AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	149 ft Monopole
ATC Asset Name	:	SALISBURY CT
ATC Asset Number	:	370630
Engineering Number	:	14138949_C3_04
Proposed Carrier	:	T-MOBILE
Carrier Site Name	:	CTNH547A
Carrier Site Number	:	CTNH547A
Site Location	:	52 Library St. Salisbury, CT 06068-0000 41.9808, -73.4184
County	:	Litchfield
Date	:	November 18, 2022
Max Usage	:	26%
Analysis Result	:	Pass

Prepared By:

Sarah Kramer
Structural Engineer I

Sarah D. Kramer

Reviewed

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
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PROFESSIONAL ENGINEER

Authorized by "EOR"
18 Nov 2022 11:08:46 cosign

COA: PEC.0001553

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft Monopole tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawing:	PJF Job #29206-0003, dated January 9, 2006
Foundation Drawing:	PJF Job #29206-0003, dated January 9, 2006
Geotechnical Report:	JGI Eastern, Inc. Project #05463G, dated August 11, 2005
Mount Analysis:	ATC Project #14138949_C8_01, dated August 11, 2022

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	113 mph (3-second gust)
Basic Wind Speed w/ Ice:	40 mph (3-second gust) w/ 1.00" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.17, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at **Engineering@americantower.com** Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing/Reserved Loading

Elev.*	Qty	Equipment	Lines	Carrier
162.0’	1	RFS Celwave PD220	(1) 1/2" Coax	TOWN OF SALISBURY
150.0’	1	RFS Celwave PD220	-	SALISBURY VOLUNTEER AMBULANCE SERVICE, INC.
146.0’	4	T-Arm	-	TOWN OF SALISBURY
144.0’	1	CCI DMP65R-BU6DA	(2) 0.39” (10mm) Fiber Trunk (2) 0.78” (19.7mm) 8 AWG 6 (3) 0.96” (24.3mm) Cable (6) 1 5/8” Coax (1) 2” conduit	AT&T MOBILITY
	1	CCI OPA65R-BU6D		
	1	Raycap DC6-48-60-18-8F(32.8 lbs)		
	1	Raycap DC9-48-60-24-8C-EV		
	2	CCI DMP65R-BU4D		
	2	CCI OPA65R-BU4DA-K		
	3	Ericsson RRUS 4449 B5, B12		
	3	Ericsson RRUS 4478 B14		
	3	Ericsson Radio 8843 – B2 + B66A		
	3	T-Arm		
	3	Powerwave Allgon 7770.00		
	6	Powerwave Allgon LGP21401		
134.0’	1	Raycap RVZDC-6627-PF-48	(6) 1 5/8” Coax (2) 1 5/8” Hybriflex	VERIZON WIRELESS
	3	T-Arm		
	3	Samsung B2/B66A RRH-BR049		
	3	Samsung B5/B13 RRH-BR04C		
	3	Samsung MT6407-77A		
	6	Antel LPA-80080/6CF ___		
	6	JMA Wireless MX06FRO660-03		

(If table breaks across pages, please see previous page for data in merged cells)

Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Proposed Carrier Final Loading

Elev.*	Qty	Equipment	Lines	Carrier
123.0’	3	Commscope VV-65B-R1	(2) 1 ¼” (1.25”- 31.8mm) Fiber (1) 1 5/8” Hybriflex (2) 2.00” (50.8mm) Hybrid	T-MOBILE
	3	Ericsson AIR 6419 B41		
	3	Ericsson Radio 4449 B71 B85A		
	3	Ericsson Radio 4460 B25+B66		
	3	Sector Frame		
	3	RFS APXVAALL24 43-U-NA20		

(If table breaks across pages, please see previous page for data in merged cells)

Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Usage	Pass/Fail
Anchor Rods	20%	Pass
Base Plate	9%	Pass
Shaft	26%	Pass

Foundation Reactions & Usages

Reaction Component	Analysis Reactions	Usage
Moment (k-ft)	2300.7	22%
Axial (k)	56.9	6%
Shear (k)	22.8	22%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Antenna Deflection, Twist, and Sway

Elev.	Antenna	Carrier	Deflection	Twist	Sway [Rotation]
123.0	Commscope VV-65B-R1	T-MOBILE	0.335’	N/A	0.350°
	Ericsson Radio 4460 B25+B66				
	Ericsson AIR 6419 B41				

Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

Standard Conditions

All engineering services performed by A.T. Engineering Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts, and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

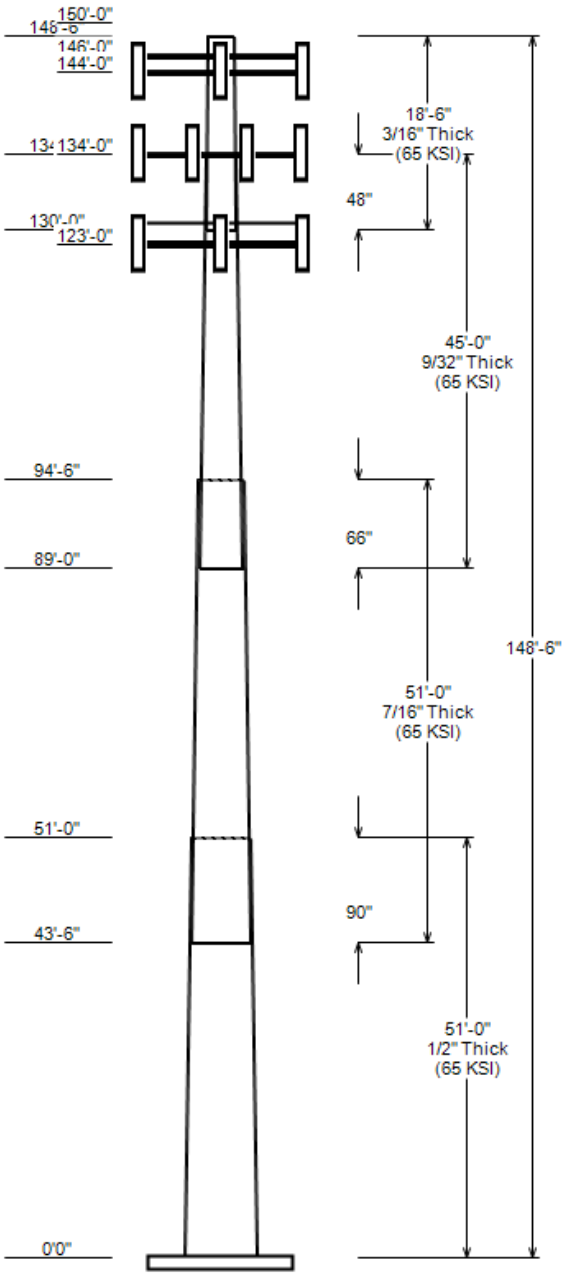
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ANALYSIS PARAMETERS

Nominal Wind:	113 mph	**Ice Wind:**	40 mph w/ 1" ice	**Service Wind:**	60 mph
Risk Category:	II	**Exposure:**	B	**S_s:** 0.166	**S_1:** 0.054
Topo Category:	1	**Topo Factor:**	Method 1	**Topo Feature:**	
Structure Height:	148.5 ft	**Base Elevation:**	0.00 ft	**Structure Type:**	Taper
Base Diameter:	73.08 in	**Base Rotation:**	0°	**Taper:**	0.3400 (in/ft)



POLE SECTION PROPERTIES

Section	Length (ft)	Flat Diameter (in) Top	Flat Diameter (in) Bottom	Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
1	51.000	55.74	73.08	0.500		0.000	18 Sides	65
2	51.000	41.82	59.16	0.438	Slip Joint	90.000	18 Sides	65
3	45.000	28.96	44.26	0.281	Slip Joint	66.000	18 Sides	65
4	18.500	24.40	30.69	0.188	Slip Joint	48.000	18 Sides	65

DISCRETE APPURTENANCE

Elev (ft)	Description
162.4	(1) RFS Celwave PD220
150.0	(1) RFS Celwave PD220
146.0	(4) Generic Flat T-Arm
144.0	(6) Powerwave Allgon LGP21401
144.0	(1) Raycap DC6-48-60-18-8F(32.8 lb
144.0	(3) Ericsson Radio 8843 - B2 + B66
144.0	(3) Ericsson RRUS 4449 B5, B12
144.0	(3) Ericsson RRUS 4478 B14
144.0	(1) Raycap DC9-48-60-24-8C-EV
144.0	(3) Powerwave Allgon 7770.00
144.0	(2) CCI DMP65R-BU4D
144.0	(2) CCI OPA65R-BU4DA-K
144.0	(1) CCI DMP65R-BU6DA
144.0	(1) CCI OPA65R-BU6D
144.0	(3) Generic Flat T-Arm
134.0	(3) Samsung B2/B66A RRH-BR049
134.0	(3) Samsung B5/B13 RRH-BR04C
134.0	(1) Raycap RVZDC-6627-PF-48
134.0	(3) Samsung MT6407-77A
134.0	(6) Antel LPA-80080/6CF ___
134.0	(3) Generic Round T-Arm
134.0	(6) JMA Wireless MX06FRO660-03
123.0	(3) Ericsson Radio 4449 B71 B85A
123.0	(3) Ericsson Radio 4460 B25+B66
123.0	(3) Ericsson AIR 6419 B41
123.0	(3) Commscope VV-65B-R1
123.0	(3) Generic Round Sector Frame
123.0	(3) RFS APXVAALL24 43-U-NA20

