	-0.63	-23.70
		Diagonal	Max Tension	8	35.72	0.00	0.00
			Max. Compression	8	-35.61	0.00	0.00
			Max. Mx	2	30.12	-0.54	0.13
			Max. My	4	33.63	-0.47	0.14
			Max. Vy	37	-0.16	-0.43	-0.07
			Max. Vx	4	-0.01	0.00	0.00
T10	120 - 100	Leg	Max Tension	7	468.38	-19.56	0.27
			Max. Compression	2	-527.88	22.63	0.13
			Max. Mx	3	-522.51	22.76	0.13
			Max. My	24	-20.81	-0.52	24.32
			Max. Vy	14	1.19	-22.26	-0.10
			Max. Vx	21	1.55	-0.15	-23.76
		Diagonal	Max Tension	8	35.99	0.00	0.00
			Max. Compression	8	-36.54	0.00	0.00
			Max. Mx	6	29.96	-0.60	0.07
			Max. My	10	26.08	-0.49	0.08
			Max. Vy	37	-0.17	-0.51	0.08
			Max. Vx	31	-0.01	0.00	0.00
T11	100 - 80	Leg	Max Tension	7	551.91	-22.31	0.30
			Max. Compression	2	-622.89	22.29	0.30
			Max. Mx	3	-613.98	22.76	0.13
			Max. My	24	-22.75	-0.52	24.32
			Max. Vy	14	-1.16	-22.26	-0.10
			Max. Vx	21	-1.32	-0.15	-23.76
		Diagonal	Max Tension	8	38.19	0.00	0.00
			Max. Compression	8	-38.53	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	6	30.74	-0.85	0.08
			Max. My	10	-34.28	-0.25	0.11
			Max. Vy	37	-0.24	-0.71	0.11
			Max. Vx	31	-0.01	0.00	0.00
T12	80 - 60	Leg	Max Tension	7	632.12	-20.96	0.39
			Max. Compression	2	-715.14	19.14	0.27
			Max. Mx	2	-712.22	22.29	0.30
			Max. My	24	-30.59	-1.15	26.84
			Max. Vy	11	1.11	21.84	-0.01
			Max. Vx	24	-1.36	-1.15	26.84
		Diagonal	Max Tension	8	39.34	0.00	0.00
			Max. Compression	8	-39.51	0.00	0.00
			Max. Mx	6	32.38	-0.93	0.09
			Max. My	31	-3.81	-0.83	0.12
			Max. Vy	37	-0.26	-0.85	-0.12
			Max. Vx	31	-0.02	0.00	0.00
T13	60 - 40	Leg	Max Tension	7	711.58	-20.08	0.34
			Max. Compression	2	-806.60	29.63	0.28
			Max. Mx	2	-806.60	29.63	0.28
			Max. My	24	-32.45	-1.15	26.84
			Max. Vy	29	1.64	-20.39	0.02
			Max. Vx	24	1.68	-1.15	26.84
		Diagonal	Max Tension	4	40.92	0.00	0.00
			Max. Compression	4	-41.60	0.00	0.00
			Max. Mx	6	34.24	-0.97	0.13
			Max. My	12	39.10	-0.87	0.14
			Max. Vy	37	-0.28	-0.88	0.13
			Max. Vx	32	-0.02	0.00	0.00
T14	40 - 20	Leg	Max Tension	7	791.81	-26.40	0.27
			Max. Compression	2	-901.67	19.83	0.34
			Max. Mx	2	-898.09	29.63	0.28
			Max. My	24	-42.09	-2.14	44.96
			Max. Vy	29	-2.35	-20.39	0.02
			Max. Vx	24	-2.55	-2.14	44.96
		Diagonal	Max Tension	4	42.28	0.00	0.00
			Max. Compression	4	-42.20	0.00	0.00
			Max. Mx	6	32.23	-1.48	-0.07
			Max. My	16	-40.72	-0.52	0.24
			Max. Vy	37	-0.38	-1.47	-0.17
			Max. Vx	16	-0.02	0.00	0.00
T15	20 - 0	Leg	Max Tension	7	864.09	-22.37	0.41
			Max. Compression	2	-987.62	0.00	0.00
			Max. Mx	27	-123.08	25.28	-0.08
			Max. My	24	-44.17	-2.14	44.96
			Max. Vy	6	-2.08	-22.90	0.41
			Max. Vx	24	3.14	-2.14	44.96
		Diagonal	Max Tension	4	45.77	0.00	0.00
			Max. Compression	4	-46.93	0.00	0.00
			Max. Mx	4	14.22	-1.53	-0.26
			Max. My	12	43.54	-1.39	0.36
			Max. Vy	38	-0.38	-1.16	-0.20
			Max. Vx	12	-0.03	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	1012.33	103.43	-60.35
	Max. H_x	18	1012.33	103.43	-60.35
	Max. H_z	5	-813.28	-81.64	54.49
	Min. Vert	7	-904.98	-93.77	54.43
	Min. H_x	7	-904.98	-93.77	54.43
	Min. H_z	18	1012.33	103.43	-60.35
Leg B	Max. Vert	10	1022.37	-104.96	-59.82
	Max. H_x	23	-899.84	93.48	53.68
	Max. H_z	23	-899.84	93.48	53.68
	Min. Vert	23	-899.84	93.48	53.68
	Min. H_x	10	1022.37	-104.96	-59.82
	Min. H_z	10	1022.37	-104.96	-59.82
Leg A	Max. Vert	2	1037.05	-0.59	121.71
	Max. H_x	21	46.92	11.72	4.16
	Max. H_z	2	1037.05	-0.59	121.71
	Min. Vert	15	-893.96	0.75	-107.20
	Min. H_x	8	59.09	-11.47	5.26
	Min. H_z	15	-893.96	0.75	-107.20

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	127.94	-0.00	0.00	-0.76	8.82	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	153.52	0.62	-193.05	-25613.72	-83.19	-28.60
0.9 Dead+1.6 Wind 0 deg - No Ice	115.14	0.62	-193.05	-25613.50	-85.84	-28.60
1.2 Dead+1.6 Wind 30 deg - No Ice	153.52	96.83	-166.78	-22062.60	-12809.40	-29.54
0.9 Dead+1.6 Wind 30 deg - No Ice	115.14	96.83	-166.78	-22062.37	-12812.04	-29.54
1.2 Dead+1.6 Wind 60 deg - No Ice	153.52	159.31	-92.77	-12386.79	-21146.77	-13.57
0.9 Dead+1.6 Wind 60 deg - No Ice	115.14	159.31	-92.77	-12386.57	-21149.41	-13.57
1.2 Dead+1.6 Wind 90 deg - No Ice	153.52	190.60	-0.97	-205.61	-24974.81	12.52
0.9 Dead+1.6 Wind 90 deg - No Ice	115.14	190.60	-0.97	-205.38	-24977.45	12.52
1.2 Dead+1.6 Wind 120 deg - No Ice	153.52	166.39	95.54	12542.79	-21894.29	34.57
0.9 Dead+1.6 Wind 120 deg - No Ice	115.14	166.39	95.54	12543.01	-21896.93	34.57
1.2 Dead+1.6 Wind 150 deg - No Ice	153.52	95.99	165.05	21696.73	-12630.54	40.88
0.9 Dead+1.6 Wind 150 deg - No Ice	115.14	95.99	165.05	21696.95	-12633.18	40.88
1.2 Dead+1.6 Wind 180 deg - No Ice	153.52	0.67	182.38	24222.78	-93.23	40.70
0.9 Dead+1.6 Wind 180 deg - No Ice	115.14	0.67	182.38	24223.01	-95.87	40.70
1.2 Dead+1.6 Wind 210 deg - No Ice	153.52	-94.48	163.99	21520.72	12404.13	40.22
0.9 Dead+1.6 Wind 210 deg - No Ice	115.14	-94.48	163.99	21520.94	12401.49	40.22

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 240 deg - No Ice	153.52	-164.98	94.58	12381.97	21685.89	28.21
0.9 Dead+1.6 Wind 240 deg - No Ice	115.14	-164.98	94.58	12382.20	21683.24	28.21
1.2 Dead+1.6 Wind 270 deg - No Ice	153.52	-189.92	-1.06	-222.17	24893.22	2.88
0.9 Dead+1.6 Wind 270 deg - No Ice	115.14	-189.92	-1.06	-221.95	24890.57	2.88
1.2 Dead+1.6 Wind 300 deg - No Ice	153.52	-158.47	-92.19	-12300.62	21047.57	-12.73
0.9 Dead+1.6 Wind 300 deg - No Ice	115.14	-158.47	-92.19	-12300.39	21044.92	-12.73
1.2 Dead+1.6 Wind 330 deg - No Ice	153.52	-95.67	-166.17	-21972.98	12652.00	-18.13
0.9 Dead+1.6 Wind 330 deg - No Ice	115.14	-95.67	-166.17	-21972.76	12649.35	-18.13
1.2 Dead+1.0 Ice+1.0 Temp	229.32	-0.00	0.00	-11.52	51.33	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	229.32	0.02	-9.08	-1228.95	48.28	-1.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	229.32	4.46	-7.69	-1045.16	-548.37	-0.55
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	229.32	7.64	-4.44	-609.55	-975.13	0.25
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	229.32	8.82	-0.03	-18.21	-1126.59	1.24
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	229.32	7.84	4.51	588.61	-994.29	1.94
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	229.32	4.43	7.64	1010.23	-542.55	1.83
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	229.32	0.02	8.77	1166.61	47.94	1.43
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	229.32	-4.38	7.60	1004.43	637.04	0.90
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	229.32	-7.79	4.47	583.30	1089.38	0.16
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	229.32	-8.80	-0.03	-18.76	1225.88	-0.74
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	229.32	-7.62	-4.42	-606.73	1073.87	-1.19
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	229.32	-4.42	-7.67	-1042.25	645.17	-1.08
Dead+Wind 0 deg - Service	127.94	0.08	-24.57	-3259.86	-3.11	-3.64
Dead+Wind 30 deg - Service	127.94	12.32	-21.22	-2808.00	-1622.46	-3.76
Dead+Wind 60 deg - Service	127.94	20.27	-11.80	-1576.80	-2683.35	-1.73
Dead+Wind 90 deg - Service	127.94	24.25	-0.12	-26.80	-3170.45	1.59
Dead+Wind 120 deg - Service	127.94	21.17	12.16	1595.37	-2778.47	4.40
Dead+Wind 150 deg - Service	127.94	12.21	21.00	2760.16	-1599.70	5.20
Dead+Wind 180 deg - Service	127.94	0.09	23.21	3081.59	-4.39	5.18
Dead+Wind 210 deg - Service	127.94	-12.02	20.87	2737.77	1585.84	5.12
Dead+Wind 240 deg - Service	127.94	-20.99	12.04	1574.91	2766.90	3.59
Dead+Wind 270 deg - Service	127.94	-24.17	-0.13	-28.91	3175.01	0.37
Dead+Wind 300 deg - Service	127.94	-20.16	-11.73	-1565.83	2685.67	-1.62
Dead+Wind 330 deg - Service	127.94	-12.17	-21.14	-2796.60	1617.38	-2.31

