STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

June 14, 2022

David Hoogasian
Project Manager
Network Building + Consulting, LLC
100 Apollo Drive, Suite 303
Chelmsford, MA 01824
dhoogasian@nbcllc.com

RE: **TS-DISH-135-220516 –** Dish Wireless, LLC request for an order to approve tower sharing at an existing telecommunications facility located at Eastover Road (a/k/a 5 High Ridge Park Road), Stamford, Connecticut.

Dear Mr. Hoogasian:

The Connecticut Siting Council (Council) is in receipt of your correspondence of June 9, 2022 submitted in response to the Council's June 2, 2022 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

The submission renders the request for tower sharing complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie Bachman
Executive Director

MAB/IN/laf

From: David Hoogasian <dhoogasian@nbcllc.com>
Sent: Thursday, June 9, 2022 2:53 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Incomplete Letter for TS-DISH-135-220516 (Eastover Road/High Ridge Park Road, Stamford)

Hi Evan,

Attached please find the requested supplement. A hard copy will be sent to the CSC office.

Thank you,

David Hoogasian
Project Manager

NETWORK BUILDING + CONSULTING
100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824
M 508.344.3343

June 9, 2022

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

RE: TS-DISH-135-220516 – INCOMPLETE LETTER

Dear Ms. Bachman:

To supplement the above referenced Tower Share Request, enclosed please find:

- Updated Structural Analysis which includes a passing value (83%).

Location:

Site Name	Full Address
302515 STAMFORD	Eastover Road (a/k/a 5 High Ridge Park Road), Stamford, CT

If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager
M 508.344.3343
dhoogasian@nbcllc.com

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**148 ft Monopole**
ATC Site Name	:	**SMFR - North,CT**
ATC Site Number	:	**302515**
Engineering Number	:	**13685414_C3_05**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**NJJER01080B**
Carrier Site Number	:	**NJJER01080B**
Site Location	:	**5 High Ridge Park Road** **Stamford, CT 06905-1403** **41.1128, -73.5384**
County	:	**Fairfield**
Date	:	**June 7, 2022**
Max Usage	:	**83%**
Result	:	**Pass**

Prepared By:

Faisal Wakid
Structural Engineer

Faisal Wakid

Reviewed By:

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 148 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Engineered Endeavors Job #5591, dated November 22, 1999
Foundation Drawing	Engineered Endeavors Job #5591, dated November 17, 1999
Geotechnical Report	Dr. Clarence Welti, dated October 25, 2000
Modifications	ATC Project #43868633, dated September 1, 2009 ATC Project #51772939, dated April 11, 2013

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:	116 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	Ss = 0.26, S_1 = 0.06
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 and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
160.0	3	Ericsson Radio 4449 B71 B85A	Flush	(2) 1 1/4" (1.25"-31.8mm) Fiber (3) 1 1/4" Hybriflex Cable (1) 1 5/8" Hybriflex	T-MOBILE
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson RRUS 4415 B25			
152.0	3	Ericsson Air 6449 B77D	Sector Frame	(2) 0.39" (10mm) Fiber Trunk (1) 0.51" (13mm) Hybrid (6) 0.78" (19.7mm) 8 AWG 6 (1) 0.92" (23.4mm) Cable (12) 1 5/8" Coax (2) 2" conduit (1) 3" conduit	AT&T MOBILITY
	3	Quintel QD6616-7			
	3	Kathrein Scala 80010965			
	6	Kaelus DBC0061F1V51-2			
	6	Powerwave Allgon LGP21401			
	2	Raycap DC6-48-60-18-8F (23.5" Height)			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 32 (50.8 lbs)			
	3	Ericsson RRUS 32 B66			
	1	Raycap DC9-48-60-24-8C-EV			
	3	Ericsson RRUS 32 B2			
	3	Ericsson AIR 6419 B77G			
	3	Ericsson RRUS E2 B29			
143.0	4	Commscope JAHH-65B-R3B	Triangular Low Profile Platform	(6) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	4	Commscope JAHH-45B-R3B			
	1	Antel BXA-70063/6CF __ 2°			
	1	Antel BXA-80080/6CF			
	1	Amphenol Antel BXA-80063-6BF-EDIN-X			
	2	RFS DB-T1-6Z-8AB-0Z			
	4	Commscope CBC78T-DS-43-2X			
	4	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna			
	4	Samsung RT4401-48A			
	4	Samsung B2/B66A RRH-BR049			
	4	Samsung B5/B13 RRH-BR04C			
	4	Samsung MT6407-77A			
132.0	3	Ericsson AIR-32 B2A/B66Aa	Triangular Low Profile Platform	(1) 1 1/4" (1.25"-31.8mm) Fiber (2) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson Air6449 B41			
122.5	3	Commscope DT465B-2XR	Triangular Low Profile Platform	(4) 1 1/4" Hybriflex Cable (1) 1" (25.4mm) Hybrid	SPRINT NEXTEL
	3	RFS APXVSPP18-C-A20			
120.0	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	Alcatel-Lucent 4x40W RRH (91 lb)			
	3	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter			
	3	Alcatel-Lucent RRH2x50-08			
105.0	1	Antel BCD-87010 ___ 4°	Side Arm	(1) 7/8" Coax	SENSUS USA INC.
75.0	1	PCTEL GPS-TMG-HR-26N	Side Arm	(2) 1/2" Coax	SPRINT NEXTEL