LINEAR APPURTENANCE

Elev To (ft)	Description
162.0	(1) 1/2" Coax
144.0	(1) 2" conduit
144.0	(6) 1 5/8" Coax
144.0	(3) 0.96" (24.3mm) Cable
144.0	(2) 0.78" (19.7mm) 8 AWG 6
144.0	(2) 0.39" (10mm) Fiber Trunk
134.0	(2) 1 5/8" Hybriflex
134.0	(6) 1 5/8" Coax
123.0	(2) 2.00" (50.8mm) Hybrid
123.0	(1) 1 5/8" Hybriflex
123.0	(2) 1 1/4" (1.25"- 31.8mm) Fiber

LOAD CASE KEY

1.2D + 1.0W	113 mph Wind with No Ice
0.9D + 1.0W	113 mph Wind with No Ice (Reduced
1.2D + 1.0Di + 1.0Wi	40 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	2300.73	56.93	22.76
0.9D + 1.0W	2292.04	42.69	22.76
1.2D + 1.0Di + 1.0Wi	420.31	72.87	4.32
1.2D + 1.0Ev + 1.0Eh	218.03	56.04	2.05
0.9D - 1.0Ev + 1.0Eh	217.10	39.22	2.05
1.0D + 1.0W	578.88	47.45	5.74

ANALYSIS PARAMETERS

Location:	Litchfield County,CT	**Height:**	148.5 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	73.08 in
Manufacturer:	Undetermined	**Top Diameter:**	24.40 in
K_d (non-service):	0.95	**Taper:**	0.3400 in/ft
K_e:	0.98	**Rotation:**	0.000º

ICE & WIND PARAMETERS

Risk Category:	II	**Design Wind Speed:**	113 mph
Exposure Category:	B	**Design Wind Speed w/ Ice:**	40 mph
Topo Factor Procedure:	Method 1	**Design Ice Thickness:**	1.00 in
Topographic Category:	1	**Service Wind Speed:**	60 mph
Crest Height:	0 ft	**HMSL:**	667.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil		**Period Based on Rayleigh Method (sec):**		1.33
T_L (sec):	6	**P:**	1	**$C_{s:}$**	0.043
$S_{s:}$	0.166	**$S_{1:}$**	0.054	**C_s Max:**	0.043
$F_{a:}$	1.600	**$F_{v:}$**	2.400	**C_s Min:**	0.030
$S_{ds:}$	0.177	**$S_{d1:}$**	0.086		

LOAD CASES

1.2D + 1.0W	113 mph Wind with No Ice
0.9D + 1.0W	113 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	51.00	0.5000	65		0.00	17,601	73.08	0.000	115.18	76,659.4	24.36	146.16	55.74	51.00	87.66	33,795.	18.25	111.48	0.3400
2-18	51.00	0.4375	65	Slip	90.00	12,062	59.16	43.500	81.55	35,532.9	22.43	135.23	41.82	94.50	57.47	12,435.	15.45	95.60	0.3400
3-18	45.00	0.2813	65	Slip	66.00	4,966	44.26	89.000	39.26	9,592.3	26.33	157.33	28.96	134.00	25.60	2,659.4	16.74	102.93	0.3400
4-18	18.50	0.1875	65	Slip	48.00	1,025	30.69	130.000	18.15	2,133.9	27.45	163.68	24.40	148.50	14.41	1,067.2	21.54	130.13	0.3400
			Total Shaft Weight			**35,654**													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
162.40	RFS Celwave PD220	1	1.00	0.000	25.00	5.400	1.00	118.06	10.033	1.00
150.00	RFS Celwave PD220	1	1.00	0.000	25.00	5.400	1.00	118.06	10.033	1.00
146.00	Generic Flat T-Arm	4	0.75	0.000	312.50	12.900	0.67	486.49	18.347	0.67
144.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	113.82	2.589	0.50
144.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.40	2.021	0.67	100.17	2.648	0.67
144.00	Powerwave Allgon 7770.00	3	0.80	0.000	35.00	5.508	0.65	110.52	6.920	0.65
144.00	CCI DMP65R-BU4D	2	0.80	0.000	67.90	8.280	0.62	187.89	9.625	0.62
144.00	CCI OPA65R-BU4DA-K	2	0.80	0.000	52.50	8.435	0.72	174.29	9.790	0.72
144.00	CCI DMP65R-BU6DA	1	0.80	0.000	79.40	12.709	0.72	250.54	14.562	0.72
144.00	CCI OPA65R-BU6D	1	0.80	0.000	63.20	12.871	1.00	236.84	14.730	1.00
144.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	486.07	18.333	0.67
144.00	Ericsson Radio 8843 - B2 + B66	3	0.80	0.000	71.90	1.650	0.50	112.83	2.213	0.50
144.00	Raycap DC6-48-60-18-8F(32.8 lb	1	0.80	0.000	32.80	1.470	1.00	73.79	1.934	1.00
144.00	Powerwave Allgon LGP21401	6	0.80	0.000	14.10	1.104	0.50	30.68	1.578	0.50
144.00	Raycap DC9-48-60-24-8C-EV	1	0.80	0.000	16.00	4.788	1.00	101.77	5.765	1.00
134.00	Antel LPA-80080/6CF ___	6	0.80	0.000	21.00	8.628	0.62	140.84	5.078	0.62
134.00	Generic Round T-Arm	3	0.75	0.750	312.50	9.700	0.67	484.80	15.137	0.67
134.00	JMA Wireless MX06FRO660-03	6	0.80	0.000	60.00	9.872	0.71	218.13	11.682	0.71
134.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	148.83	5.711	0.61
134.00	Raycap RVZDC-6627-PF-48	1	0.80	0.000	32.00	3.781	1.00	104.33	4.653	1.00
134.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	108.03	2.470	0.50
134.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	126.48	2.470	0.50
123.00	RFS APXVAALL24 43-U-NA20	3	0.80	0.000	122.80	20.243	0.63	377.58	22.669	0.63
123.00	Generic Round Sector Frame	3	0.75	0.000	300.00	14.400	0.75	540.60	25.227	0.75
123.00	Commscope VV-65B-R1	3	0.80	0.000	27.90	7.918	0.64	125.03	9.697	0.64
123.00	Ericsson AIR 6419 B41	3	0.80	0.000	83.30	6.322	0.63	182.30	7.428	0.63
123.00	Ericsson Radio 4460 B25+B66	3	0.80	0.000	109.00	2.564	0.67	166.82	3.253	0.67
123.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	114.34	2.206	0.50
Totals	**Row Count: 28**	**78**			**7,784.60**			**15,906.27**		