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-127.94	0.00	0.00	127.94	-0.00	0.000%
2	0.62	-153.52	-193.05	-0.62	153.52	193.05	0.000%
3	0.62	-115.14	-193.05	-0.62	115.14	193.05	0.000%
4	96.83	-153.52	-166.78	-96.83	153.52	166.78	0.000%
5	96.83	-115.14	-166.78	-96.83	115.14	166.78	0.000%
6	159.31	-153.52	-92.77	-159.31	153.52	92.77	0.000%
7	159.31	-115.14	-92.77	-159.31	115.14	92.77	0.000%
8	190.60	-153.52	-0.97	-190.60	153.52	0.97	0.000%
9	190.60	-115.14	-0.97	-190.60	115.14	0.97	0.000%
10	166.39	-153.52	95.54	-166.39	153.52	-95.54	0.000%
11	166.39	-115.14	95.54	-166.39	115.14	-95.54	0.000%
12	95.99	-153.52	165.05	-95.99	153.52	-165.05	0.000%
13	95.99	-115.14	165.05	-95.99	115.14	-165.05	0.000%
14	0.67	-153.52	182.38	-0.67	153.52	-182.38	0.000%
15	0.67	-115.14	182.38	-0.67	115.14	-182.38	0.000%
16	-94.48	-153.52	163.99	94.48	153.52	-163.99	0.000%
17	-94.48	-115.14	163.99	94.48	115.14	-163.99	0.000%
18	-164.98	-153.52	94.58	164.98	153.52	-94.58	0.000%
19	-164.98	-115.14	94.58	164.98	115.14	-94.58	0.000%
20	-189.92	-153.52	-1.06	189.92	153.52	1.06	0.000%
21	-189.92	-115.14	-1.06	189.92	115.14	1.06	0.000%
22	-158.47	-153.52	-92.19	158.47	153.52	92.19	0.000%
23	-158.47	-115.14	-92.19	158.47	115.14	92.19	0.000%
24	-95.67	-153.52	-166.17	95.67	153.52	166.17	0.000%
25	-95.67	-115.14	-166.17	95.67	115.14	166.17	0.000%
26	0.00	-229.32	0.00	0.00	229.32	-0.00	0.000%
27	0.02	-229.32	-9.08	-0.02	229.32	9.08	0.000%
28	4.46	-229.32	-7.69	-4.46	229.32	7.69	0.000%
29	7.64	-229.32	-4.44	-7.64	229.32	4.44	0.000%
30	8.82	-229.32	-0.03	-8.82	229.32	0.03	0.000%
31	7.84	-229.32	4.51	-7.84	229.32	-4.51	0.000%
32	4.43	-229.32	7.64	-4.43	229.32	-7.64	0.000%
33	0.02	-229.32	8.77	-0.02	229.32	-8.77	0.000%
34	-4.38	-229.32	7.60	4.38	229.32	-7.60	0.000%
35	-7.79	-229.32	4.47	7.79	229.32	-4.47	0.000%
36	-8.80	-229.32	-0.03	8.80	229.32	0.03	0.000%
37	-7.62	-229.32	-4.42	7.62	229.32	4.42	0.000%
38	-4.42	-229.32	-7.67	4.42	229.32	7.67	0.000%
39	0.08	-127.94	-24.57	-0.08	127.94	24.57	0.000%
40	12.32	-127.94	-21.22	-12.32	127.94	21.22	0.000%
41	20.27	-127.94	-11.80	-20.27	127.94	11.80	0.000%
42	24.25	-127.94	-0.12	-24.25	127.94	0.12	0.000%
43	21.17	-127.94	12.16	-21.17	127.94	-12.16	0.000%
44	12.21	-127.94	21.00	-12.21	127.94	-21.00	0.000%
45	0.09	-127.94	23.21	-0.09	127.94	-23.21	0.000%
46	-12.02	-127.94	20.87	12.02	127.94	-20.87	0.000%
47	-20.99	-127.94	12.04	20.99	127.94	-12.04	0.000%
48	-24.17	-127.94	-0.13	24.17	127.94	0.13	0.000%
49	-20.16	-127.94	-11.73	20.16	127.94	11.73	0.000%
50	-12.17	-127.94	-21.14	12.17	127.94	21.14	0.000%

Maximum Tower Deflections - Service Wind

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

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	3.574	39	0.1388	0.0156
T2	240 - 220	3.283	39	0.1384	0.0157
T3	220 - 210	2.702	39	0.1302	0.0085
T4	210 - 200	2.430	39	0.1239	0.0060
T5	200 - 180	2.174	39	0.1159	0.0042
T6	180 - 170	1.706	39	0.0992	0.0035
T7	170 - 160	1.500	39	0.0914	0.0032
T8	160 - 140	1.307	39	0.0823	0.0029
T9	140 - 120	0.981	39	0.0668	0.0024
T10	120 - 100	0.714	39	0.0551	0.0017
T11	100 - 80	0.491	39	0.0445	0.0011
T12	80 - 60	0.314	39	0.0347	0.0007
T13	60 - 40	0.178	39	0.0245	0.0005
T14	40 - 20	0.082	39	0.0155	0.0003
T15	20 - 0	0.023	39	0.0072	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.00	Flash Beacon Lighting	39	3.574	0.1388	0.0156	625204
246.00	10' x 3.5" Omni	39	3.458	0.1389	0.0159	625204
236.50	PAR8-59W	39	3.180	0.1377	0.0149	Inf
233.00	5' x 2" Omni	39	3.077	0.1365	0.0138	321105
228.00	VHLP2-11W	39	2.931	0.1344	0.0117	144208
215.00	SBNH-1D65L w/ Mount Pipe	39	2.564	0.1272	0.0070	70388
200.00	LNX-6515DS-A1M	39	2.174	0.1159	0.0042	100420
195.00	PL4-59-PXA	39	2.051	0.1116	0.0040	86908
176.50	PARX6-59W-PXA/A	39	1.632	0.0965	0.0034	65880
160.00	10' x 2" Dipole	39	1.307	0.0823	0.0029	57445
156.00	D6E-2 T6M10H	39	1.236	0.0788	0.0028	58079
136.00	PARX6-59W-PXA/A	39	0.923	0.0642	0.0022	88655
93.50	3' Yagi	39	0.428	0.0413	0.0009	104923

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	28.044	2	1.0858	0.1224
T2	240 - 220	25.761	2	1.0831	0.1232
T3	220 - 210	21.220	2	1.0193	0.0668
T4	210 - 200	19.086	2	0.9710	0.0468
T5	200 - 180	17.080	2	0.9092	0.0333
T6	180 - 170	13.401	2	0.7790	0.0275
T7	170 - 160	11.780	2	0.7177	0.0255
T8	160 - 140	10.271	2	0.6462	0.0226
T9	140 - 120	7.703	2	0.5244	0.0186
T10	120 - 100	5.606	2	0.4326	0.0131
T11	100 - 80	3.855	2	0.3492	0.0083
T12	80 - 60	2.463	2	0.2728	0.0057

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T13	60 - 40	1.396	2	0.1927	0.0038
T14	40 - 20	0.647	2	0.1216	0.0023
T15	20 - 0	0.181	2	0.0569	0.0011

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.00	Flash Beacon Lighting	2	28.044	1.0858	0.1224	81043
246.00	10' x 3.5" Omni	2	27.132	1.0863	0.1247	81043
236.50	PAR8-59W	2	24.958	1.0773	0.1173	332889
233.00	5' x 2" Omni	2	24.154	1.0686	0.1083	46977
228.00	VHLP2-11W	2	23.011	1.0521	0.0923	19262
215.00	SBNH-1D65L w/ Mount Pipe	2	20.136	0.9966	0.0554	9124
200.00	LNX-6515DS-A1M	2	17.080	0.9092	0.0333	12971
195.00	PL4-59-PXA	2	16.114	0.8760	0.0315	11176
176.50	PARX6-59W-PXA/A	2	12.818	0.7580	0.0270	8407
160.00	10' x 2" Dipole	2	10.271	0.6462	0.0226	7319
156.00	D6E-2 T6M10H	2	9.709	0.6186	0.0216	7398
136.00	PARX6-59W-PXA/A	2	7.252	0.5044	0.0176	11282
93.50	3' Yagi	2	3.364	0.3241	0.0073	13357

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	250	Leg	A325N	1.0000	6	0.35	53.01	0.007	1	Bolt Tension
		Diagonal	A325N	1.0000	1	2.53	12.19	0.208	1	Member Block Shear
		Top Girt	A325N	1.0000	1	0.20	12.19	0.016	1	Member Block Shear
T2	240	Leg	A325N	1.0000	6	5.80	53.01	0.109	1	Bolt Tension
		Diagonal	A325N	1.0000	1	12.61	13.55	0.931	1	Member Block Shear
T3	220	Diagonal	A325N	1.0000	1	13.53	20.33	0.665	1	Member Block Shear
		Secondary Horizontal	A325N	0.5000	2	1.26	7.95	0.158	1	Bolt Shear
T4	210	Leg	A325N	1.0000	6	14.28	53.01	0.269	1	Bolt Tension
		Diagonal	A325N	1.0000	1	14.02	20.33	0.690	1	Member Block Shear
T5	200	Leg	A325N	1.0000	6	27.08	53.01	0.511	1	Bolt Tension
		Diagonal	A325N	1.0000	1	20.83	24.41	0.853	1	Member Block Shear
		Top Girt	A325N	1.0000	1	2.69	13.55	0.199	1	Member Block Shear
T6	180	Diagonal	A325N	1.2500	1	22.56	24.64	0.915	1	Member Block Shear
		Secondary	A325N	0.5000	2	1.98	7.95	0.250	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal								
T7	170	Leg	A325N	1.2500	6	40.92	82.83	0.494	1	Bolt Tension
		Diagonal	A325N	1.2500	1	20.53	24.64	0.833	1	Member Block Shear
T8	160	Leg	A325N	1.2500	12	24.85	82.83	0.300	1	Bolt Tension
		Diagonal	A325N	1.0000	2	16.11	42.63	0.378	1	Member Block Shear
T9	140	Leg	A325N	1.2500	12	32.40	82.83	0.391	1	Bolt Tension
		Diagonal	A325N	1.0000	2	17.86	42.63	0.419	1	Member Block Shear
T10	120	Leg	A325N	1.2500	12	39.03	82.83	0.471	1	Bolt Tension
		Diagonal	A325N	1.0000	2	17.99	35.53	0.507	1	Member Block Shear
T11	100	Leg	A325N	1.2500	24	23.00	82.83	0.278	1	Bolt Tension
		Diagonal	A325N	1.0000	2	19.10	49.74	0.384	1	Member Block Shear
T12	80	Leg	A325N	1.2500	24	26.34	82.83	0.318	1	Bolt Tension
		Diagonal	A325N	1.0000	2	19.67	49.74	0.395	1	Member Block Shear
T13	60	Leg	A325N	1.2500	24	29.65	82.83	0.358	1	Bolt Tension
		Diagonal	A325N	1.0000	2	20.46	49.74	0.411	1	Member Block Shear
T14	40	Leg	A325N	1.2500	24	32.99	82.83	0.398	1	Bolt Tension
		Diagonal	A325N	1.0000	2	21.14	59.25	0.357	1	Member Block Shear
T15	20	Diagonal	A325N	1.0000	2	22.89	59.25	0.386	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	8Bay 1.25" Leg K-Brace	10.00	10.00	44.8 K=1.00	3.6816	-4.21	143.06	0.029 [1]
T2	240 - 220	16Bay 1.25" Leg K-Brace	20.00	10.00	44.8 K=1.00	3.6816	-41.30	143.06	0.289 [1]
T3	220 - 210	16Bay 1.5" Leg K-Brace	10.02	5.30	37.3 K=1.00	5.3014	-69.15	215.45	0.321 [1]
T4	210 - 200	16Bay 1.5" Leg K-Brace	10.02	10.02	37.3 K=1.00	5.3014	-99.73	215.45	0.463 [1]
T5	200 - 180	16Bay 1.75" Leg K-Brace	20.03	10.02	32.0 K=1.00	7.2158	-187.64	301.29	0.623 [1]
T6	180 - 170	16Bay 2" Leg K-Brace	10.02	5.21	28.0 K=1.00	9.4248	-228.84	400.49	0.571 [1]
T7	170 - 160	16Bay 2" Leg K-Brace	10.02	10.02	28.0 K=1.00	9.4248	-279.82	400.49	0.699 [1]
T8	160 - 140	16Bay 2.25" Leg K-Brace	20.03	20.03	32.6 K=1.00	11.9282	-337.28	496.60	0.679 [1]
T9	140 - 120	16Bay 2.75" Leg K-Brace	20.03	20.03	32.6	17.8187	-439.85	741.99	0.593 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	120 - 100	16Bay 3" Leg K-Brace	20.03	20.03	K=1.00 32.5	21.2057	-527.88	883.14	0.598 [1]
T11	100 - 80	16Bay 3.25" Leg K-Brace	20.03	20.03	K=1.00 32.5	24.8873	-622.89	1036.61	0.601 [1]
T12	80 - 60	16Bay 3.25" Leg K-Brace	20.03	20.03	K=1.00 32.5	24.8873	-715.14	1036.61	0.690 [1]
T13	60 - 40	16Bay 3.5" Leg K-Brace	20.03	20.03	K=1.00 32.5	28.8634	-806.60	1202.40	0.671 [1]
T14	40 - 20	16Bay 3.75" Leg K-Brace	20.03	20.03	K=1.00 32.5	33.1340	-901.67	1380.53	0.653 [1]
T15	20 - 0	16Bay 4" Leg K-Brace	20.03	20.03	K=1.00 32.4	37.6991	-987.62	1571.00	0.629 [1]
					K=1.00				