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
94.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.75" (44.5mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	3	JMA Wireless MX08FRO665-21			

[1] 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	Controlling Usage	Pass/Fail
Anchor Bolts	59%	Pass
Shaft	63%	Pass
Base Plate	36%	Pass
Reinforcement	68%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3594.2	83%
Axial (Kips)	65.6	11%
Shear (Kips)	29.5	67%

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.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
94.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.736	0.90
	Fujitsu TA08025-B605			
	Fujitsu TA08025-B604			
	JMA Wireless MX08FRO665-21			

***Deflection 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 Service, PLLC 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 Service, PLLC

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

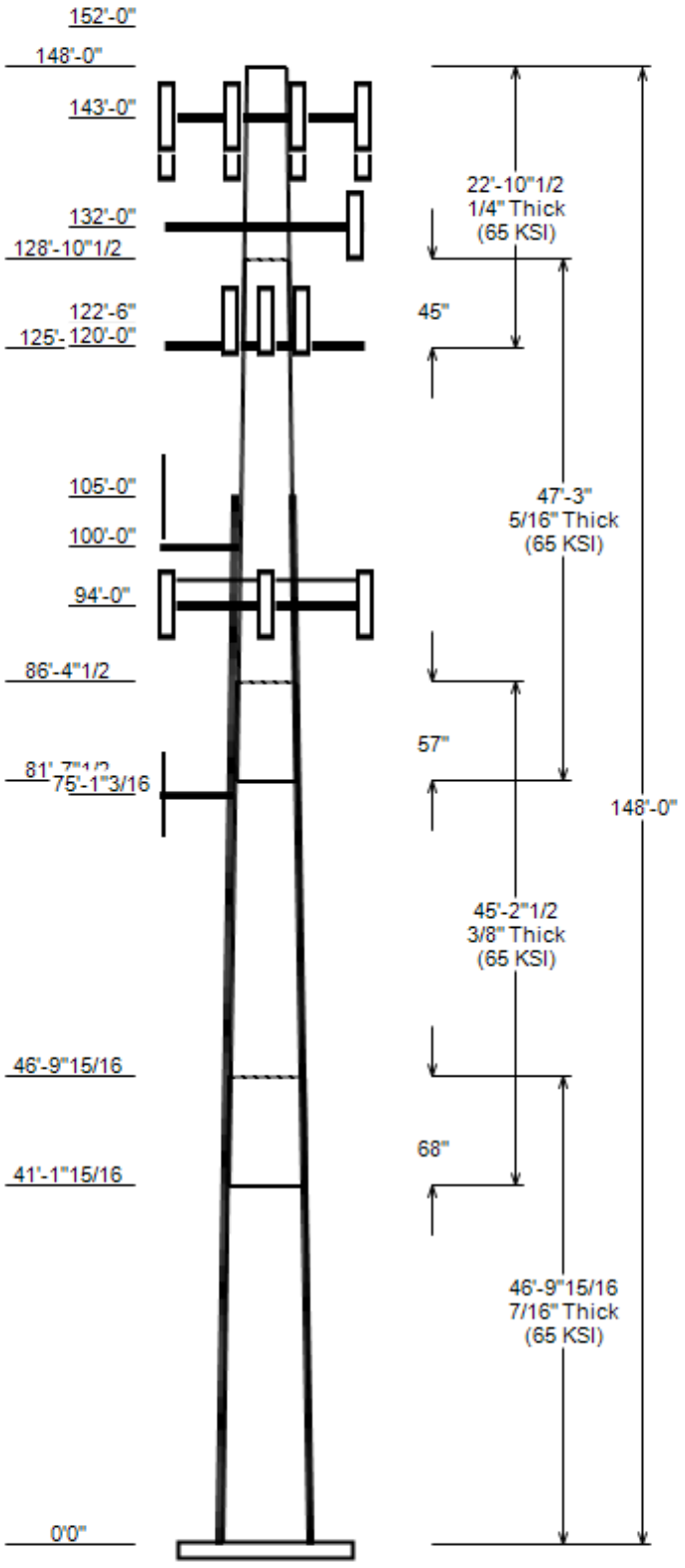
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, 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 Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