LINEAR APPURTENANCE PROPERTIES

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/ Row	Distance Between Rows(in)	Distance Between Cols(in)	Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	162.00	1	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	TOWN OF SALISBURY
0.00	144.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	144.00	3	0.96" (24.3mm) Cable	0.96	0.88	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	144.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	144.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	144.00	1	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	134.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	134.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	123.00	2	2.00" (50.8mm) Hybrid	2	3.09	N	0	0	0	0	0	N	T-MOBILE
0.00	123.00	2	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	0	0	0	0	0	N	T-MOBILE
0.00	123.00	1	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description	*(Max Length: 5 ft)*	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00			0.5000	73.080	115.180	76,659.40	24.36	146.16	72.7	2066.1	0.0	0.0
5.00			0.5000	71.380	112.482	71,397.60	23.76	142.76	73.5	1970.1	0.0	1,936.7
10.00			0.5000	69.680	109.784	66,382.40	23.16	139.36	74.2	1876.4	0.0	1,890.8
15.00			0.5000	67.980	107.086	61,607.60	22.56	135.96	74.9	1785.0	0.0	1,844.9
20.00			0.5000	66.280	104.389	57,067.50	21.96	132.56	75.6	1695.9	0.0	1,799.0
25.00			0.5000	64.580	101.691	52,756.10	21.36	129.16	76.3	1609.0	0.0	1,753.1
30.00			0.5000	62.879	98.993	48,667.60	20.76	125.76	77	1524.4	0.0	1,707.2
35.00			0.5000	61.179	96.295	44,795.90	20.16	122.36	77.7	1442.2	0.0	1,661.3
40.00			0.5000	59.479	93.597	41,135.20	19.56	118.96	78.4	1362.2	0.0	1,615.4
43.50	Bot - Section 2		0.5000	58.289	91.708	38,695.00	19.15	116.58	78.9	1307.5	0.0	1,103.5
45.00			0.5000	57.779	90.899	37,679.50	18.97	115.56	79.1	1284.4	0.0	880.4
50.00			0.5000	56.079	88.201	34,423.10	18.37	112.16	79.8	1209.0	0.0	2,878.9
51.00	Top - Section 1		0.4375	56.614	78.005	31,102.00	21.41	129.40	76.2	1082.0	0.0	565.4
55.00			0.4375	55.254	76.117	28,897.30	20.86	126.29	76.9	1030.1	0.0	1,048.9
60.00			0.4375	53.554	73.756	26,291.10	20.17	122.41	77.7	966.9	0.0	1,275.0
65.00			0.4375	51.854	71.395	23,846.60	19.49	118.52	78.5	905.8	0.0	1,234.8
70.00			0.4375	50.154	69.035	21,558.50	18.80	114.64	79.3	846.6	0.0	1,194.6
75.00			0.4375	48.454	66.674	19,421.60	18.12	110.75	80.1	789.5	0.0	1,154.5
80.00			0.4375	46.754	64.313	17,430.80	17.43	106.87	80.9	734.3	0.0	1,114.3
85.00			0.4375	45.054	61.953	15,581.00	16.75	102.98	81.7	681.2	0.0	1,074.1
89.00	Bot - Section 3		0.4375	43.693	60.064	14,199.10	16.20	99.87	82.3	640.1	0.0	830.4
90.00			0.4375	43.353	59.592	13,866.80	16.06	99.09	82.5	630.0	0.0	336.7
94.50	Top - Section 2		0.2813	42.386	37.592	8,419.80	25.16	150.68	71.8	391.3	0.0	1,482.3
95.00			0.2813	42.216	37.440	8,318.30	25.05	150.07	71.9	388.1	0.0	63.8
100.00			0.2813	40.516	35.922	7,347.00	23.99	144.03	73.2	357.2	0.0	624.1
105.00			0.2813	38.816	34.404	6,454.50	22.92	137.99	74.4	327.5	0.0	598.3
110.00			0.2813	37.116	32.886	5,637.30	21.85	131.94	75.7	299.2	0.0	572.4
115.00			0.2813	35.416	31.368	4,892.20	20.79	125.90	76.9	272.1	0.0	546.6
120.00			0.2813	33.715	29.851	4,215.90	19.72	119.86	78.2	246.3	0.0	520.8
123.00			0.2813	32.695	28.940	3,841.70	19.08	116.23	79	231.4	0.0	300.1
125.00			0.2813	32.015	28.333	3,604.90	18.66	113.81	79.5	221.8	0.0	194.9
130.00	Bot - Section 4		0.2813	30.315	26.815	3,056.00	17.59	107.77	80.7	198.6	0.0	469.1
134.00	Top - Section 3		0.1875	29.330	17.343	1,861.00	26.17	156.43	70.6	125.0	0.0	598.3
135.00			0.1875	28.990	17.141	1,796.60	25.85	154.61	71	122.1	0.0	58.7
140.00			0.1875	27.290	16.129	1,496.90	24.25	145.55	72.9	108.0	0.0	283.0
144.00			0.1875	25.930	15.319	1,282.60	22.97	138.29	74.4	97.4	0.0	214.0
145.00			0.1875	25.590	15.117	1,232.50	22.65	136.48	74.8	94.9	0.0	51.8
146.00			0.1875	25.250	14.915	1,183.60	22.33	134.67	75.1	92.3	0.0	51.1
148.50			0.1875	24.400	14.409	1,067.20	21.54	130.13	76.1	86.2	0.0	124.7
											Total:	**35,653.9**

CALCULATED FORCES

Load Case: 1.2D + 1.0W — 113 mph Wind with No Ice — 19 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.93	-22.76	0.00	-2,300.7	0.00	2,300.73	7,541.17	2,021.41	13,251.22	11,272.69	0	0	0.212
5.00	-54.41	-22.29	0.00	-2,186.9	0.00	2,186.92	7,435.91	1,974.07	12,637.77	10,853.20	0.02	-0.04	0.209
10.00	-51.95	-21.82	0.00	-2,075.5	0.00	2,075.49	7,327.23	1,926.72	12,038.86	10,436.27	0.09	-0.08	0.206
15.00	-49.54	-21.36	0.00	-1,966.4	0.00	1,966.39	7,215.13	1,879.37	11,454.49	10,022.24	0.2	-0.13	0.203
20.00	-47.19	-20.92	0.00	-1,859.6	0.00	1,859.57	7,099.60	1,832.02	10,884.65	9,611.47	0.36	-0.17	0.200
25.00	-44.89	-20.48	0.00	-1,755.0	0.00	1,754.99	6,980.64	1,784.67	10,329.35	9,204.34	0.56	-0.22	0.197
30.00	-42.65	-20.05	0.00	-1,652.6	0.00	1,652.59	6,858.27	1,737.32	9,788.59	8,801.20	0.82	-0.26	0.194
35.00	-40.46	-19.61	0.00	-1,552.4	0.00	1,552.37	6,732.46	1,689.97	9,262.37	8,402.42	1.12	-0.31	0.191
40.00	-38.33	-19.23	0.00	-1,454.3	0.00	1,454.33	6,603.24	1,642.62	8,750.69	8,008.36	1.47	-0.36	0.188
43.50	-36.88	-19.00	0.00	-1,387.0	0.00	1,387.04	6,510.74	1,609.48	8,401.16	7,735.51	1.74	-0.39	0.185
45.00	-35.76	-18.70	0.00	-1,358.5	0.00	1,358.54	6,470.58	1,595.27	8,253.54	7,619.37	1.87	-0.41	0.184
50.00	-32.12	-18.41	0.00	-1,265.0	0.00	1,265.03	6,334.51	1,547.93	7,770.93	7,235.83	2.32	-0.46	0.180
51.00	-31.40	-18.18	0.00	-1,246.6	0.00	1,246.62	5,351.19	1,369.00	6,946.29	6,185.72	2.42	-0.47	0.208

CALCULATED FORCES

55.00	-29.99	-17.76	0.00	-1,173.9	0.00	1,173.92	5,265.80	1,335.85	6,614.05	5,938.50	2.83	-0.51	0.204
60.00	-28.27	-17.31	0.00	-1,085.1	0.00	1,085.10	5,155.98	1,294.42	6,210.21	5,632.89	3.39	-0.56	0.198
65.00	-26.59	-16.85	0.00	-998.6	0.00	998.57	5,042.74	1,252.99	5,819.08	5,331.40	4.01	-0.62	0.193
70.00	-24.97	-16.39	0.00	-914.3	0.00	914.34	4,926.07	1,211.56	5,440.67	5,034.40	4.69	-0.68	0.187
75.00	-23.40	-15.94	0.00	-832.4	0.00	832.37	4,805.98	1,170.13	5,074.98	4,742.24	5.43	-0.73	0.181
80.00	-21.87	-15.50	0.00	-752.6	0.00	752.65	4,682.46	1,128.70	4,722.02	4,455.30	6.23	-0.79	0.174
85.00	-20.39	-15.10	0.00	-675.2	0.00	675.15	4,555.52	1,087.27	4,381.77	4,173.92	7.09	-0.85	0.166
89.00	-19.25	-14.88	0.00	-614.7	0.00	614.74	4,451.50	1,054.13	4,118.74	3,953.08	7.82	-0.9	0.160
90.00	-18.81	-14.65	0.00	-599.9	0.00	599.86	4,425.16	1,045.84	4,054.25	3,898.48	8.01	-0.91	0.158
94.50	-16.86	-14.41	0.00	-534.0	0.00	533.96	2,429.52	659.73	2,508.88	2,107.23	8.89	-0.96	0.261
95.00	-16.76	-14.19	0.00	-526.8	0.00	526.76	2,423.93	657.07	2,488.66	2,093.84	9	-0.97	0.259
100.00	-15.82	-13.78	0.00	-455.8	0.00	455.81	2,366.19	630.43	2,290.98	1,960.54	10.06	-1.05	0.240
105.00	-14.91	-13.39	0.00	-386.9	0.00	386.89	2,305.01	603.79	2,101.48	1,828.59	11.2	-1.13	0.219
110.00	-14.04	-13.00	0.00	-320.0	0.00	319.95	2,240.42	577.15	1,920.16	1,698.37	12.43	-1.21	0.195
115.00	-13.20	-12.62	0.00	-255.0	0.00	254.95	2,172.39	550.52	1,747.02	1,570.22	13.74	-1.28	0.169
120.00	-12.39	-12.32	0.00	-191.8	0.00	191.84	2,100.95	523.88	1,582.06	1,444.51	15.13	-1.35	0.139
123.00	-9.41	-9.19	0.00	-154.9	0.00	154.87	2,056.44	507.89	1,487.01	1,370.41	15.99	-1.38	0.118
125.00	-9.13	-8.95	0.00	-136.5	0.00	136.50	2,026.08	497.24	1,425.28	1,321.61	16.57	-1.41	0.108
130.00	-8.45	-8.63	0.00	-91.8	0.00	91.77	1,947.78	470.60	1,276.68	1,201.87	18.07	-1.45	0.081
134.00	-5.12	-5.22	0.00	-56.8	0.00	56.85	1,102.25	304.37	801.14	661.88	19.3	-1.48	0.091
135.00	-5.04	-5.03	0.00	-51.6	0.00	51.64	1,095.19	300.82	782.56	649.92	19.61	-1.48	0.084
140.00	-4.63	-4.74	0.00	-26.5	0.00	26.51	1,057.85	283.06	692.91	590.46	21.18	-1.52	0.050
144.00	-1.79	-1.63	0.00	-7.6	0.00	7.55	1,025.50	268.86	625.12	543.49	22.46	-1.53	0.016
145.00	-1.73	-1.57	0.00	-5.9	0.00	5.91	1,017.07	265.31	608.72	531.85	22.78	-1.53	0.013
146.00	-0.20	-0.48	0.00	-4.3	0.00	4.34	1,008.51	261.75	592.53	520.26	23.1	-1.53	0.009
148.50	0.00	-0.47	0.00	-3.1	0.00	3.14	986.50	252.88	553.02	491.52	23.9	-1.53	0.006