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T1	250 - 240	0.5	1.47	120.0	165.67	0.1963	1.24	3.36	0.370
T2	240 - 220	0.5	1.47	120.0	165.67	0.1963	2.05	3.36	0.609
T3	220 - 210	0.5	1.46	119.0	238.57	0.1963	3.01	3.40	0.883
T4	210 - 200	0.5	1.46	119.0	238.57	0.1963	1.19	3.40	0.351
T5	200 - 180	0.625	1.45	94.4	324.71	0.3068	1.39	7.01	0.200
T6	180 - 170	0.625	1.43	93.6	424.12	0.3068	3.17	7.07	0.448
T7	170 - 160	0.625	1.43	93.6	424.12	0.3068	2.09	7.07	0.297
T8	160 - 140	0.75	1.76	95.5	536.77	0.4418	1.55	12.11	0.130
T9	140 - 120	0.75	1.73	93.8	801.84	0.4418	2.46	12.32	0.200
T10	120 - 100	0.875	1.71	79.7	954.26	0.6013	1.60	19.07	0.085
T11	100 - 80	0.875	1.69	79.0	1119.93	0.6013	1.42	19.19	0.075
T12	80 - 60	0.875	1.69	79.0	1119.93	0.6013	1.42	19.19	0.075
T13	60 - 40	0.875	1.68	78.3	1298.85	0.6013	1.71	19.30	0.089
T14	40 - 20	0.875	1.66	77.6	1491.03	0.6013	2.56	19.41	0.133
T15	20 - 0	0.875	1.65	76.9	1696.46	0.6013	3.15	19.52	0.162

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L2 1/2x2 1/2x1/4	12.81	5.44	132.9 K=1.00	1.1900	-2.70	15.22	0.177 [1]
T2	240 - 220	L3x3x1/4	12.81	5.44	112.6 K=1.02	1.4400	-12.82	23.92	0.536 [1]
T3	220 - 210	L3x3x3/8	13.13	6.01	122.9 K=1.00	2.1100	-13.84	30.87	0.448 [1]
T4	210 - 200	L3x3x3/8	13.80	6.37	130.2 K=1.00	2.1100	-14.87	28.01	0.531 [1]
T5	200 - 180	L3 1/2x3 1/2x3/8	15.24	7.12	124.4 K=1.00	2.4800	-20.67	35.57	0.581 [1]
T6	180 - 170	L4x4x3/8	16.01	7.49	115.5	2.8600	-23.26	45.90	0.507 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	170 - 160	L4x4x3/8	16.80	7.89	K=1.01 120.2 K=1.00	2.8600	-20.23	43.32	0.467 [1]
T8	160 - 140	2L3 1/2x3 1/2x3/8x1	25.01	11.80	129.0 K=0.98	4.9688	-34.23	67.00	0.511 [1]
T9	140 - 120	2L 'a' > 66.4778 in - 94 2L3 1/2x3 1/2x3/8x1	26.26	12.45	135.3 K=1.00	4.9688	-35.61	61.30	0.581 [1]
T10	120 - 100	2L 'a' > 69.3496 in - 101 2L4x4x5/16x1	27.59	13.14	126.2 K=1.00	4.8047	-36.54	67.33	0.543 [1]
T11	100 - 80	2L 'a' > 74.3060 in - 110 2L4x4x7/16x1	29.01	13.87	133.2 K=1.00	6.6172	-38.53	84.26	0.457 [1]
T12	80 - 60	2L 'a' > 77.6868 in - 119 2L4x4x7/16x1	30.49	14.62	140.4 K=1.00	6.6172	-39.51	75.81	0.521 [1]
T13	60 - 40	2L 'a' > 80.9937 in - 128 2L4x4x7/16x1	32.02	15.40	147.9 K=1.00	6.6172	-41.60	68.33	0.609 [1]
T14	40 - 20	2L 'a' > 84.4126 in - 140 2L5x5x7/16x1	33.61	16.20	126.3 K=1.00	8.3672	-42.20	116.99	0.361 [1]
T15	20 - 0	2L 'a' > 91.9427 in - 149 2L5x5x7/16x1 2L 'a' > 95.5298 in - 158	35.23	17.02	132.7 K=1.00	8.3672	-46.93	107.21	0.438 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	220 - 210	L3x3x1/4	8.47	7.47	84.1 K=0.87	1.4400	-2.23	38.64	0.058 [1]
T6	180 - 170	L3x3x1/4	12.48	11.48	97.0 K=0.66	1.4400	-3.97	32.55	0.122 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L2 1/2x2 1/2x1/4	8.00	6.67	162.9 K=1.00	1.1900	-0.13	10.13	0.013 [1]
T5	200 - 180	L3x3x1/4	10.00	8.67	175.7 K=1.00	1.4400	-2.49	10.54	0.236 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	8Bay 1.25" Leg K-Brace	10.00	10.00	44.8	3.6816	2.10	165.67	0.013 [1]
T2	240 - 220	16Bay 1.25" Leg K-Brace	20.00	10.00	44.8	3.6816	34.79	165.67	0.210 [1]
T3	220 - 210	16Bay 1.5" Leg K-Brace	10.02	4.71	37.3	5.3014	58.26	238.57	0.244 [1]
T4	210 - 200	16Bay 1.5" Leg K-Brace	10.02	10.02	37.3	5.3014	85.66	238.57	0.359 [1]
T5	200 - 180	16Bay 1.75" Leg K-Brace	20.03	10.02	32.0	7.2158	162.46	324.71	0.500 [1]
T6	180 - 170	16Bay 2" Leg K-Brace	10.02	4.81	28.0	9.4248	200.48	424.12	0.473 [1]
T7	170 - 160	16Bay 2" Leg K-Brace	10.02	10.02	28.0	9.4248	245.54	424.12	0.579 [1]
T8	160 - 140	16Bay 2.25" Leg K-Brace	20.03	20.03	32.6	11.9282	298.18	536.77	0.556 [1]
T9	140 - 120	16Bay 2.75" Leg K-Brace	20.03	20.03	32.6	17.8187	388.80	801.84	0.485 [1]
T10	120 - 100	16Bay 3" Leg K-Brace	20.03	20.03	32.5	21.2057	468.38	954.26	0.491 [1]
T11	100 - 80	16Bay 3.25" Leg K-Brace	20.03	20.03	32.5	24.8873	551.91	1119.93	0.493 [1]
T12	80 - 60	16Bay 3.25" Leg K-Brace	20.03	20.03	32.5	24.8873	632.12	1119.93	0.564 [1]
T13	60 - 40	16Bay 3.5" Leg K-Brace	20.03	20.03	32.5	28.8634	711.58	1298.85	0.548 [1]
T14	40 - 20	16Bay 3.75" Leg K-Brace	20.03	20.03	32.5	33.1340	791.81	1491.03	0.531 [1]
T15	20 - 0	16Bay 4" Leg K-Brace	20.03	20.03	32.4	37.6991	864.09	1696.46	0.509 [1]

[1] P_u / ϕP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T1	250 - 240	0.5	1.47	120.0	165.67	0.1963	1.24	3.36	0.370
T2	240 - 220	0.5	1.47	120.0	165.67	0.1963	2.05	3.36	0.609
T3	220 - 210	0.5	1.46	119.0	238.57	0.1963	3.01	3.40	0.883
T4	210 - 200	0.5	1.46	119.0	238.57	0.1963	1.19	3.40	0.351
T5	200 - 180	0.625	1.45	94.4	324.71	0.3068	1.39	7.01	0.200
T6	180 - 170	0.625	1.43	93.6	424.12	0.3068	3.17	7.07	0.448
T7	170 - 160	0.625	1.43	93.6	424.12	0.3068	2.09	7.07	0.297
T8	160 - 140	0.75	1.76	95.5	536.77	0.4418	1.55	12.11	0.130
T9	140 - 120	0.75	1.73	93.8	801.84	0.4418	2.46	12.32	0.200
T10	120 - 100	0.875	1.71	79.7	954.26	0.6013	1.60	19.07	0.085
T11	100 - 80	0.875	1.69	79.0	1119.93	0.6013	1.42	19.19	0.075
T12	80 - 60	0.875	1.69	79.0	1119.93	0.6013	1.42	19.19	0.075
T13	60 - 40	0.875	1.68	78.3	1298.85	0.6013	1.71	19.30	0.089
T14	40 - 20	0.875	1.66	77.6	1491.03	0.6013	2.56	19.41	0.133
T15	20 - 0	0.875	1.65	76.9	1696.46	0.6013	3.15	19.52	0.162

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L2 1/2x2 1/2x1/4	12.81	5.44	87.4	0.6816	2.53	29.65	0.085 [1]
T2	240 - 220	L3x3x1/4	12.81	5.44	72.3	0.8691	12.61	37.80	0.334 [1]
T3	220 - 210	L3x3x3/8	13.13	6.01	81.2	1.2661	13.53	55.08	0.246 [1]
T4	210 - 200	L3x3x3/8	13.80	6.37	85.9	1.2661	14.02	55.08	0.255 [1]
T5	200 - 180	L3 1/2x3 1/2x3/8	15.24	7.12	81.8	1.5436	20.83	67.15	0.310 [1]
T6	180 - 170	L4x4x3/8	16.01	7.49	75.0	1.7583	22.56	76.49	0.295 [1]
T7	170 - 160	L4x4x3/8	16.80	7.89	78.9	1.7583	20.53	76.49	0.268 [1]
T8	160 - 140	2L3 1/2x3 1/2x3/8x1 2L 'a' > 66.4778 in - 93	25.01	11.80	135.1	3.0938	32.23	134.58	0.239 [1]
T9	140 - 120	2L3 1/2x3 1/2x3/8x1 2L 'a' > 69.3496 in - 100	26.26	12.45	142.4	3.0938	35.72	134.58	0.265 [1]
T10	120 - 100	2L4x4x5/16x1 2L 'a' > 74.3060 in - 109	27.59	13.14	129.6	3.0762	35.99	133.81	0.269 [1]
T11	100 - 80	2L4x4x7/16x1 2L 'a' > 77.6868 in - 118	29.01	13.87	138.6	4.2246	38.19	183.77	0.208 [1]
T12	80 - 60	2L4x4x7/16x1 2L 'a' > 80.9937 in - 127	30.49	14.62	145.9	4.2246	39.34	183.77	0.214 [1]
T13	60 - 40	2L4x4x7/16x1 2L 'a' > 84.4126 in - 141	32.02	15.40	153.6	4.2246	40.92	183.77	0.223 [1]
T14	40 - 20	2L5x5x7/16x1 2L 'a' > 91.9427 in - 150	33.61	16.20	127.9	5.5371	42.28	240.86	0.176 [1]
T15	20 - 0	2L5x5x7/16x1 2L 'a' > 95.5298 in - 159	35.23	17.02	134.2	5.5371	45.77	240.86	0.190 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	220 - 210	L3x3x1/4	8.47	7.47	96.4	0.9628	2.52	46.94	0.054 [1]
T6	180 - 170	L3x3x1/4	12.48	11.48	148.1	0.9628	3.97	46.94	0.085 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L2 1/2x2 1/2x1/4	8.00	6.67	109.2	0.6816	0.20	29.65	0.007 [1]
T5	200 - 180	L3x3x1/4	10.00	8.67	116.1	0.8691	2.69	37.80	0.071 [1]