JOB INFORMATION

Asset :	302515, SMFR - North	Height :	148 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	48
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Nominal Wind: 116 mph wind with no ice **Topo Category:** 1

Ice Wind: 50 mph wind with 1" radial **Topo Method:** Method 1

Base Elev (ft): 0.00 **Taper :** 0.19500(In/ft) **Topo Feature:**

Structure Class: II **Exposure :** B **S_s :** 0.26 **S_1** : 0.058

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Diameter (in) Across Flats Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	46.830	38.86	48.00	0.438		0.000	18 Sides	65
2	45.210	31.90	40.72	0.375	Slip Joint	68.000	18 Sides	65
3	47.250	24.23	33.45	0.312	Slip Joint	57.000	18 Sides	65
4	22.877	21.00	25.46	0.250	Slip Joint	45.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.0	160.0	3	Ericsson Radio 4449 B71 B85A
160.0	160.0	3	Ericsson RRUS 4415 B25
160.0	160.0	3	RFS APXVAARR24_43-U-NA20
152.0	152.0	6	Kaelus DBC0061F1V51-2
152.0	152.0	6	Powerwave Allgon LGP21401
152.0	152.0	2	Raycap DC6-48-60-18-8F (23.5"
152.0	152.0	3	Ericsson RRUS 4478 B14
152.0	152.0	3	Ericsson RRUS 4449 B5, B12
152.0	152.0	3	Ericsson RRUS 32 (50.8 lbs)
152.0	152.0	3	Ericsson RRUS 32 B2
152.0	152.0	3	Ericsson RRUS 32 B66
152.0	152.0	3	Ericsson RRUS E2 B29
152.0	152.0	3	Ericsson AIR 6419 B77G
152.0	152.0	3	Ericsson Air 6449 B77D
152.0	152.0	1	Raycap DC9-48-60-24-8C-EV
152.0	152.0	3	Kathrein Scala 80010965
152.0	152.0	3	Generic Round Sector Frame
152.0	152.0	3	Quintel QD6616-7
143.0	143.0	4	Commscope CBC78T-DS-43-2X
143.0	143.0	4	Samsung Outdoor CBRS 20W RRH –
143.0	143.0	4	Samsung RT4401-48A
143.0	143.0	4	Samsung B2/B66A RRH-BR049
143.0	143.0	4	Samsung B5/B13 RRH-BR04C
143.0	143.0	4	Samsung MT6407-77A
143.0	142.0	2	RFS DB-T1-6Z-8AB-0Z
143.0	142.0	1	Amphenol Antel BXA-80063-6BF-E
143.0	143.0	1	Antel BXA-70063/6CF __ 2°
143.0	143.0	1	Antel BXA-80080/6CF
143.0	143.0	4	Commscope JAHH-65B-R3B
143.0	143.0	4	Commscope JAHH-45B-R3B
143.0	143.0	1	Flat Low Profile Platform
132.0	132.0	3	Ericsson Air6449 B41
132.0	132.0	3	Ericsson AIR-32 B2A/B66Aa
132.0	132.0	1	Flat Low Profile Platform
122.5	122.5	3	RFS APXVSPP18-C-A20
122.5	122.5	3	Commscope DT465B-2XR
120.0	120.0	3	Alcatel-Lucent RRH2x50-08
120.0	120.0	3	Alcatel-Lucent 800 MHz 2X50W R
120.0	120.0	3	Alcatel-Lucent 4x40W RRH (91 l
120.0	120.0	3	Alcatel-Lucent TD-RRH8x20-25 w
120.0	120.0	1	Flat Low Profile Platform
105.0	105.0	1	Antel BCD-87010 ___ 4°
100.0	100.0	1	Flat Side Arm