CALCULATED FORCES

Load Case: 0.9D + 1.0W — 113 mph Wind with No Ice (Reduced DL) — 19 Iterations

Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-42.69	-22.76	0.00	-2,292.0	0.00	2,292.04	7,541.17	2,021.41	13,251.22	11,272.69	0	0	0.209
5.00	-40.80	-22.27	0.00	-2,178.3	0.00	2,178.26	7,435.91	1,974.07	12,637.77	10,853.20	0.02	-0.04	0.206
10.00	-38.95	-21.80	0.00	-2,066.9	0.00	2,066.90	7,327.23	1,926.72	12,038.86	10,436.27	0.09	-0.08	0.203
15.00	-37.14	-21.33	0.00	-1,957.9	0.00	1,957.92	7,215.13	1,879.37	11,454.49	10,022.24	0.2	-0.13	0.201
20.00	-35.37	-20.88	0.00	-1,851.3	0.00	1,851.27	7,099.60	1,832.02	10,884.65	9,611.47	0.36	-0.17	0.198
25.00	-33.65	-20.43	0.00	-1,746.9	0.00	1,746.89	6,980.64	1,784.67	10,329.35	9,204.34	0.56	-0.22	0.195
30.00	-31.96	-19.99	0.00	-1,644.7	0.00	1,644.73	6,858.27	1,737.32	9,788.59	8,801.20	0.81	-0.26	0.192
35.00	-30.32	-19.55	0.00	-1,544.8	0.00	1,544.77	6,732.46	1,689.97	9,262.37	8,402.42	1.11	-0.31	0.188
40.00	-28.72	-19.16	0.00	-1,447.0	0.00	1,447.04	6,603.24	1,642.62	8,750.69	8,008.36	1.46	-0.36	0.185
43.50	-27.63	-18.93	0.00	-1,380.0	0.00	1,379.97	6,510.74	1,609.48	8,401.16	7,735.51	1.73	-0.39	0.183
45.00	-26.79	-18.63	0.00	-1,351.6	0.00	1,351.57	6,470.58	1,595.27	8,253.54	7,619.37	1.86	-0.4	0.182
50.00	-24.05	-18.34	0.00	-1,258.4	0.00	1,258.40	6,334.51	1,547.93	7,770.93	7,235.83	2.31	-0.45	0.178
51.00	-23.51	-18.11	0.00	-1,240.1	0.00	1,240.06	5,351.19	1,369.00	6,946.29	6,185.72	2.41	-0.46	0.205
55.00	-22.45	-17.69	0.00	-1,167.6	0.00	1,167.63	5,265.80	1,335.85	6,614.05	5,938.50	2.81	-0.5	0.201
60.00	-21.16	-17.23	0.00	-1,079.2	0.00	1,079.16	5,155.98	1,294.42	6,210.21	5,632.89	3.37	-0.56	0.196
65.00	-19.90	-16.77	0.00	-993.0	0.00	993.01	5,042.74	1,252.99	5,819.08	5,331.40	3.99	-0.62	0.190
70.00	-18.68	-16.31	0.00	-909.2	0.00	909.16	4,926.07	1,211.56	5,440.67	5,034.40	4.67	-0.67	0.185
75.00	-17.50	-15.86	0.00	-827.6	0.00	827.59	4,805.98	1,170.13	5,074.98	4,742.24	5.4	-0.73	0.178
80.00	-16.35	-15.42	0.00	-748.3	0.00	748.27	4,682.46	1,128.70	4,722.02	4,455.30	6.2	-0.79	0.172
85.00	-15.24	-15.02	0.00	-671.2	0.00	671.17	4,555.52	1,087.27	4,381.77	4,173.92	7.06	-0.85	0.164
89.00	-14.38	-14.80	0.00	-611.1	0.00	611.08	4,451.50	1,054.13	4,118.74	3,953.08	7.79	-0.89	0.158
90.00	-14.05	-14.57	0.00	-596.3	0.00	596.28	4,425.16	1,045.84	4,054.25	3,898.48	7.97	-0.9	0.156
94.50	-12.59	-14.33	0.00	-530.7	0.00	530.73	2,429.52	659.73	2,508.88	2,107.23	8.85	-0.96	0.258
95.00	-12.51	-14.11	0.00	-523.6	0.00	523.57	2,423.93	657.07	2,488.66	2,093.84	8.95	-0.96	0.256
100.00	-11.80	-13.71	0.00	-453.0	0.00	453.00	2,366.19	630.43	2,290.98	1,960.54	10.01	-1.05	0.237
105.00	-11.12	-13.31	0.00	-384.5	0.00	384.47	2,305.01	603.79	2,101.48	1,828.59	11.15	-1.13	0.216
110.00	-10.46	-12.92	0.00	-317.9	0.00	317.93	2,240.42	577.15	1,920.16	1,698.37	12.37	-1.2	0.192
115.00	-9.83	-12.54	0.00	-253.3	0.00	253.33	2,172.39	550.52	1,747.02	1,570.22	13.68	-1.28	0.166
120.00	-9.22	-12.25	0.00	-190.6	0.00	190.61	2,100.95	523.88	1,582.06	1,444.51	15.05	-1.34	0.137
123.00	-7.00	-9.13	0.00	-153.9	0.00	153.87	2,056.44	507.89	1,487.01	1,370.41	15.9	-1.38	0.116
125.00	-6.79	-8.89	0.00	-135.6	0.00	135.61	2,026.08	497.24	1,425.28	1,321.61	16.49	-1.4	0.106
130.00	-6.28	-8.58	0.00	-91.2	0.00	91.18	1,947.78	470.60	1,276.68	1,201.87	17.98	-1.44	0.079
134.00	-3.81	-5.18	0.00	-56.5	0.00	56.49	1,102.25	304.37	801.14	661.88	19.2	-1.47	0.089
135.00	-3.75	-4.99	0.00	-51.3	0.00	51.31	1,095.19	300.82	782.56	649.92	19.51	-1.48	0.083
140.00	-3.44	-4.71	0.00	-26.4	0.00	26.35	1,057.85	283.06	692.91	590.46	21.07	-1.51	0.048
144.00	-1.33	-1.62	0.00	-7.5	0.00	7.52	1,025.50	268.86	625.12	543.49	22.34	-1.52	0.015
145.00	-1.29	-1.56	0.00	-5.9	0.00	5.90	1,017.07	265.31	608.72	531.85	22.66	-1.52	0.012
146.00	-0.14	-0.48	0.00	-4.3	0.00	4.34	1,008.51	261.75	592.53	520.26	22.98	-1.52	0.008
148.50	0.00	-0.47	0.00	-3.1	0.00	3.14	986.50	252.88	553.02	491.52	23.78	-1.52	0.006

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi — 40 mph Wind with 1" Radial Ice — 18 Iterations