[1] P_u / ϕP_n controls

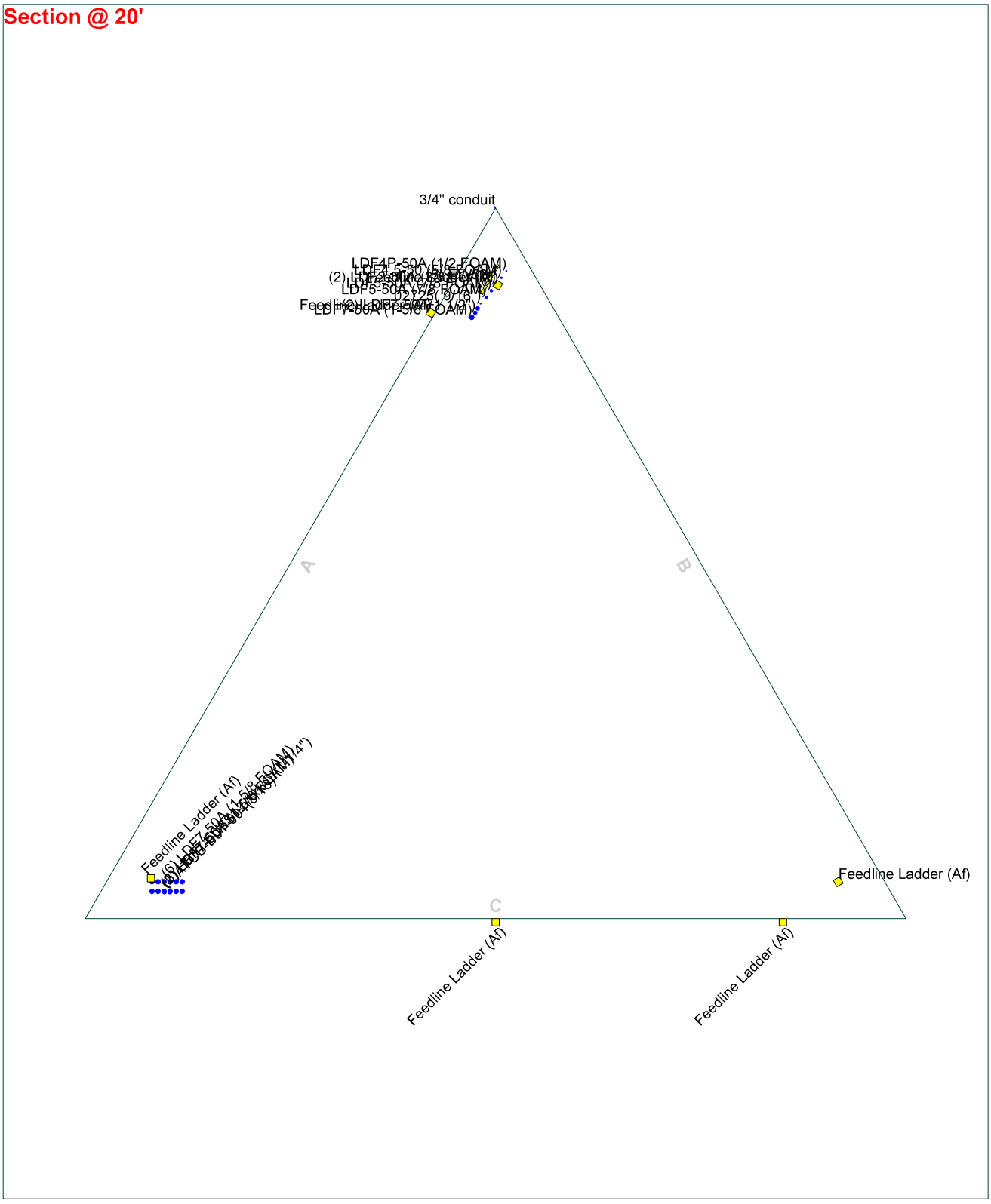
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	250 - 240	Leg	8Bay 1.25" Leg K-Brace	3	-3.98	143.06	37.0	Pass
T2	240 - 220	Leg	16Bay 1.25" Leg K-Brace	14	-17.36	143.06	60.9	Pass
T3	220 - 210	Leg	16Bay 1.5" Leg K-Brace	30	-69.15	215.45	88.3	Pass
T4	210 - 200	Leg	16Bay 1.5" Leg K-Brace	42	-99.73	215.45	46.3	Pass
T5	200 - 180	Leg	16Bay 1.75" Leg K-Brace	51	-187.64	301.29	62.3	Pass
T6	180 - 170	Leg	16Bay 2" Leg K-Brace	69	-228.84	400.49	57.1	Pass
T7	170 - 160	Leg	16Bay 2" Leg K-Brace	81	-279.82	400.49	69.9	Pass
T8	160 - 140	Leg	16Bay 2.25" Leg K-Brace	90	-337.28	496.60	67.9	Pass
T9	140 - 120	Leg	16Bay 2.75" Leg K-Brace	99	-439.85	741.99	59.3	Pass
T10	120 - 100	Leg	16Bay 3" Leg K-Brace	108	-527.88	883.14	59.8	Pass
T11	100 - 80	Leg	16Bay 3.25" Leg K-Brace	117	-622.89	1036.61	60.1	Pass
T12	80 - 60	Leg	16Bay 3.25" Leg K-Brace	126	-715.14	1036.61	69.0	Pass
T13	60 - 40	Leg	16Bay 3.5" Leg K-Brace	135	-806.60	1202.40	67.1	Pass
T14	40 - 20	Leg	16Bay 3.75" Leg K-Brace	144	-901.67	1380.53	65.3	Pass
T15	20 - 0	Leg	16Bay 4" Leg K-Brace	153	-987.62	1571.00	62.9	Pass
T1	250 - 240	Diagonal	L2 1/2x2 1/2x1/4	11	-2.70	15.22	17.7 20.8 (b)	Pass
T2	240 - 220	Diagonal	L3x3x1/4	19	-12.82	23.92	53.6 93.1 (b)	Pass
T3	220 - 210	Diagonal	L3x3x3/8	34	-13.84	30.87	44.8 66.5 (b)	Pass
T4	210 - 200	Diagonal	L3x3x3/8	46	-14.87	28.01	53.1 69.0 (b)	Pass
T5	200 - 180	Diagonal	L3 1/2x3 1/2x3/8	58	-20.67	35.57	58.1 85.3 (b)	Pass
T6	180 - 170	Diagonal	L4x4x3/8	73	-23.26	45.90	50.7 91.5 (b)	Pass
T7	170 - 160	Diagonal	L4x4x3/8	83	-20.23	43.32	46.7 83.3 (b)	Pass
T8	160 - 140	Diagonal	2L3 1/2x3 1/2x3/8x1	94	-34.23	67.00	51.1	Pass
T9	140 - 120	Diagonal	2L3 1/2x3 1/2x3/8x1	101	-35.61	61.30	58.1	Pass
T10	120 - 100	Diagonal	2L4x4x5/16x1	110	-36.54	67.33	54.3	Pass
T11	100 - 80	Diagonal	2L4x4x7/16x1	119	-38.53	84.26	45.7	Pass
T12	80 - 60	Diagonal	2L4x4x7/16x1	128	-39.51	75.81	52.1	Pass
T13	60 - 40	Diagonal	2L4x4x7/16x1	140	-41.60	68.33	60.9	Pass
T14	40 - 20	Diagonal	2L5x5x7/16x1	149	-42.20	116.99	36.1	Pass
T15	20 - 0	Diagonal	2L5x5x7/16x1	158	-46.93	107.21	43.8	Pass
T3	220 - 210	Secondary Horizontal	L3x3x1/4	37	-2.23	38.64	5.8 15.8 (b)	Pass
T6	180 - 170	Secondary Horizontal	L3x3x1/4	77	-3.97	32.55	12.2 25.0 (b)	Pass
T1	250 - 240	Top Girt	L2 1/2x2 1/2x1/4	5	-0.13	10.13	1.3 1.6 (b)	Pass
T5	200 - 180	Top Girt	L3x3x1/4	52	-2.49	10.54	23.6	Pass
							Summary	
							Leg (T3) 88.3	Pass
							Diagonal (T2) 93.1	Pass
							Secondary Horizontal (T6) 25.0	Pass
							Top Girt (T5) 23.6	Pass
							Bolt Checks 93.1	Pass
							RATING = 93.1	**Pass**

Feed Line Plan
20'

Round | Flat | App In Face | App Out Face | Truss-Leg

Section @ 20'



PM&A
1000 Holcomb Woods Pkwy, Suite 210
Roswell, GA 30076
Phone: (678) 280-2325
FAX: (678) 280-2329

Job: **Scenic Heights**			
Project: ***VWT18-111***			
Client: Verizon Wireless	Drawn by: jll	App'd:	
Code: TIA-222-G	Date: 03/13/18	Scale: NTS	
Path:		Dwg No. E-7	

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9 Rev. 6.1

Site Data	
Site #:	**136137**
Site Name:	**Scenic Heights**
PM&A Job #:	**VWT18-111**

Anchor Rod Data		
Qty:	**6**	
Diam:	**2.25**	in
Rod Material:	**A687**	
Strength (Fu):	125	ksi
Yield (Fy):	105	ksi

* Rod Circle:		in
* e:		in
* # of Rods		1 or 2

Mu= Pu x e:		ft-kips

** Only enter rod circle, offset (e) and number of anchor rods at the extreme fiber to consider if eccentric load due to leg reinforcement exist.*

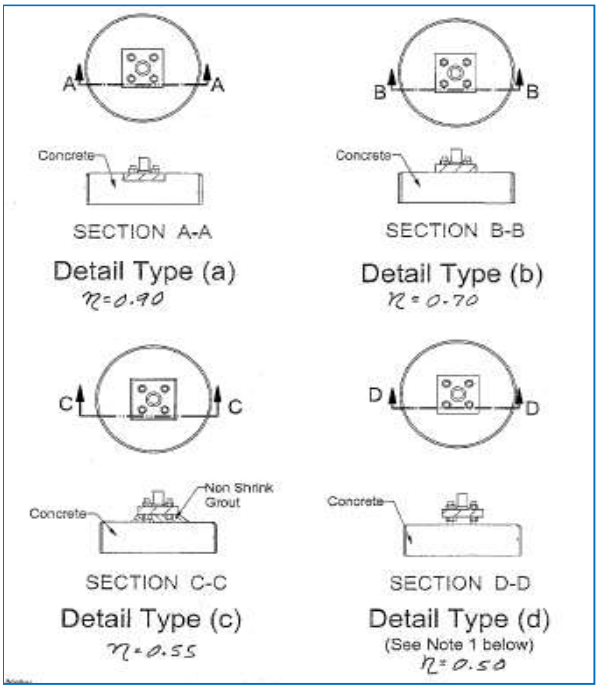


Figure 4-4 of TIA-222-G

Reactions		
Eta Factor, η	**0.5**	Detail Type
Down load, Pu:	**1037**	kips
Shear, Vu:	**122**	kips

I_{ar}:		in
Mu = 0.65*I_{ar}*V_u		ft-kips

Anchor Rod Results:

Max Rod (Cu+ Vu/ή):	213.5	Kips
Design Axial, Φ*Fu*Anet:	325.0	Kips
Anchor Rod Stress Ratio:	65.7%	

If Applicable;

Anchor Rod Results with Bending Considered:

When the clear distance from the top of concrete to the bottom of level nut excceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):

$$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$$

$\phi R_{nv}=\phi*0.45*F_{ub}*A_b=$		kips
$\phi R_{nt}=\phi*F_u*A_{net}=$		kips
$\phi R_{nm}=\phi*F_y*Z=$		ft-kips