Gust Response Factor: 1.10 — Ice Dead Load Factor 1.00
Dead load Factor: 1.20 — Ice Importance Factor 1.00
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-72.87	-4.32	0.00	-420.3	0.00	420.31	7,541.17	2,021.41	13,251.22	11,272.69	0	0	0.047
5.00	-70.02	-4.22	0.00	-398.7	0.00	398.71	7,435.91	1,974.07	12,637.77	10,853.20	0	-0.01	0.046
10.00	-67.19	-4.12	0.00	-377.6	0.00	377.61	7,327.23	1,926.72	12,038.86	10,436.27	0.02	-0.02	0.045
15.00	-64.41	-4.03	0.00	-357.0	0.00	356.99	7,215.13	1,879.37	11,454.49	10,022.24	0.04	-0.02	0.045
20.00	-61.67	-3.93	0.00	-336.9	0.00	336.86	7,099.60	1,832.02	10,884.65	9,611.47	0.07	-0.03	0.044
25.00	-58.99	-3.84	0.00	-317.2	0.00	317.19	6,980.64	1,784.67	10,329.35	9,204.34	0.1	-0.04	0.043
30.00	-56.37	-3.75	0.00	-298.0	0.00	297.98	6,858.27	1,737.32	9,788.59	8,801.20	0.15	-0.05	0.042
35.00	-53.81	-3.66	0.00	-279.2	0.00	279.23	6,732.46	1,689.97	9,262.37	8,402.42	0.2	-0.06	0.041
40.00	-51.31	-3.58	0.00	-260.9	0.00	260.94	6,603.24	1,642.62	8,750.69	8,008.36	0.27	-0.06	0.040
43.50	-49.60	-3.53	0.00	-248.4	0.00	248.42	6,510.74	1,609.48	8,401.16	7,735.51	0.32	-0.07	0.040
45.00	-48.37	-3.47	0.00	-243.1	0.00	243.12	6,470.58	1,595.27	8,253.54	7,619.37	0.34	-0.07	0.039
50.00	-44.36	-3.40	0.00	-225.8	0.00	225.79	6,334.51	1,547.93	7,770.93	7,235.83	0.42	-0.08	0.038
51.00	-43.57	-3.36	0.00	-222.4	0.00	222.38	5,351.19	1,369.00	6,946.29	6,185.72	0.44	-0.08	0.044
55.00	-41.87	-3.27	0.00	-209.0	0.00	208.96	5,265.80	1,335.85	6,614.05	5,938.50	0.51	-0.09	0.043
60.00	-39.80	-3.17	0.00	-192.6	0.00	192.61	5,155.98	1,294.42	6,210.21	5,632.89	0.61	-0.1	0.042
65.00	-37.79	-3.07	0.00	-176.8	0.00	176.75	5,042.74	1,252.99	5,819.08	5,331.40	0.72	-0.11	0.041
70.00	-35.83	-2.98	0.00	-161.4	0.00	161.38	4,926.07	1,211.56	5,440.67	5,034.40	0.85	-0.12	0.039
75.00	-33.93	-2.88	0.00	-146.5	0.00	146.49	4,805.98	1,170.13	5,074.98	4,742.24	0.98	-0.13	0.038
80.00	-32.09	-2.79	0.00	-132.1	0.00	132.08	4,682.46	1,128.70	4,722.02	4,455.30	1.12	-0.14	0.037
85.00	-30.30	-2.70	0.00	-118.1	0.00	118.14	4,555.52	1,087.27	4,381.77	4,173.92	1.28	-0.15	0.035
89.00	-28.92	-2.65	0.00	-107.3	0.00	107.33	4,451.50	1,054.13	4,118.74	3,953.08	1.41	-0.16	0.034
90.00	-28.41	-2.60	0.00	-104.7	0.00	104.67	4,425.16	1,045.84	4,054.25	3,898.48	1.44	-0.16	0.033
94.50	-26.20	-2.55	0.00	-93.0	0.00	92.95	2,429.52	659.73	2,508.88	2,107.23	1.6	-0.17	0.055
95.00	-26.08	-2.51	0.00	-91.7	0.00	91.68	2,423.93	657.07	2,488.66	2,093.84	1.62	-0.17	0.055
100.00	-24.86	-2.42	0.00	-79.1	0.00	79.14	2,366.19	630.43	2,290.98	1,960.54	1.81	-0.19	0.051
105.00	-23.68	-2.34	0.00	-67.0	0.00	67.04	2,305.01	603.79	2,101.48	1,828.59	2.01	-0.2	0.047
110.00	-22.55	-2.25	0.00	-55.4	0.00	55.36	2,240.42	577.15	1,920.16	1,698.37	2.23	-0.21	0.043
115.00	-21.45	-2.17	0.00	-44.1	0.00	44.11	2,172.39	550.52	1,747.02	1,570.22	2.46	-0.23	0.038
120.00	-20.40	-2.10	0.00	-33.3	0.00	33.26	2,100.95	523.88	1,582.06	1,444.51	2.71	-0.24	0.033
123.00	-15.36	-1.56	0.00	-27.0	0.00	26.95	2,056.44	507.89	1,487.01	1,370.41	2.86	-0.24	0.027
125.00	-14.98	-1.51	0.00	-23.8	0.00	23.83	2,026.08	497.24	1,425.28	1,321.61	2.96	-0.25	0.025
130.00	-14.07	-1.44	0.00	-16.3	0.00	16.29	1,947.78	470.60	1,276.68	1,201.87	3.23	-0.26	0.021
134.00	-8.22	-0.94	0.00	-10.5	0.00	10.47	1,102.25	304.37	801.14	661.88	3.44	-0.26	0.023
135.00	-8.09	-0.90	0.00	-9.5	0.00	9.52	1,095.19	300.82	782.56	649.92	3.5	-0.26	0.022
140.00	-7.47	-0.84	0.00	-5.0	0.00	5.01	1,057.85	283.06	692.91	590.46	3.78	-0.27	0.016
144.00	-2.69	-0.33	0.00	-1.6	0.00	1.65	1,025.50	268.86	625.12	543.49	4	-0.27	0.006
145.00	-2.59	-0.31	0.00	-1.3	0.00	1.33	1,017.07	265.31	608.72	531.85	4.06	-0.27	0.005
146.00	-0.45	-0.11	0.00	-1.0	0.00	1.01	1,008.51	261.75	592.53	520.26	4.12	-0.27	0.002
148.50	0.00	-0.11	0.00	-0.7	0.00	0.73	986.50	252.88	553.02	491.52	4.26	-0.27	0.001

CALCULATED FORCES

Load Case: 1.0D + 1.0W — 60 mph Wind with No Ice — 18 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.45	-5.74	0.00	-578.9	0.00	578.88	7,541.17	2,021.41	13,251.22	11,272.69	0	0	0.058
5.00	-45.36	-5.62	0.00	-550.2	0.00	550.18	7,435.91	1,974.07	12,637.77	10,853.20	0.01	-0.01	0.057
10.00	-43.32	-5.50	0.00	-522.1	0.00	522.08	7,327.23	1,926.72	12,038.86	10,436.27	0.02	-0.02	0.056
15.00	-41.33	-5.38	0.00	-494.6	0.00	494.59	7,215.13	1,879.37	11,454.49	10,022.24	0.05	-0.03	0.055
20.00	-39.38	-5.27	0.00	-467.7	0.00	467.67	7,099.60	1,832.02	10,884.65	9,611.47	0.09	-0.04	0.054
25.00	-37.47	-5.16	0.00	-441.3	0.00	441.33	6,980.64	1,784.67	10,329.35	9,204.34	0.14	-0.05	0.053
30.00	-35.62	-5.05	0.00	-415.5	0.00	415.54	6,858.27	1,737.32	9,788.59	8,801.20	0.21	-0.07	0.052
35.00	-33.81	-4.94	0.00	-390.3	0.00	390.31	6,732.46	1,689.97	9,262.37	8,402.42	0.28	-0.08	0.051
40.00	-32.04	-4.84	0.00	-365.6	0.00	365.63	6,603.24	1,642.62	8,750.69	8,008.36	0.37	-0.09	0.051
43.50	-30.83	-4.78	0.00	-348.7	0.00	348.69	6,510.74	1,609.48	8,401.16	7,735.51	0.44	-0.1	0.050
45.00	-29.91	-4.71	0.00	-341.5	0.00	341.52	6,470.58	1,595.27	8,253.54	7,619.37	0.47	-0.1	0.049
50.00	-26.88	-4.63	0.00	-318.0	0.00	317.99	6,334.51	1,547.93	7,770.93	7,235.83	0.58	-0.11	0.048
51.00	-26.28	-4.57	0.00	-313.4	0.00	313.36	5,351.19	1,369.00	6,946.29	6,185.72	0.61	-0.12	0.056
55.00	-25.12	-4.47	0.00	-295.1	0.00	295.07	5,265.80	1,335.85	6,614.05	5,938.50	0.71	-0.13	0.054
60.00	-23.69	-4.35	0.00	-272.7	0.00	272.73	5,155.98	1,294.42	6,210.21	5,632.89	0.85	-0.14	0.053
65.00	-22.31	-4.24	0.00	-251.0	0.00	250.96	5,042.74	1,252.99	5,819.08	5,331.40	1.01	-0.16	0.052
70.00	-20.96	-4.12	0.00	-229.8	0.00	229.78	4,926.07	1,211.56	5,440.67	5,034.40	1.18	-0.17	0.050
75.00	-19.66	-4.01	0.00	-209.2	0.00	209.17	4,805.98	1,170.13	5,074.98	4,742.24	1.36	-0.18	0.048
80.00	-18.39	-3.90	0.00	-189.1	0.00	189.13	4,682.46	1,128.70	4,722.02	4,455.30	1.57	-0.2	0.046
85.00	-17.17	-3.80	0.00	-169.6	0.00	169.65	4,555.52	1,087.27	4,381.77	4,173.92	1.78	-0.21	0.044
89.00	-16.22	-3.74	0.00	-154.5	0.00	154.47	4,451.50	1,054.13	4,118.74	3,953.08	1.97	-0.23	0.043
90.00	-15.85	-3.68	0.00	-150.7	0.00	150.73	4,425.16	1,045.84	4,054.25	3,898.48	2.01	-0.23	0.042
94.50	-14.24	-3.62	0.00	-134.2	0.00	134.16	2,429.52	659.73	2,508.88	2,107.23	2.24	-0.24	0.070
95.00	-14.16	-3.57	0.00	-132.4	0.00	132.35	2,423.93	657.07	2,488.66	2,093.84	2.26	-0.24	0.069
100.00	-13.39	-3.46	0.00	-114.5	0.00	114.52	2,366.19	630.43	2,290.98	1,960.54	2.53	-0.26	0.064
105.00	-12.64	-3.36	0.00	-97.2	0.00	97.20	2,305.01	603.79	2,101.48	1,828.59	2.82	-0.28	0.059
110.00	-11.92	-3.27	0.00	-80.4	0.00	80.38	2,240.42	577.15	1,920.16	1,698.37	3.13	-0.3	0.053
115.00	-11.22	-3.17	0.00	-64.0	0.00	64.05	2,172.39	550.52	1,747.02	1,570.22	3.46	-0.32	0.046
120.00	-10.55	-3.10	0.00	-48.2	0.00	48.19	2,100.95	523.88	1,582.06	1,444.51	3.8	-0.34	0.038
123.00	-8.01	-2.31	0.00	-38.9	0.00	38.90	2,056.44	507.89	1,487.01	1,370.41	4.02	-0.35	0.032
125.00	-7.78	-2.25	0.00	-34.3	0.00	34.29	2,026.08	497.24	1,425.28	1,321.61	4.17	-0.35	0.030
130.00	-7.21	-2.17	0.00	-23.0	0.00	23.05	1,947.78	470.60	1,276.68	1,201.87	4.54	-0.36	0.023
134.00	-4.37	-1.31	0.00	-14.3	0.00	14.28	1,102.25	304.37	801.14	661.88	4.85	-0.37	0.026
135.00	-4.30	-1.26	0.00	-13.0	0.00	12.97	1,095.19	300.82	782.56	649.92	4.93	-0.37	0.024
140.00	-3.95	-1.19	0.00	-6.7	0.00	6.66	1,057.85	283.06	692.91	590.46	5.32	-0.38	0.015
144.00	-1.53	-0.41	0.00	-1.9	0.00	1.90	1,025.50	268.86	625.12	543.49	5.65	-0.38	0.005
145.00	-1.47	-0.39	0.00	-1.5	0.00	1.49	1,017.07	265.31	608.72	531.85	5.73	-0.38	0.004
146.00	-0.17	-0.12	0.00	-1.1	0.00	1.09	1,008.51	261.75	592.53	520.26	5.81	-0.38	0.002
148.50	0.00	-0.12	0.00	-0.8	0.00	0.79	986.50	252.88	553.02	491.52	6.01	-0.39	0.002