Maximum Acceptable Ratio:	**105**	%
Governing Stress Ratio:	**65.7%**	**Pass**

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Roswell, GA 30076
Tel: (678) 280-2325
Fax: (678) 280-2329

Job:	136137	Engineer:	JEB
Project:	Scenic Heights	Date:	6/26/2018
Client:	Verizon	Sheet:	1 of 1

Caisson Foundation - Uplift & Compression Analysis

Reactions

Compression:	1037	kips
Uplift:	905	kips

Info

Tower Type:	SST
Foundation Type:	Caisson

Caisson Geometry

Diameter:	8.50	ft
Height above grade:	0.50	ft
Depth below grade:	68.00	ft
Total length of caisson:	68.50	ft

Pad Modification Geometry

Pad shape:	N/A	
Pad width:	N/A	ft
Pad thickness:	N/A	ft
Depth below grade:	N/A	ft

Soil Data

Groundwater depth:	34.50	ft
Ultimate Gross Bearing at bottom of Caisson:	19.80	ksf
Ultimate Gross Bearing at bottom of Pad:	N/A	ksf

Soil Profile

Soil Layer	Depth of Layer (ft)	Ultimate Uplift Skin Friction (psf)	Ultimate Compressive Skin Friction (psf)
1	4.25	0	0
2	1.75	254	254
3	2	440	440
4	6.5	734	734
5	10	1414	1414
6	10	2180	2180
7	5	2466	2466
8	20	2700	2700
9	5	534	534
10	3.5	3440	3440

Ultimate Uplift Skin Friction Resistance (unfactored):	3287	kips
Ultimate Compression Skin Friction Resistance (unfactored):	3287	kips

Foundation Capacities

Uplift Resistance:	2883	kips	Compression Resistance:	2783	kips
Uplift Capacity:	31.4%		Compression Capacity:	37.3%	
	GOOD			GOOD	

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

Site #: *136137*
Site Name: *Scenic Heights*
PM&A Job #: *VWT18-111*

Loads Already Factored		
For M (WL)	1.3	<----Disregard
For P (DL)	1.3	<----Disregard

Pier Properties

Concrete:

Pier Diameter =	8.5	ft
Concrete Area =	8171.3	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	7.78	ft
Vert. Cage Diameter =	93.34	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	36	
As Total=	56.16	in^2
A s/ Aconc, Rho:	0.0069	0.69%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0034
200 / Fy: 0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.69%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	17893.17	kips
at Mu=(ϕ=0.65)Mn=	13330.15	ft-kips
Max Tu, (φ=0.9) Tn =	3032.64	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	G	
Max. Factored Shaft Mu:	2058.333	ft-kips **(* Note)**
Max. Factored Shaft Pu:	1037	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	Shaft Factored Loads		
1.00	Mu:	2058.333	ft-kips
1.00	Pu:	1037	kips

Material Properties

Concrete Comp. strength, f'c =	4500	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code=	2008

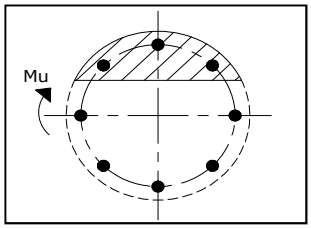
Seismic Properties

Seismic Design Category =	B
Seismic Risk =	**Low**

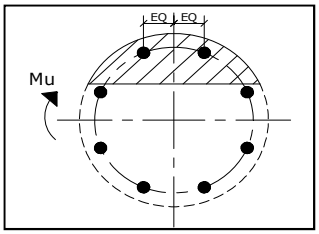
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**18.42**	in
Extreme Steel Strain, ϵt:	**0.0129**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	1037.00	kips
Drilled Shaft Moment Capacity, φMn:	**14105.04**	ft-kips
Drilled Shaft Superimposed Mu:	**2058.33**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**14.6%**

==========

LPile for Windows, Version 2016-09.010

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

==========

This copy of LPile is being used by:

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Files Used for Analysis

Path to file locations:
\\pmasvr2\Houston\A&E Projects\Verizon Wireless\2018 Verizon HGC\VWT18-111-4XTX-CAA-Scenic Heights\Tower Analysis\Risk Cat III Re-Run\Analysis Tools\

Name of input data file:
New LPile (USCS units).lp9d

Name of output report file:
New LPile (USCS units).lp9o

Name of plot output file:
New LPile (USCS units).lp9p

Name of runtime message file:
New LPile (USCS units).lp9r

Date and Time of Analysis

Date: June 26, 2018 Time: 13:11:01

Problem Title

Project Name: Pen Scenic Heights

Job Number: 136137

Client: Verizon

Engineer: JLL

Description: SST Individual Caisson

Program Options and Settings

Computational Options:
 - Use unfactored loads in computations (conventional analysis)
Engineering Units Used for Data Input and Computations:
 - US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- Maximum number of iterations allowed	=	500
- Deflection tolerance for convergence	=	1.0000E-05 in
- Maximum allowable deflection	=	100.0000 in
- Number of pile increments	=	100

Loading Type and Number of Cycles of Loading:
 - Static loading specified

 - Use of p-y modification factors for p-y curves not selected
 - No distributed lateral loads are entered
 - Loading by lateral soil movements acting on pile not selected
 - Input of shear resistance at the pile tip not selected
 - Computation of pile-head foundation stiffness matrix not selected
 - Push-over analysis of pile not selected
 - Buckling analysis of pile not selected

Output Options:
 - Output files use decimal points to denote decimal symbols.
 - Values of pile-head deflection, bending moment, shear force, and
   soil reaction are printed for full length of pile.
 - Printing Increment (nodal spacing of output points) = 1
 - No p-y curves to be computed and reported for user-specified depths
 - Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined = 1
Total length of pile = 68.000 ft
Depth of ground surface below top of pile = 0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	102.0000
2	68.000	102.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile
Length of section = 68.000000 ft
Shaft Diameter = 102.000000 in
Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 16 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	4.250000 ft
Effective unit weight at top of layer	=	115.000000 pcf
Effective unit weight at bottom of layer	=	115.000000 pcf
Undrained cohesion at top of layer	=	1.000000 psf
Undrained cohesion at bottom of layer	=	1.000000 psf
Epsilon-50 at top of layer	=	0.020000
Epsilon-50 at bottom of layer	=	0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	4.250000 ft
Distance from top of pile to bottom of layer	=	6.000000 ft
Effective unit weight at top of layer	=	115.000000 pcf
Effective unit weight at bottom of layer	=	115.000000 pcf
Friction angle at top of layer	=	29.000000 deg.
Friction angle at bottom of layer	=	29.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	6.000000 ft
Distance from top of pile to bottom of layer	=	8.000000 ft
Effective unit weight at top of layer	=	115.000000 pcf
Effective unit weight at bottom of layer	=	115.000000 pcf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	14.500000 ft
Effective unit weight at top of layer	=	115.000000 pcf
Effective unit weight at bottom of layer	=	115.000000 pcf
Friction angle at top of layer	=	31.000000 deg.
Friction angle at bottom of layer	=	31.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	14.500000 ft
Distance from top of pile to bottom of layer	=	19.500000 ft
Effective unit weight at top of layer	=	118.000000 pcf
Effective unit weight at bottom of layer	=	118.000000 pcf
Friction angle at top of layer	=	32.000000 deg.

Friction angle at bottom of layer	=	32.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	19.500000 ft
Distance from top of pile to bottom of layer	=	24.500000 ft
Effective unit weight at top of layer	=	118.000000 pcf
Effective unit weight at bottom of layer	=	118.000000 pcf
Friction angle at top of layer	=	35.000000 deg.
Friction angle at bottom of layer	=	35.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 7 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	24.500000 ft
Distance from top of pile to bottom of layer	=	29.500000 ft
Effective unit weight at top of layer	=	118.000000 pcf
Effective unit weight at bottom of layer	=	118.000000 pcf
Friction angle at top of layer	=	34.000000 deg.
Friction angle at bottom of layer	=	34.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 8 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	29.500000 ft
Distance from top of pile to bottom of layer	=	34.500000 ft
Effective unit weight at top of layer	=	118.000000 pcf
Effective unit weight at bottom of layer	=	118.000000 pcf
Friction angle at top of layer	=	34.000000 deg.
Friction angle at bottom of layer	=	34.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 9 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	34.500000 ft
Distance from top of pile to bottom of layer	=	35.000000 ft
Effective unit weight at top of layer	=	56.000000 pcf
Effective unit weight at bottom of layer	=	56.000000 pcf
Friction angle at top of layer	=	32.000000 deg.
Friction angle at bottom of layer	=	32.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 10 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	35.000000 ft
Distance from top of pile to bottom of layer	=	39.500000 ft
Effective unit weight at top of layer	=	56.000000 pcf
Effective unit weight at bottom of layer	=	56.000000 pcf
Friction angle at top of layer	=	32.000000 deg.
Friction angle at bottom of layer	=	32.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 11 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	39.500000 ft
Distance from top of pile to bottom of layer	=	44.500000 ft
Effective unit weight at top of layer	=	56.000000 pcf
Effective unit weight at bottom of layer	=	56.000000 pcf
Friction angle at top of layer	=	32.000000 deg.
Friction angle at bottom of layer	=	32.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 12 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	44.500000 ft
Distance from top of pile to bottom of layer	=	49.500000 ft
Effective unit weight at top of layer	=	53.000000 pcf
Effective unit weight at bottom of layer	=	53.000000 pcf
Friction angle at top of layer	=	29.000000 deg.
Friction angle at bottom of layer	=	29.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 13 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	49.500000 ft
Distance from top of pile to bottom of layer	=	54.500000 ft
Effective unit weight at top of layer	=	56.000000 pcf
Effective unit weight at bottom of layer	=	56.000000 pcf
Friction angle at top of layer	=	31.000000 deg.
Friction angle at bottom of layer	=	31.000000 deg.
Subgrade k at top of layer	=	20.000000 pci
Subgrade k at bottom of layer	=	20.000000 pci

Layer 14 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	54.500000 ft
Distance from top of pile to bottom of layer	=	59.500000 ft
Effective unit weight at top of layer	=	53.000000 pcf
Effective unit weight at bottom of layer	=	53.000000 pcf
Friction angle at top of layer	=	29.000000 deg.
Friction angle at bottom of layer	=	29.000000 deg.
Subgrade k at top of layer	=	20.000000 pci

Subgrade k at bottom of layer = 20.000000 pci

Layer 15 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer = 59.500000 ft
Distance from top of pile to bottom of layer = 64.500000 ft
Effective unit weight at top of layer = 53.000000 pcf
Effective unit weight at bottom of layer = 53.000000 pcf
Undrained cohesion at top of layer = 800.000000 psf
Undrained cohesion at bottom of layer = 800.000000 psf
Epsilon-50 at top of layer = 0.020000
Epsilon-50 at bottom of layer = 0.020000

Layer 16 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 64.500000 ft
Distance from top of pile to bottom of layer = 68.000000 ft
Effective unit weight at top of layer = 56.000000 pcf
Effective unit weight at bottom of layer = 56.000000 pcf
Friction angle at top of layer = 32.000000 deg.
Friction angle at bottom of layer = 32.000000 deg.
Subgrade k at top of layer = 20.000000 pci
Subgrade k at bottom of layer = 20.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Soft Clay	0.00 4.2500	115.0000 115.0000	1.0000 1.0000	-- --	0.02000 0.02000	-- --
2	Sand (Reese, et al.)	4.2500 6.0000	115.0000 115.0000	-- --	29.0000 29.0000	-- --	20.0000 20.0000
3	Sand (Reese, et al.)	6.0000 8.0000	115.0000 115.0000	-- --	30.0000 30.0000	-- --	20.0000 20.0000
4	Sand (Reese, et al.)	8.0000 14.5000	115.0000 115.0000	-- --	31.0000 31.0000	-- --	20.0000 20.0000
5	Sand (Reese, et al.)	14.5000 19.5000	118.0000 118.0000	-- --	32.0000 32.0000	-- --	20.0000 20.0000
6	Sand (Reese, et al.)	19.5000 24.5000	118.0000 118.0000	-- --	35.0000 35.0000	-- --	20.0000 20.0000
7	Sand (Reese, et al.)	24.5000 29.5000	118.0000 118.0000	-- --	34.0000 34.0000	-- --	20.0000 20.0000
8	Sand (Reese, et al.)	29.5000 34.5000	118.0000 118.0000	-- --	34.0000 34.0000	-- --	20.0000 20.0000

9	Sand	34.5000	56.0000	--	32.0000	--	20.0000
	(Reese, et al.)	35.0000	56.0000	--	32.0000	--	20.0000
10	Sand	35.0000	56.0000	--	32.0000	--	20.0000
	(Reese, et al.)	39.5000	56.0000	--	32.0000	--	20.0000
11	Sand	39.5000	56.0000	--	32.0000	--	20.0000
	(Reese, et al.)	44.5000	56.0000	--	32.0000	--	20.0000
12	Sand	44.5000	53.0000	--	29.0000	--	20.0000
	(Reese, et al.)	49.5000	53.0000	--	29.0000	--	20.0000
13	Sand	49.5000	56.0000	--	31.0000	--	20.0000
	(Reese, et al.)	54.5000	56.0000	--	31.0000	--	20.0000
14	Sand	54.5000	53.0000	--	29.0000	--	20.0000
	(Reese, et al.)	59.5000	53.0000	--	29.0000	--	20.0000
15	Soft	59.5000	53.0000	800.0000	--	0.02000	--
	Clay	64.5000	53.0000	800.0000	--	0.02000	--
16	Sand	64.5000	56.0000	--	32.0000	--	20.0000
	(Reese, et al.)	68.0000	56.0000	--	32.0000	--	20.0000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	1	V = 122000. lbs	M = 732000. in-lbs	1037000.	No

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with
specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

---

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	68.000000 ft
Shaft Diameter	=	102.000000 in
Concrete Cover Thickness	=	3.000000 in
Number of Reinforcing Bars	=	36 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	8171. sq. in.
Total Area of Reinforcing Steel	=	56.160000 sq. in.
Area Ratio of Steel Reinforcement	=	0.69 percent
Edge-to-Edge Bar Spacing	=	6.834062 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	9.11
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	34409.944 kips
Tensile Load for Cracking of Concrete	=	-3760.799 kips
Nominal Axial Tensile Capacity	=	-3369.600 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	47.295000	0.00000
2	1.410000	1.560000	46.576483	8.212691
3	1.410000	1.560000	44.442763	16.175843
4	1.410000	1.560000	40.958671	23.647500
5	1.410000	1.560000	36.230072	30.400640
6	1.410000	1.560000	30.400640	36.230072
7	1.410000	1.560000	23.647500	40.958671
8	1.410000	1.560000	16.175843	44.442763
9	1.410000	1.560000	8.212691	46.576483
10	1.410000	1.560000	0.00000	47.295000
11	1.410000	1.560000	-8.212691	46.576483
12	1.410000	1.560000	-16.175843	44.442763
13	1.410000	1.560000	-23.647500	40.958671
14	1.410000	1.560000	-30.400640	36.230072
15	1.410000	1.560000	-36.230072	30.400640
16	1.410000	1.560000	-40.958671	23.647500
17	1.410000	1.560000	-44.442763	16.175843
18	1.410000	1.560000	-46.576483	8.212691
19	1.410000	1.560000	-47.295000	0.00000
20	1.410000	1.560000	-46.576483	-8.212691
21	1.410000	1.560000	-44.442763	-16.175843

22	1.410000	1.560000	-40.958671	-23.647500
23	1.410000	1.560000	-36.230072	-30.400640
24	1.410000	1.560000	-30.400640	-36.230072
25	1.410000	1.560000	-23.647500	-40.958671
26	1.410000	1.560000	-16.175843	-44.442763
27	1.410000	1.560000	-8.212691	-46.576483
28	1.410000	1.560000	0.00000	-47.295000
29	1.410000	1.560000	8.212691	-46.576483
30	1.410000	1.560000	16.175843	-44.442763
31	1.410000	1.560000	23.647500	-40.958671
32	1.410000	1.560000	30.400640	-36.230072
33	1.410000	1.560000	36.230072	-30.400640
34	1.410000	1.560000	40.958671	-23.647500
35	1.410000	1.560000	44.442763	-16.175843
36	1.410000	1.560000	46.576483	-8.212691

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 6.834 inches
between bars 33 and 34.

Ratio of bar spacing to maximum aggregate size = 9.11

Concrete Properties:

Compressive Strength of Concrete	=	4500. psi
Modulus of Elasticity of Concrete	=	3823676. psi
Modulus of Rupture of Concrete	=	-503.115295 psi
Compression Strain at Peak Stress	=	0.002001
Tensile Strain at Fracture of Concrete	=	-0.0001152
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	1037.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 1037.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
3.12500E-07	7850.	2.51212E+10	138.6419619	0.00004333	0.00001145	0.1920861	1.2518209	
6.25000E-07	15700.	2.51204E+10	94.8943981	0.00005931	-0.00000444	0.2614521	1.7107172	
9.37500E-07	23538.	2.51071E+10	80.3369887	0.00007532	-0.00002031	0.3303571	2.1702963	
0.00000125	31344.	2.50751E+10	73.0662976	0.00009133	-0.00003617	0.3987405	2.6301658	
0.00000156	39113.	2.50321E+10	68.7068512	0.0001074	-0.00005202	0.4665782	3.0901698	
0.00000188	46843.	2.49827E+10	65.8019761	0.0001234	-0.00006787	0.5338614	3.5502512	
0.00000219	54533.	2.49294E+10	63.7278891	0.0001394	-0.00008372	0.6005862	4.0103848	
0.00000250	62184.	2.48736E+10	62.1728686	0.0001554	-0.00009957	0.6667507	4.4705580	
0.00000281	62184.	2.21099E+10	50.1096289	0.0001409	-0.0001459	0.6056508	-4.1907115	C
0.00000313	62184.	1.98989E+10	48.1607192	0.0001505	-0.0001682	0.6449281	-4.8329662	C
0.00000344	62184.	1.80899E+10	46.4950767	0.0001598	-0.0001908	0.6829942	-5.4823065	C
0.00000375	62184.	1.65824E+10	45.0471905	0.0001689	-0.0002136	0.7199461	-6.1381555	C
0.00000406	62184.	1.53068E+10	43.7788093	0.0001779	-0.0002365	0.7559975	-6.7990997	C
0.00000438	62184.	1.42135E+10	42.6566349	0.0001866	-0.0002596	0.7912509	-7.4644832	C
0.00000469	62184.	1.32659E+10	41.6549007	0.0001953	-0.0002829	0.8257816	-8.1338339	C
0.00000500	62184.	1.24368E+10	40.7541368	0.0002038	-0.0003062	0.8596602	-8.8067002	C
0.00000531	62184.	1.17052E+10	39.9399811	0.0002122	-0.0003297	0.8929677	-9.4825498	C
0.00000563	62184.	1.10549E+10	39.2018105	0.0002205	-0.0003532	0.9257956	-10.1607609	C
0.00000594	62184.	1.04731E+10	38.5224048	0.0002287	-0.0003769	0.9580247	-10.8422328	C
0.00000625	62184.	9949441608.	37.9002430	0.0002369	-0.0004006	0.9898423	-11.5256435	C
0.00000656	62184.	9475658675.	37.3297125	0.0002450	-0.0004244	1.0213184	-12.2105047	C
0.00000688	62184.	9044946917.	36.7970775	0.0002530	-0.0004483	1.0522746	-12.8981515	C
0.00000719	62184.	8651688355.	36.3082466	0.0002610	-0.0004722	1.0830217	-13.5863217	C
0.00000750	62184.	8291201340.	35.8481417	0.0002689	-0.0004961	1.1132796	-14.2771042	C
0.00000781	62184.	7959553287.	35.4221822	0.0002767	-0.0005201	1.1433220	-14.9684899	C
0.00000813	62184.	7653416622.	35.0236978	0.0002846	-0.0005442	1.1730644	-15.6611224	C
0.00000844	62184.	7369956747.	34.6474118	0.0002923	-0.0005683	1.2024366	-16.3555458	C
0.00000875	62453.	7137514584.	34.2985347	0.0003001	-0.0005924	1.2316964	-17.0498343	C
0.00000906	63680.	7026800383.	33.9667591	0.0003078	-0.0006166	1.2605850	-17.7459517	C
0.00000938	64902.	6922884391.	33.6530121	0.0003155	-0.0006408	1.2891998	-18.4431811	C
0.00000969	66123.	6825596733.	33.3599753	0.0003232	-0.0006650	1.3177048	-19.1402788	C
0.00001000	67341.	6734064873.	33.0831407	0.0003308	-0.0006892	1.3460031	-19.8379892	C
0.00001031	68550.	6647241725.	32.8156484	0.0003384	-0.0007135	1.3738875	-20.5379233	C
0.00001063	69758.	6565459523.	32.5643094	0.0003460	-0.0007378	1.4016648	-21.2377284	C
0.00001094	70966.	6488285997.	32.3277401	0.0003536	-0.0007620	1.4293346	-21.9374043	C
0.00001125	72172.	6415247308.	32.1036646	0.0003612	-0.0007863	1.4568533	-22.6372919	C
0.00001156	73369.	6345434809.	31.8843544	0.0003687	-0.0008107	1.4839353	-23.3396430	C
0.00001188	74566.	6279239618.	31.6769563	0.0003762	-0.0008351	1.5109124	-24.0418669	C
0.00001219	75762.	6216383321.	31.4805549	0.0003837	-0.0008595	1.5377843	-24.7439632	C
0.00001281	78153.	6099709562.	31.1175266	0.0003987	-0.0009082	1.5912120	-26.1477721	C
0.00001344	80527.	5992671578.	30.7757981	0.0004135	-0.0009571	1.6435529	-27.5564407	C
0.00001406	82898.	5894940108.	30.4653962	0.0004284	-0.0010060	1.6954662	-28.9647212	C
0.00001469	85266.	5805346483.	30.1826093	0.0004433	-0.0010548	1.7469652	-30.3724917	C