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.166
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.600
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.177
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.043
Upper Limit C_S:	0.043
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	1.330
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.420
Total Unfactored Dead Load:	47.450 k
Seismic Base Shear (E):	2.050 k

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	147.25	125	147	0.007	14	155
37	145.5	51	59	0.003	6	63
36	144.5	52	59	0.003	6	64
35	142	265	295	0.014	28	327
34	137.5	346	369	0.017	35	428
33	134.5	71	74	0.003	7	88
32	132	679	683	0.032	65	839
31	127.5	570	546	0.026	52	704
30	124	235	217	0.010	21	291
29	121.5	389	348	0.016	33	481
28	117.5	670	571	0.027	55	827
27	112.5	695	558	0.026	53	859
26	107.5	721	542	0.025	52	891
25	102.5	747	525	0.024	50	923
24	97.5	773	506	0.024	48	955
23	94.75	79	50	0.002	5	97
22	92.25	1,616	979	0.046	94	1,997
21	89.5	366	213	0.010	20	453
20	87	949	529	0.025	51	1,173
19	82.5	1,223	632	0.030	61	1,511
18	77.5	1,263	598	0.028	57	1,560
17	72.5	1,303	561	0.026	54	1,610
16	67.5	1,343	523	0.024	50	1,660
15	62.5	1,384	483	0.022	46	1,709
14	57.5	1,424	442	0.021	42	1,759
13	53	1,168	323	0.015	31	1,443
12	50.5	595	154	0.007	15	735
11	47.5	3,028	716	0.033	69	3,740
10	44.25	925	198	0.009	19	1,143
9	41.75	1,208	238	0.011	23	1,492
8	37.5	1,764	299	0.014	29	2,180
7	32.5	1,810	250	0.012	24	2,236
6	27.5	1,856	203	0.010	19	2,293
5	22.5	1,902	156	0.007	15	2,350
4	17.5	1,948	112	0.005	11	2,406
3	12.5	1,994	71	0.003	7	2,463
2	7.5	2,040	35	0.002	3	2,520
1	2.5	2,086	8	0.000	1	2,576

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
RFS Celwave PD220	148.5	25	30	0.001	3	31
RFS Celwave PD220	148.5	25	30	0.001	3	31
Generic Flat T-Arm	146	1,250	1,450	0.068	139	1,544
Generic Flat T-Arm	144	938	1,067	0.050	102	1,158
Powerwave Allgon LGP21401	144	85	96	0.004	9	105
Raycap DC6-48-60-18-8F(32.8 lbs)	144	33	37	0.002	4	41
Ericsson Radio 8843 - B2 + B66A	144	216	245	0.012	24	266
Ericsson RRUS 4449 B5, B12	144	213	242	0.011	23	263
Ericsson RRUS 4478 B14	144	178	203	0.010	19	220
Raycap DC9-48-60-24-8C-EV	144	16	18	0.001	2	20
Powerwave Allgon 7770.00	144	105	119	0.006	11	130
CCI DMP65R-BU4D	144	136	154	0.007	15	168
CCI OPA65R-BU4DA-K	144	105	119	0.006	11	130
CCI DMP65R-BU6DA	144	79	90	0.004	9	98
CCI OPA65R-BU6D	144	63	72	0.003	7	78
Samsung B2/B66A RRH-BR049	134	253	260	0.012	25	313
Samsung B5/B13 RRH-BR04C	134	211	217	0.010	21	261
Raycap RVZDC-6627-PF-48	134	32	33	0.002	3	40
Samsung MT6407-77A	134	245	252	0.012	24	302
Antel LPA-80080/6CF ___	134	126	129	0.006	12	156
Generic Round T-Arm	134	938	963	0.045	92	1,158
JMA Wireless MX06FRO660-03	134	360	370	0.017	35	445
Ericsson Radio 4449 B71 B85A	123	225	205	0.010	20	278
Ericsson Radio 4460 B25+B66	123	327	298	0.014	28	404
Ericsson AIR 6419 B41	123	250	227	0.011	22	309
Commscope VV-65B-R1	123	84	76	0.004	7	103
Generic Round Sector Frame	123	900	819	0.038	78	1,112
RFS APXVAALL24 43-U-NA20	123	368	335	0.016	32	455
	Totals:	**47,448**	**21,428**	**1.000**	**2,052**	**58,618**

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	147.25	125	147	0.007	14	108
37	145.5	51	59	0.003	6	44
36	144.5	52	59	0.003	6	45
35	142	265	295	0.014	28	229
34	137.5	346	369	0.017	35	299
33	134.5	71	74	0.003	7	62
32	132	679	683	0.032	65	587
31	127.5	570	546	0.026	52	493
30	124	235	217	0.010	21	203
29	121.5	389	348	0.016	33	337
28	117.5	670	571	0.027	55	579
27	112.5	695	558	0.026	53	601
26	107.5	721	542	0.025	52	624
25	102.5	747	525	0.024	50	646
24	97.5	773	506	0.024	48	668
23	94.75	79	50	0.002	5	68
22	92.25	1,616	979	0.046	94	1,397
21	89.5	366	213	0.010	20	317
20	87	949	529	0.025	51	821
19	82.5	1,223	632	0.030	61	1,057
18	77.5	1,263	598	0.028	57	1,092
17	72.5	1,303	561	0.026	54	1,127
16	67.5	1,343	523	0.024	50	1,162
15	62.5	1,384	483	0.022	46	1,196
14	57.5	1,424	442	0.021	42	1,231
13	53	1,168	323	0.015	31	1,010
12	50.5	595	154	0.007	15	515

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
11	47.5	3,028	716	0.033	69	2,618
10	44.25	925	198	0.009	19	800
9	41.75	1,208	238	0.011	23	1,044
8	37.5	1,764	299	0.014	29	1,525
7	32.5	1,810	250	0.012	24	1,565
6	27.5	1,856	203	0.010	19	1,605
5	22.5	1,902	156	0.007	15	1,644
4	17.5	1,948	112	0.005	11	1,684
3	12.5	1,994	71	0.003	7	1,724
2	7.5	2,040	35	0.002	3	1,763
1	2.5	2,086	8	0.000	1	1,803
RFS Celwave PD220	148.5	25	30	0.001	3	22
RFS Celwave PD220	148.5	25	30	0.001	3	22
Generic Flat T-Arm	146	1,250	1,450	0.068	139	1,081
Generic Flat T-Arm	144	938	1,067	0.050	102	811
Powerwave Allgon LGP21401	144	85	96	0.004	9	73
Raycap DC6-48-60-18-8F(32.8 lbs)	144	33	37	0.002	4	28
Ericsson Radio 8843 - B2 + B66A	144	216	245	0.012	24	186
Ericsson RRUS 4449 B5, B12	144	213	242	0.011	23	184
Ericsson RRUS 4478 B14	144	178	203	0.010	19	154
Raycap DC9-48-60-24-8C-EV	144	16	18	0.001	2	14
Powerwave Allgon 7770.00	144	105	119	0.006	11	91
CCI DMP65R-BU4D	144	136	154	0.007	15	117
CCI OPA65R-BU4DA-K	144	105	119	0.006	11	91
CCI DMP65R-BU6DA	144	79	90	0.004	9	69
CCI OPA65R-BU6D	144	63	72	0.003	7	55
Samsung B2/B66A RRH-BR049	134	253	260	0.012	25	219
Samsung B5/B13 RRH-BR04C	134	211	217	0.010	21	182
Raycap RVZDC-6627-PF-48	134	32	33	0.002	3	28
Samsung MT6407-77A	134	245	252	0.012	24	212
Antel LPA-80080/6CF ___	134	126	129	0.006	12	109
Generic Round T-Arm	134	938	963	0.045	92	811
JMA Wireless MX06FRO660-03	134	360	370	0.017	35	311
Ericsson Radio 4449 B71 B85A	123	225	205	0.010	20	195
Ericsson Radio 4460 B25+B66	123	327	298	0.014	28	283
Ericsson AIR 6419 B41	123	250	227	0.011	22	216
Commscope VV-65B-R1	123	84	76	0.004	7	72
Generic Round Sector Frame	123	900	819	0.038	78	778
RFS APXVAALL24 43-U-NA20	123	368	335	0.016	32	319
	Totals:	**47,448**	**21,428**	**1.000**	**2,052**	**41,023**