0.00001531	87625.	5722432176.	29.9166389	0.0004581	-0.0011038	1.7976524	-31.7830457 C
0.00001594	89977.	5645623391.	29.6688259	0.0004728	-0.0011528	1.8477200	-33.1948489 C
0.00001656	92327.	5574456955.	29.4407839	0.0004876	-0.0012018	1.8973798	-34.6061390 C
0.00001719	94674.	5508316543.	29.2303618	0.0005024	-0.0012507	1.9466307	-36.0169134 C
0.00001781	97017.	5446590792.	29.0341103	0.0005172	-0.0012997	1.9953754	-37.4279955 C
0.00001844	99352.	5388557960.	28.8451825	0.0005318	-0.0013488	2.0432839	-38.8422758 C
0.00001906	101683.	5334199153.	28.6695904	0.0005465	-0.0013979	2.0907891	-40.2560326 C
0.00001969	104012.	5283163745.	28.5060693	0.0005612	-0.0014469	2.1378898	-41.6692629 C
0.00002031	106339.	5235144252.	28.3535101	0.0005759	-0.0014959	2.1845843	-43.0819635 C
0.00002094	108663.	5189869902.	28.2109361	0.0005907	-0.0015450	2.2308714	-44.4941315 C
0.00002156	110984.	5147101308.	28.0774842	0.0006054	-0.0015940	2.2767496	-45.9057637 C
0.00002219	113299.	5106439863.	27.9476524	0.0006201	-0.0016430	2.3218885	-47.3199043 C
0.00002281	115610.	5067847310.	27.8245041	0.0006347	-0.0016921	2.3665341	-48.7343296 C
0.00002344	117919.	5031205947.	27.7087333	0.0006494	-0.0017412	2.4107756	-50.1482047 C
0.00002406	120225.	4996363143.	27.5997700	0.0006641	-0.0017903	2.4546114	-51.5615261 C
0.00002469	122529.	4963181694.	27.4971021	0.0006788	-0.0018393	2.4980401	-52.9742903 C
0.00002531	124830.	4931537940.	27.4002682	0.0006936	-0.0018883	2.5410601	-54.3864937 C
0.00002594	127128.	4901320134.	27.3088513	0.0007083	-0.0019373	2.5836701	-55.7981327 C
0.00002656	129424.	4872427042.	27.2224739	0.0007231	-0.0019863	2.6258684	-57.2092036 C
0.00002719	131717.	4844766729.	27.1407931	0.0007379	-0.0020352	2.6676534	-58.6197028 C
0.00002781	134008.	4818255522.	27.0634969	0.0007527	-0.0020842	2.7090238	-60.0000000 CY
0.00002844	136294.	4792761811.	26.9882810	0.0007675	-0.0021331	2.7498166	-60.0000000 CY
0.00002906	138536.	4766824177.	26.9130072	0.0007822	-0.0021822	2.7898742	-60.0000000 CY
0.00002969	140463.	4731383231.	26.8236803	0.0007963	-0.0022318	2.8280663	-60.0000000 CY
0.00003031	142164.	4689938706.	26.7257972	0.0008101	-0.0022817	2.8648212	-60.0000000 CY
0.00003094	143664.	4643700743.	26.6210703	0.0008236	-0.0023320	2.9002717	-60.0000000 CY
0.00003156	145127.	4598086653.	26.5188697	0.0008370	-0.0023824	2.9351979	-60.0000000 CY
0.00003219	146392.	4548103410.	26.4097962	0.0008501	-0.0024331	2.9688231	-60.0000000 CY
0.00003281	147599.	4498264419.	26.3020946	0.0008630	-0.0024838	3.0018460	-60.0000000 CY
0.00003344	148802.	4450154435.	26.1986739	0.0008760	-0.0025346	3.0345308	-60.0000000 CY
0.00003406	149918.	4401252481.	26.0944426	0.0008888	-0.0025855	3.0664568	-60.0000000 CY
0.00003469	150875.	4349559720.	25.9839757	0.0009013	-0.0026368	3.0971609	-60.0000000 CY
0.00003531	151815.	4299186588.	25.8724708	0.0009136	-0.0026883	3.1270984	-60.0000000 CY
0.00003594	152754.	4250534208.	25.7652106	0.0009259	-0.0027397	3.1567453	-60.0000000 CY
0.00003656	153691.	4203514179.	25.6619790	0.0009383	-0.0027911	3.1861008	-60.0000000 CY
0.00003719	154565.	4156381243.	25.5587354	0.0009505	-0.0028427	3.2148207	-60.0000000 CY
0.00003969	157444.	3967099136.	25.1453959	0.0009980	-0.0030502	3.3235269	-60.0000000 CY
0.00004219	160094.	3794810322.	24.7601809	0.0010446	-0.0032586	3.4254963	-60.0000000 CY
0.00004469	162175.	3629089246.	24.3796458	0.0010895	-0.0034687	3.5192417	-60.0000000 CY
0.00004719	164245.	3480679183.	24.0432335	0.0011345	-0.0036786	3.6090680	-60.0000000 CY
0.00004969	165862.	3338111186.	23.7001011	0.0011776	-0.0038905	3.6907397	-60.0000000 CY
0.00005219	167312.	3205981217.	23.3784220	0.0012201	-0.0041031	3.7674043	-60.0000000 CY
0.00005469	168753.	3085766069.	23.0891722	0.0012627	-0.0043154	3.8405390	-60.0000000 CY
0.00005719	170085.	2974159042.	22.8126709	0.0013046	-0.0045285	3.9086598	-60.0000000 CY
0.00005969	171091.	2866453525.	22.5300802	0.0013448	-0.0047434	3.9703768	-60.0000000 CY
0.00006219	172057.	2766748993.	22.2701607	0.0013849	-0.0049582	4.0286887	-60.0000000 CY
0.00006469	173016.	2674643053.	22.0327032	0.0014252	-0.0051729	4.0838106	-60.0000000 CY
0.00006719	173949.	2589012035.	21.8058216	0.0014651	-0.0053880	4.1348950	-60.0000000 CY
0.00006969	174834.	2508826839.	21.5873734	0.0015044	-0.0056038	4.1819823	-60.0000000 CY
0.00007219	175541.	2431734580.	21.3717488	0.0015428	-0.0058204	4.2248326	-60.0000000 CY
0.00007469	176155.	2358557159.	21.1652309	0.0015808	-0.0060373	4.2641738	-60.0000000 CY
0.00007719	176763.	2290049838.	20.9739603	0.0016189	-0.0062542	4.3006184	-60.0000000 CY
0.00007969	177346.	2225517787.	20.7864272	0.0016564	-0.0064717	4.3334362	-60.0000000 CY
0.00008219	177913.	2164716397.	20.6067142	0.0016936	-0.0066895	4.3630736	-60.0000000 CY
0.00008469	178474.	2107445281.	20.4392951	0.0017310	-0.0069072	4.3899103	-60.0000000 CY

0.00008719	179031.	2053399587.	20.2831343	0.0017684	-0.0071247	4.4139125	-60.0000000 CY
0.00008969	179567.	2002140112.	20.1358519	0.0018059	-0.0073422	4.4349754	-60.0000000 CY
0.00009219	180031.	1952874089.	19.9917854	0.0018430	-0.0075601	4.4528857	-60.0000000 CY
0.00009469	180400.	1905212259.	19.8448672	0.0018791	-0.0077791	4.4675397	-60.0000000 CY
0.00009719	180731.	1859614724.	19.6957326	0.0019142	-0.0079989	4.4791822	-60.0000000 CY
0.00009969	181059.	1816265292.	19.5554448	0.0019494	-0.0082187	4.4882807	-60.0000000 CY
0.0001022	181383.	1774998223.	19.4233720	0.0019848	-0.0084383	4.4948043	-60.0000000 CY
0.0001047	181702.	1735663549.	19.2989435	0.0020204	-0.0086578	4.4987213	-60.0000000 CY
0.0001072	182018.	1698124823.	19.1816517	0.0020560	-0.0088771	4.4997467	-60.0000000 CY
0.0001097	182327.	1662239125.	19.0714269	0.0020919	-0.0090962	4.4934006	-60.0000000 CY
0.0001122	182632.	1627918887.	18.9673249	0.0021279	-0.0093152	4.4977795	60.0000000 CY
0.0001147	182933.	1595059205.	18.8688401	0.0021640	-0.0095341	4.4998342	60.0000000 CY
0.0001172	183209.	1563387170.	18.7653124	0.0021991	-0.0097541	4.4928457	60.0000000 CY
0.0001197	183481.	1533002499.	18.6674339	0.0022343	-0.0099739	4.4942306	60.0000000 CY
0.0001222	183750.	1503837870.	18.5745564	0.0022696	-0.0101935	4.4979510	60.0000000 CY
0.0001247	183999.	1475685051.	18.4842745	0.0023048	-0.0104134	4.4997832	60.0000000 CY
0.0001272	184197.	1448232433.	18.3930919	0.0023394	-0.0106338	4.4946164	60.0000000 CY
0.0001297	184391.	1421807857.	18.3066641	0.0023741	-0.0108540	4.4909884	60.0000000 CY
0.0001322	184556.	1396165981.	18.2208632	0.0024086	-0.0110746	4.4953907	60.0000000 CY
0.0001347	184711.	1371401462.	18.1380289	0.0024430	-0.0112952	4.4983283	60.0000000 CY
0.0001372	184864.	1347526009.	18.0589524	0.0024775	-0.0115157	4.4998103	60.0000000 CY
0.0001522	185644.	1219840520.	17.6382168	0.0026843	-0.0128388	4.4997498	60.0000000 CY
0.0001672	186231.	1113905918.	17.3144773	0.0028948	-0.0141584	4.4978383	60.0000000 CY
0.0001822	186694.	1024737439.	17.0819119	0.0031121	-0.0154710	4.4895343	60.0000000 CYT
0.0001972	187048.	948577672.	16.8953699	0.0033316	-0.0167816	4.4911803	60.0000000 CYT
0.0002122	187184.	882164688.	16.7227481	0.0035484	-0.0180948	4.4935800	60.0000000 CYT
0.0002272	187207.	824020936.	16.5696720	0.0037644	-0.0194087	4.4903417	60.0000000 CYT
0.0002422	187207.	772984800.	16.6075930	0.0040222	-0.0206810	4.4931064	60.0000000 CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	1037.000	186455.423	0.00300000

Note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	186455.	674.050000	121196.	4.9824E+09
1	0.70	186455.	725.900000	130519.	4.8592E+09
1	0.75	186455.	777.750000	139842.	4.7428E+09

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	323.8679
2	4.2500	0.3005	No	No	323.8679	66927.
3	6.0000	2.0505	Yes	No	67251.	117625.
4	8.0000	4.0505	Yes	No	184876.	714075.
5	14.5000	10.5505	Yes	No	898951.	924499.
6	19.5000	15.5505	Yes	No	1823450.	1472404.
7	24.5000	20.5505	Yes	No	3295854.	1628374.
8	29.5000	25.5505	Yes	No	4924228.	1891580.
9	34.5000	30.5505	Yes	No	6815808.	175882.
10	35.0000	31.0505	Yes	No	6991690.	1679666.
11	39.5000	35.5505	Yes	No	8671356.	2182600.
12	44.5000	40.5505	Yes	No	1.09E+07	2013554.
13	49.5000	45.5505	Yes	No	1.29E+07	2727837.
14	54.5000	50.5505	Yes	No	1.56E+07	2650281.
15	59.5000	59.5000	No	No	1.82E+07	306000.
16	64.5000	61.6555	No	No	1.86E+07	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 122000.0 lbs
Applied moment at pile head = 732000.0 in-lbs
Axial thrust load on pile head = 1037000.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2499	732000.	122000.	-6.19E-04	0.00	2.51E+13	-0.3888	6.3471	0.00
0.6800	0.2449	1732740.	121994.	-6.18E-04	0.00	2.51E+13	-1.1586	38.6042	0.00
1.3600	0.2399	2733399.	121984.	-6.17E-04	0.00	2.51E+13	-1.1506	39.1433	0.00
2.0400	0.2348	3733973.	121975.	-6.16E-04	0.00	2.51E+13	-1.1425	39.7008	0.00
2.7200	0.2298	4734461.	121966.	-6.15E-04	0.00	2.51E+13	-1.1343	40.2775	0.00
3.4000	0.2248	5734861.	121956.	-6.13E-04	0.00	2.51E+13	-1.1259	40.8740	0.00
4.0800	0.2198	6735170.	121947.	-6.11E-04	0.00	2.51E+13	-1.1175	41.4913	0.00
4.7600	0.2148	7735385.	120941.	-6.09E-04	0.00	2.51E+13	-245.3929	9322.	0.00
5.4400	0.2098	8719240.	118822.	-6.06E-04	0.00	2.51E+13	-273.9748	10654.	0.00
6.1200	0.2049	9684828.	116477.	-6.03E-04	0.00	2.51E+13	-300.9722	11985.	0.00
6.8000	0.2000	1.06E+07	113917.	-6.00E-04	0.00	2.51E+13	-326.4004	13317.	0.00
7.4800	0.1951	1.16E+07	111156.	-5.96E-04	0.00	2.51E+13	-350.2766	14649.	0.00
8.1600	0.1903	1.25E+07	108207.	-5.92E-04	0.00	2.51E+13	-372.6194	15981.	0.00
8.8400	0.1854	1.33E+07	105081.	-5.88E-04	0.00	2.51E+13	-393.4487	17312.	0.00
9.5200	0.1807	1.42E+07	101792.	-5.84E-04	0.00	2.51E+13	-412.7862	18644.	0.00
10.2000	0.1759	1.50E+07	98351.	-5.79E-04	0.00	2.51E+13	-430.6545	19976.	0.00
10.8800	0.1712	1.58E+07	94769.	-5.74E-04	0.00	2.51E+13	-447.0778	21307.	0.00
11.5600	0.1666	1.66E+07	91060.	-5.69E-04	0.00	2.51E+13	-462.0814	22639.	0.00
12.2400	0.1619	1.73E+07	87234.	-5.63E-04	0.00	2.51E+13	-475.6917	23971.	0.00
12.9200	0.1574	1.80E+07	83302.	-5.58E-04	0.00	2.51E+13	-487.9363	25303.	0.00
13.6000	0.1528	1.87E+07	79276.	-5.52E-04	0.00	2.51E+13	-498.8436	26634.	0.00
14.2800	0.1484	1.93E+07	75166.	-5.45E-04	0.00	2.51E+13	-508.4431	27966.	0.00
14.9600	0.1439	1.99E+07	70984.	-5.39E-04	0.00	2.51E+13	-516.7651	29298.	0.00
15.6400	0.1396	2.05E+07	66738.	-5.33E-04	0.00	2.51E+13	-523.8406	30629.	0.00
16.3200	0.1352	2.10E+07	62440.	-5.26E-04	0.00	2.51E+13	-529.7013	31961.	0.00
17.0000	0.1310	2.15E+07	58098.	-5.19E-04	0.00	2.51E+13	-534.3795	33293.	0.00
17.6800	0.1268	2.19E+07	53723.	-5.12E-04	0.00	2.51E+13	-537.9081	34625.	0.00
18.3600	0.1226	2.24E+07	49324.	-5.05E-04	0.00	2.51E+13	-540.3204	35956.	0.00
19.0400	0.1185	2.28E+07	44910.	-4.97E-04	0.00	2.51E+13	-541.6501	37288.	0.00
19.7200	0.1145	2.31E+07	40489.	-4.90E-04	0.00	2.51E+13	-541.9310	38620.	0.00
20.4000	0.1105	2.34E+07	36069.	-4.82E-04	0.00	2.51E+13	-541.1973	39951.	0.00
21.0800	0.1066	2.37E+07	31660.	-4.75E-04	0.00	2.51E+13	-539.4833	41283.	0.00
21.7600	0.1028	2.40E+07	27269.	-4.67E-04	0.00	2.51E+13	-536.8232	42615.	0.00
22.4400	0.09901	2.42E+07	22903.	-4.59E-04	0.00	2.51E+13	-533.2515	43946.	0.00
23.1200	0.09530	2.43E+07	18570.	-4.51E-04	0.00	2.51E+13	-528.8023	45278.	0.00
23.8000	0.09165	2.45E+07	14276.	-4.43E-04	0.00	2.51E+13	-523.5095	46610.	0.00
24.4800	0.08807	2.46E+07	10029.	-4.35E-04	0.00	2.51E+13	-517.4070	47942.	0.00
25.1600	0.08455	2.46E+07	5835.	-4.27E-04	0.00	2.51E+13	-510.5283	49273.	0.00
25.8400	0.08109	2.47E+07	1701.	-4.19E-04	0.00	2.51E+13	-502.9063	50605.	0.00
26.5200	0.07770	2.47E+07	-2369.	-4.11E-04	0.00	2.51E+13	-494.5736	51937.	0.00
27.2000	0.07438	2.47E+07	-6368.	-4.03E-04	0.00	2.51E+13	-485.5624	53268.	0.00
27.8800	0.07112	2.46E+07	-10291.	-3.95E-04	0.00	2.51E+13	-475.9040	54600.	0.00
28.5600	0.06793	2.45E+07	-14132.	-3.87E-04	0.00	2.51E+13	-465.6294	55932.	0.00
29.2400	0.06480	2.44E+07	-17888.	-3.79E-04	0.00	2.51E+13	-454.7687	57264.	0.00
29.9200	0.06174	2.42E+07	-21552.	-3.71E-04	0.00	2.51E+13	-443.3511	58595.	0.00
30.6000	0.05874	2.40E+07	-25121.	-3.64E-04	0.00	2.51E+13	-431.4054	59927.	0.00

31.2800	0.05581	2.38E+07	-28590.	-3.56E-04	0.00	2.51E+13	-418.9590	61259.	0.00
31.9600	0.05294	2.36E+07	-31956.	-3.48E-04	0.00	2.51E+13	-406.0389	62590.	0.00
32.6400	0.05013	2.33E+07	-35215.	-3.40E-04	0.00	2.51E+13	-392.6708	63922.	0.00
33.3200	0.04738	2.30E+07	-38363.	-3.33E-04	0.00	2.51E+13	-378.8795	65254.	0.00
34.0000	0.04469	2.27E+07	-41397.	-3.26E-04	0.00	2.51E+13	-364.6888	66586.	0.00
34.6800	0.04207	2.23E+07	-44313.	-3.18E-04	0.00	2.51E+13	-350.1215	67917.	0.00
35.3600	0.03950	2.19E+07	-47109.	-3.11E-04	0.00	2.51E+13	-335.1991	69249.	0.00
36.0400	0.03699	2.16E+07	-49782.	-3.04E-04	0.00	2.51E+13	-319.9421	70581.	0.00
36.7200	0.03454	2.11E+07	-52329.	-2.97E-04	0.00	2.51E+13	-304.3698	71912.	0.00
37.4000	0.03214	2.07E+07	-54748.	-2.90E-04	0.00	2.51E+13	-288.5002	73244.	0.00
38.0800	0.02980	2.02E+07	-57037.	-2.84E-04	0.00	2.51E+13	-272.3504	74576.	0.00
38.7600	0.02751	1.98E+07	-59192.	-2.77E-04	0.00	2.51E+13	-255.9360	75908.	0.00
39.4400	0.02528	1.93E+07	-61213.	-2.71E-04	0.00	2.51E+13	-239.2713	77239.	0.00
40.1200	0.02309	1.88E+07	-63096.	-2.65E-04	0.00	2.51E+13	-222.3696	78571.	0.00
40.8000	0.02096	1.83E+07	-64841.	-2.59E-04	0.00	2.51E+13	-205.2428	79903.	0.00
41.4800	0.01887	1.77E+07	-66445.	-2.53E-04	0.00	2.51E+13	-187.9015	81234.	0.00
42.1600	0.01684	1.72E+07	-67906.	-2.47E-04	0.00	2.51E+13	-170.3551	82566.	0.00
42.8400	0.01484	1.66E+07	-69224.	-2.42E-04	0.00	2.51E+13	-152.6116	83898.	0.00
43.5200	0.01289	1.61E+07	-70396.	-2.36E-04	0.00	2.51E+13	-134.6780	85230.	0.00
44.2000	0.01099	1.55E+07	-71421.	-2.31E-04	0.00	2.51E+13	-116.5597	86561.	0.00
44.8800	0.00912	1.49E+07	-72298.	-2.26E-04	0.00	2.51E+13	-98.2612	87893.	0.00
45.5600	0.00730	1.43E+07	-73024.	-2.21E-04	0.00	2.51E+13	-79.7855	89225.	0.00
46.2400	0.00551	1.37E+07	-73599.	-2.17E-04	0.00	2.51E+13	-61.1347	90556.	0.00
46.9200	0.00376	1.31E+07	-74021.	-2.13E-04	0.00	2.51E+13	-42.3095	91888.	0.00
47.6000	0.00204	1.25E+07	-74289.	-2.08E-04	0.00	2.51E+13	-23.3094	93220.	0.00
48.2800	3.57E-04	1.19E+07	-74401.	-2.04E-04	0.00	2.51E+13	-4.1330	94552.	0.00
48.9600	-0.00130	1.13E+07	-74356.	-2.01E-04	0.00	2.51E+13	15.2224	95883.	0.00
49.6400	-0.00292	1.07E+07	-74152.	-1.97E-04	0.00	2.51E+13	34.7605	97215.	0.00
50.3200	-0.00451	1.01E+07	-73788.	-1.94E-04	0.00	2.51E+13	54.4859	98547.	0.00
51.0000	-0.00608	9487036.	-73262.	-1.91E-04	0.00	2.51E+13	74.4044	99878.	0.00
51.6800	-0.00762	8893297.	-72572.	-1.88E-04	0.00	2.51E+13	94.5225	101210.	0.00
52.3600	-0.00914	8305827.	-71718.	-1.85E-04	0.00	2.51E+13	114.8477	102542.	0.00
53.0400	-0.01064	7725981.	-70697.	-1.82E-04	0.00	2.51E+13	135.3882	103874.	0.00
53.7200	-0.01211	7155129.	-69508.	-1.80E-04	0.00	2.51E+13	156.1532	105205.	0.00
54.4000	-0.01357	6594655.	-68148.	-1.77E-04	0.00	2.51E+13	177.1524	106537.	0.00
55.0800	-0.01501	6045959.	-66616.	-1.75E-04	0.00	2.51E+13	198.3960	107869.	0.00
55.7600	-0.01643	5510456.	-64909.	-1.74E-04	0.00	2.51E+13	219.8950	109200.	0.00
56.4400	-0.01784	4989580.	-63026.	-1.72E-04	0.00	2.51E+13	241.6608	110532.	0.00
57.1200	-0.01924	4484782.	-60964.	-1.70E-04	0.00	2.51E+13	263.7052	111864.	0.00
57.8000	-0.02062	3997530.	-58721.	-1.69E-04	0.00	2.51E+13	286.0402	113196.	0.00
58.4800	-0.02199	3529313.	-56295.	-1.68E-04	0.00	2.51E+13	308.6782	114527.	0.00
59.1600	-0.02336	3081640.	-53682.	-1.67E-04	0.00	2.51E+13	331.6315	115859.	0.00
59.8400	-0.02471	2656041.	-50568.	-1.66E-04	0.00	2.51E+13	431.5579	142499.	0.00
60.5200	-0.02606	2259170.	-47015.	-1.65E-04	0.00	2.51E+13	439.2683	137539.	0.00
61.2000	-0.02740	1891541.	-43401.	-1.64E-04	0.00	2.51E+13	446.6846	133009.	0.00
61.8800	-0.02874	1553650.	-39727.	-1.64E-04	0.00	2.51E+13	453.8361	128849.	0.00
62.5600	-0.03007	1245974.	-35995.	-1.63E-04	0.00	2.51E+13	460.7481	125011.	0.00
63.2400	-0.03141	968974.	-32208.	-1.63E-04	0.00	2.51E+13	467.4422	121456.	0.00
63.9200	-0.03273	723095.	-28367.	-1.63E-04	0.00	2.51E+13	473.9376	118149.	0.00
64.6000	-0.03406	508772.	-24279.	-1.62E-04	0.00	2.51E+13	528.0425	126513.	0.00
65.2800	-0.03538	329608.	-19863.	-1.62E-04	0.00	2.51E+13	554.3498	127844.	0.00
65.9600	-0.03671	187355.	-15230.	-1.62E-04	0.00	2.51E+13	581.0755	129176.	0.00
66.6400	-0.03803	83792.	-10378.	-1.62E-04	0.00	2.51E+13	608.2253	130508.	0.00
67.3200	-0.03935	20729.	-5302.	-1.62E-04	0.00	2.51E+13	635.8033	131839.	0.00
68.0000	-0.04067	0.00	0.00	-1.62E-04	0.00	2.51E+13	663.8122	66586.	0.00

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

Pile-head deflection	=	0.24994172 inches
Computed slope at pile head	=	-0.00061858 radians
Maximum bending moment	=	24682443. inch-lbs
Maximum shear force	=	122000. lbs
Depth of maximum bending moment	=	26.52000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	8
Number of zero deflection points	=	1

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type 1	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	V, lb	122000.	M, in-lb	732000.	1037000.	0.2499	-6.19E-04	122000.	2.47E+07

Maximum pile-head deflection = 0.2499417228 inches
Maximum pile-head rotation = -0.0006185766 radians = -0.035442 deg.

The analysis ended normally.