1.2D + 1.0Ev + 1.0Eh **Seismic**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.04	-2.05	0.00	-218.03	0.00	218.03	7,541.17	2,021.41	13,251	11,272.69	0.00	0.00	0.03
5.00	-53.52	-2.05	0.00	-207.77	0.00	207.77	7,435.91	1,974.07	12,638	10,853.20	0.00	0.00	0.03
10.00	-51.06	-2.05	0.00	-197.51	0.00	197.51	7,327.23	1,926.72	12,039	10,436.27	0.01	-0.01	0.03
15.00	-48.65	-2.04	0.00	-187.26	0.00	187.26	7,215.13	1,879.37	11,454	10,022.24	0.02	-0.01	0.03
20.00	-46.30	-2.03	0.00	-177.05	0.00	177.05	7,099.60	1,832.02	10,885	9,611.47	0.03	-0.02	0.03
25.00	-44.01	-2.01	0.00	-166.91	0.00	166.91	6,980.64	1,784.67	10,329	9,204.34	0.05	-0.02	0.02
30.00	-41.77	-1.99	0.00	-156.85	0.00	156.85	6,858.27	1,737.32	9,789	8,801.20	0.08	-0.02	0.02
35.00	-39.59	-1.96	0.00	-146.89	0.00	146.89	6,732.46	1,689.97	9,262	8,402.42	0.11	-0.03	0.02
40.00	-38.10	-1.94	0.00	-137.07	0.00	137.07	6,603.24	1,642.62	8,751	8,008.36	0.14	-0.03	0.02
43.50	-36.96	-1.93	0.00	-130.27	0.00	130.27	6,510.74	1,609.48	8,401	7,735.51	0.17	-0.04	0.02
45.00	-33.22	-1.86	0.00	-127.38	0.00	127.38	6,470.58	1,595.27	8,254	7,619.37	0.18	-0.04	0.02
50.00	-32.48	-1.84	0.00	-118.10	0.00	118.10	6,334.51	1,547.93	7,771	7,235.83	0.22	-0.04	0.02
51.00	-31.04	-1.81	0.00	-116.26	0.00	116.26	5,351.19	1,369.00	6,946	6,185.72	0.23	-0.04	0.03
55.00	-29.28	-1.77	0.00	-109.02	0.00	109.02	5,265.80	1,335.85	6,614	5,938.50	0.27	-0.05	0.02

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
60.00	-27.57	-1.72	0.00	-100.16	0.00	100.16	5,155.98	1,294.42	6,210	5,632.89	0.32	-0.05	0.02
65.00	-25.91	-1.68	0.00	-91.54	0.00	91.54	5,042.74	1,252.99	5,819	5,331.40	0.38	-0.06	0.02
70.00	-24.30	-1.62	0.00	-83.16	0.00	83.16	4,926.07	1,211.56	5,441	5,034.40	0.44	-0.06	0.02
75.00	-22.74	-1.57	0.00	-75.05	0.00	75.05	4,805.98	1,170.13	5,075	4,742.24	0.51	-0.07	0.02
80.00	-21.23	-1.50	0.00	-67.23	0.00	67.23	4,682.46	1,128.70	4,722	4,455.30	0.59	-0.07	0.02
85.00	-20.06	-1.45	0.00	-59.70	0.00	59.70	4,555.52	1,087.27	4,382	4,173.92	0.67	-0.08	0.02
89.00	-19.60	-1.43	0.00	-53.89	0.00	53.89	4,451.50	1,054.13	4,119	3,953.08	0.74	-0.08	0.02
90.00	-17.61	-1.34	0.00	-52.45	0.00	52.45	4,425.16	1,045.84	4,054	3,898.48	0.75	-0.08	0.02
94.50	-17.51	-1.33	0.00	-46.43	0.00	46.43	2,429.52	659.73	2,509	2,107.23	0.84	-0.09	0.03
95.00	-16.56	-1.29	0.00	-45.76	0.00	45.76	2,423.93	657.07	2,489	2,093.84	0.84	-0.09	0.03
100.00	-15.63	-1.24	0.00	-39.33	0.00	39.33	2,366.19	630.43	2,291	1,960.54	0.94	-0.10	0.03
105.00	-14.74	-1.18	0.00	-33.16	0.00	33.16	2,305.01	603.79	2,101	1,828.59	1.05	-0.10	0.03
110.00	-13.88	-1.13	0.00	-27.24	0.00	27.24	2,240.42	577.15	1,920	1,698.37	1.16	-0.11	0.02
115.00	-13.05	-1.08	0.00	-21.58	0.00	21.58	2,172.39	550.52	1,747	1,570.22	1.28	-0.12	0.02
120.00	-12.57	-1.04	0.00	-16.21	0.00	16.21	2,100.95	523.88	1,582	1,444.51	1.40	-0.12	0.02
123.00	-9.62	-0.83	0.00	-13.08	0.00	13.08	2,056.44	507.89	1,487	1,370.41	1.48	-0.12	0.01
125.00	-8.92	-0.77	0.00	-11.42	0.00	11.42	2,026.08	497.24	1,425	1,321.61	1.54	-0.13	0.01
130.00	-8.08	-0.71	0.00	-7.55	0.00	7.55	1,947.78	470.60	1,277	1,201.87	1.67	-0.13	0.01
134.00	-5.32	-0.48	0.00	-4.72	0.00	4.72	1,102.25	304.37	801	661.88	1.78	-0.13	0.01
135.00	-4.89	-0.45	0.00	-4.24	0.00	4.24	1,095.19	300.82	783	649.92	1.81	-0.13	0.01
140.00	-4.56	-0.42	0.00	-2.01	0.00	2.01	1,057.85	283.06	693	590.46	1.95	-0.14	0.01
144.00	-1.82	-0.17	0.00	-0.35	0.00	0.35	1,025.50	268.86	625	543.49	2.06	-0.14	0.00
145.00	-1.76	-0.16	0.00	-0.18	0.00	0.18	1,017.07	265.31	609	531.85	2.09	-0.14	0.00
146.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	1,008.51	261.75	593	520.26	2.12	-0.14	0.00
148.50	0.00	-0.01	0.00	0.00	0.00	0.00	986.50	252.88	553	491.52	2.19	-0.14	0.00

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-39.22	-2.05	0.00	-217.10	0.00	217.10	7,541.17	2,021.41	13,251	11,272.69	0.00	0.00	0.02
5.00	-37.46	-2.05	0.00	-206.84	0.00	206.84	7,435.91	1,974.07	12,638	10,853.20	0.00	0.00	0.02
10.00	-35.73	-2.05	0.00	-196.58	0.00	196.58	7,327.23	1,926.72	12,039	10,436.27	0.01	-0.01	0.02
15.00	-34.05	-2.04	0.00	-186.35	0.00	186.35	7,215.13	1,879.37	11,454	10,022.24	0.02	-0.01	0.02
20.00	-32.40	-2.02	0.00	-176.16	0.00	176.16	7,099.60	1,832.02	10,885	9,611.47	0.03	-0.02	0.02
25.00	-30.80	-2.01	0.00	-166.04	0.00	166.04	6,980.64	1,784.67	10,329	9,204.34	0.05	-0.02	0.02
30.00	-29.23	-1.98	0.00	-156.00	0.00	156.00	6,858.27	1,737.32	9,789	8,801.20	0.08	-0.02	0.02
35.00	-27.71	-1.96	0.00	-146.08	0.00	146.08	6,732.46	1,689.97	9,262	8,402.42	0.11	-0.03	0.02
40.00	-26.66	-1.94	0.00	-136.29	0.00	136.29	6,603.24	1,642.62	8,751	8,008.36	0.14	-0.03	0.02
43.50	-25.86	-1.92	0.00	-129.52	0.00	129.52	6,510.74	1,609.48	8,401	7,735.51	0.16	-0.04	0.02
45.00	-23.25	-1.85	0.00	-126.64	0.00	126.64	6,470.58	1,595.27	8,254	7,619.37	0.18	-0.04	0.02
50.00	-22.73	-1.83	0.00	-117.40	0.00	117.40	6,334.51	1,547.93	7,771	7,235.83	0.22	-0.04	0.02
51.00	-21.72	-1.80	0.00	-115.56	0.00	115.56	5,351.19	1,369.00	6,946	6,185.72	0.23	-0.04	0.02
55.00	-20.49	-1.76	0.00	-108.35	0.00	108.35	5,265.80	1,335.85	6,614	5,938.50	0.27	-0.05	0.02
60.00	-19.29	-1.72	0.00	-99.54	0.00	99.54	5,155.98	1,294.42	6,210	5,632.89	0.32	-0.05	0.02
65.00	-18.13	-1.67	0.00	-90.95	0.00	90.95	5,042.74	1,252.99	5,819	5,331.40	0.38	-0.06	0.02
70.00	-17.01	-1.61	0.00	-82.62	0.00	82.62	4,926.07	1,211.56	5,441	5,034.40	0.44	-0.06	0.02
75.00	-15.91	-1.56	0.00	-74.55	0.00	74.55	4,805.98	1,170.13	5,075	4,742.24	0.51	-0.07	0.02
80.00	-14.86	-1.50	0.00	-66.76	0.00	66.76	4,682.46	1,128.70	4,722	4,455.30	0.58	-0.07	0.02
85.00	-14.04	-1.45	0.00	-59.28	0.00	59.28	4,555.52	1,087.27	4,382	4,173.92	0.66	-0.08	0.02
89.00	-13.72	-1.43	0.00	-53.50	0.00	53.50	4,451.50	1,054.13	4,119	3,953.08	0.73	-0.08	0.02
90.00	-12.32	-1.33	0.00	-52.08	0.00	52.08	4,425.16	1,045.84	4,054	3,898.48	0.75	-0.08	0.02
94.50	-12.25	-1.33	0.00	-46.09	0.00	46.09	2,429.52	659.73	2,509	2,107.23	0.83	-0.09	0.03
95.00	-11.59	-1.28	0.00	-45.43	0.00	45.43	2,423.93	657.07	2,489	2,093.84	0.84	-0.09	0.03
100.00	-10.94	-1.23	0.00	-39.04	0.00	39.04	2,366.19	630.43	2,291	1,960.54	0.94	-0.10	0.03
105.00	-10.32	-1.18	0.00	-32.90	0.00	32.90	2,305.01	603.79	2,101	1,828.59	1.04	-0.10	0.02
110.00	-9.71	-1.12	0.00	-27.02	0.00	27.02	2,240.42	577.15	1,920	1,698.37	1.15	-0.11	0.02
115.00	-9.14	-1.07	0.00	-21.41	0.00	21.41	2,172.39	550.52	1,747	1,570.22	1.27	-0.12	0.02
120.00	-8.80	-1.03	0.00	-16.08	0.00	16.08	2,100.95	523.88	1,582	1,444.51	1.40	-0.12	0.02

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
123.00	-6.73	-0.82	0.00	-12.98	0.00	12.98	2,056.44	507.89	1,487	1,370.41	1.47	-0.12	0.01
125.00	-6.24	-0.77	0.00	-11.33	0.00	11.33	2,026.08	497.24	1,425	1,321.61	1.53	-0.13	0.01
130.00	-5.65	-0.70	0.00	-7.49	0.00	7.49	1,947.78	470.60	1,277	1,201.87	1.66	-0.13	0.01
134.00	-3.72	-0.48	0.00	-4.68	0.00	4.68	1,102.25	304.37	801	661.88	1.77	-0.13	0.01
135.00	-3.42	-0.44	0.00	-4.20	0.00	4.20	1,095.19	300.82	783	649.92	1.80	-0.13	0.01
140.00	-3.19	-0.41	0.00	-2.00	0.00	2.00	1,057.85	283.06	693	590.46	1.94	-0.13	0.01
144.00	-1.28	-0.17	0.00	-0.34	0.00	0.34	1,025.50	268.86	625	543.49	2.05	-0.14	0.00
145.00	-1.23	-0.16	0.00	-0.18	0.00	0.18	1,017.07	265.31	609	531.85	2.08	-0.14	0.00
146.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	1,008.51	261.75	593	520.26	2.11	-0.14	0.00
148.50	0.00	-0.01	0.00	0.00	0.00	0.00	986.50	252.88	553	491.52	2.18	-0.14	0.00

ANALYSIS SUMMARY

Load Case	Base Reactions: Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage: Elev (ft)	Interaction Ratio
1.2D + 1.0W	22.76	0.00	56.93	0.00	0.00	2300.73	94.50	0.26
0.9D + 1.0W	22.76	0.00	42.69	0.00	0.00	2292.04	94.50	0.26
1.2D + 1.0Di + 1.0Wi	4.32	0.00	72.87	0.00	0.00	420.31	94.50	0.05
1.2D + 1.0Ev + 1.0Eh	2.05	0.00	56.04	0.00	0.00	218.03	94.50	0.03
0.9D - 1.0Ev + 1.0Eh	2.05	0.00	39.22	0.00	0.00	217.10	94.50	0.03
1.0D + 1.0W	5.74	0.00	47.45	0.00	0.00	578.88	94.50	0.07

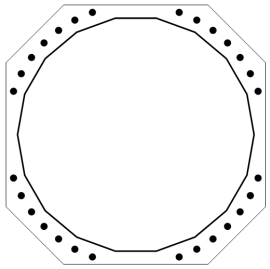
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
2300.73	56.93	22.76

PLATE PARAMETERS (ID# 22635)

Width:	81	in
Shape:	Square	
Thickness:	3.25	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Clip Length:	18	in
Rod Detail Type:	d	
Clear Distance	3	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	225	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F_y (ksi)	F_u (ksi)	Spacing (in)	Offset (°)
Original [ID#23230]	Cluster	28	2.25	81	A615-75	75	100	6	-

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	73.08"ø x 0.5" (18 Sides)	113.4305	-	-	74701.41	-
Bolt Group	Original (28) 2.25"ø	3.9761	3.2477	0.8393	69846.36	4.5

REACTION DISTRIBUTION

Component	ID	Moment M_u (k-ft)	Axial Load P_u (k)	Shear V_u (k)	Moment Factor
Pole	73.08"ø x 0.5" (18 Sides)	2300.7	56.93	22.76	1.000
Bolt Group	Original (28) 2.25"ø	2300.7	-	22.76	1.000

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

						PLATE PROPERTIES		
Flat-to-Flat Diameter:	73.20	in	Flat Width:	12.908	in	Neutral Axis:	225	°
Point-to-Point Diameter:	74.33	in	Flat Radians:	0.349	rad			
Orientation Offset:	-	°						

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment M_u (k-in)	Moment Capacity ΦM_n (k-in)	Flexure Result $M_u/\Phi M_n$
Flats	41.346	0.00	109.180	446.6	4913.1	9.1%
Corners	40.217	0.00	106.198	301.9	4778.9	6.3%

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P_u (k)	Applied Shear Load V_u (k)	Compressive Capacity ΦP_n (k)	Interaction Result
Original	28	2.25	45.8	1.3	243.6	19.9%

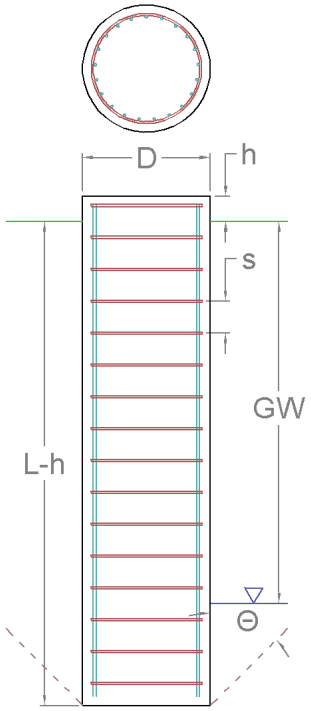
PIER FOUNDATION ANALYSIS

GLOBAL REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
2,300.73	56.93	22.76

FOUNDATION PARAMETERS

Pier Diameter:	D	9.00	ft
Pier Embedment Depth:	L-h	29.0	ft
Pier Height above Grade:	h	0.50	ft
Concrete Compressive Strength:		3,000	psi
Vertical Rebar:		(32) #11 bars [60 ksi]	
Tie Rebar:	s	#5 bars @ 18.0" c/c [40 ksi]	
Rebar Clear Cover:		4.00	in



SOIL PARAMETERS

Water Table Depth [BGL]: GW 12 ft

Layer Depth (ft) Top	Layer Depth (ft) Bottom	Unit Weight pcf	Cohesion psf	Friction Angle °	Ultimate Skin Friction psf	Ultimate Net Bearing psf
0	0.3	105	0	0	0	0
0.3	1	115	0	30	0	0
1	2	115	0	30	0	0
2	5	118	0	32	0	0
5	10	118	0	32	943	0
10	12	126	0	36	1,344	0
12	15	126	0	36	1,579	0
15	30	106	0	29	617	42,587

SOIL STRENGTH ANALYSIS

Volume of Concrete (ft^3)	Buoyant Weight of Concrete (k)	Skin Friction Resistance (k)	Inflection Point [BGL] (ft)
1,876.71	214.02	587.48	18.22

SOIL MOMENT ANALYSIS

Total Lateral Resistance (k)	Moment at Inflection Point, M_u (k-ft)	Additional Resistance (k-ft)	Nominal Moment Capacity, ΦM_n (k-ft)	Soil Moment Usage, $M_u / \Phi M_n$
2,836.28	2,726.89	0.00	12,722.55	**21.4%**

SOIL COMPRESSION ANALYSIS

Compressive Bearing Resistance (k)	Compressive Force, P_u (k)	Additional Resistance (k)	Nominal Compressive Capacity, ΦP_n (k)	Soil Compressive Usage, $P_u / \Phi P_n$
2,709.27	138.23	0.00	2,472.56	**5.6%**

REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
97.34	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u/\Phi_b M_n$
2,313.58	10,698.34	0.01	**21.6%**

PIER REINFORCING COMPRESSION ANALYSIS

Buoyant Weight of Concrete (k)	Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$
214.02	138.23	13,638.64	**1.0%**

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$
189.27	844.26	**22.4%**