JOB INFORMATION

Asset :	302515, SMFR - North	Height :	148 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	48
Code :	ANSI/TIA-222-H	Shape :	18 Sides

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
94.0	94.0	1	Commscope RDIDC-9181-PF-48
94.0	94.0	3	Fujitsu TA08025-B604
94.0	94.0	3	Fujitsu TA08025-B605
94.0	94.0	3	JMA Wireless MX08FRO665-21
94.0	94.0	1	Generic Flat Platform with Han
75.1	75.1	1	PCTEL GPS-TMG-HR-26N
75.0	75.0	1	Round Side Arm

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	160.0	1 5/8" Hybriflex	No
0.0	160.0	1 1/4" Hybriflex Cable	Yes
0.0	160.0	1 1/4" (1.25"- 31.8mm) Fiber	No
0.0	152.0	3" conduit	No
0.0	152.0	2" conduit	No
0.0	152.0	1 5/8" Coax	No
0.0	152.0	0.92" (23.4mm) Cable	No
0.0	152.0	0.78" (19.7mm) 8 AWG 6	No
0.0	152.0	0.51" (13mm) Hybrid	No
0.0	152.0	0.39" (10mm) Fiber Trunk	No
10.0	143.0	1 5/8" Hybriflex	Yes
0.0	143.0	1 5/8" Coax	No
10.0	132.0	1 1/4" (1.25"- 31.8mm) Fiber	Yes
0.0	132.0	1 5/8" Hybriflex	No
0.0	120.0	1" (25.4mm) Hybrid	No
0.0	120.0	1 1/4" Hybriflex Cable	Yes
0.0	113.3	#20 w/ Angle Brackets	Yes
0.0	113.3	#20 w/ Angle Brackets	Yes
0.0	113.3	#20 w/ Angle Brackets	Yes
0.0	113.3	#20 w/ Angle Brackets	Yes
10.0	105.0	7/8" Coax	No
0.0	94.0	1.75" (44.5mm) Hybrid	No
10.0	75.0	1/2" Coax	Yes

LOAD CASES

1.2D + 1.0W Normal	116 mph wind with no ice
0.9D + 1.0W Normal	116 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3594.16	29.45	65.58
0.9D + 1.0W Normal	3541.43	29.42	49.17
1.2D + 1.0Di + 1.0Wi Normal	941.01	7.83	85.87
1.2D + 1.0Ev + 1.0Eh Normal	205.20	1.65	66.39
0.9D - 1.0Ev + 1.0Eh Normal	201.37	1.64	44.69
1.0D + 1.0W Service Normal	852.92	7.04	54.69

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)

ANALYSIS PARAMETERS

Location:	Fairfield County,CT	**Height:**	148 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	48.00 in
Manufacturer:	EEI	**Top Diameter:**	21.00 in
K_d (non-service):	0.95	**Taper:**	0.1950 in/ft
K_e:	0.99	**Rotation:**	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	**Design Wind Speed w/o Ice:**	116 mph
Risk Category:	II	**Design Wind Speed w/Ice:**	50 mph
Topo Factor Procedure:	Method 1	**Operational Wind Speed:**	60 mph
Topographic Category:	1	**Design Ice Thickness:**	1.00 in
Crest Height:	0 ft	**HMSL:**	227.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			**Period Based on Rayleigh Method (sec):**	2.54
T_L (sec):	6	**P:**	1	**C_s:**	0.030
S_s:	0.260	**S_1:**	0.058	**C_s Max:**	0.030
F_a:	1.592	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.276	**S_{d1}:**	0.093		

LOAD CASES

1.2D + 1.0W Normal	116 mph wind with no ice
0.9D + 1.0W Normal	116 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip 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 (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	46.83	0.4375	65		0.00	9,513	48.00	0.000	66.04	18,876.3	17.93	109.71	38.86	46.83	53.36	9,953.6	14.25	88.83	0.1951
2-18	45.21	0.3750	65	Slip	68.00	6,579	40.72	41.160	48.02	9,874.2	17.74	108.58	31.90	86.37	37.52	4,710.3	13.59	85.06	0.1951
3-18	47.25	0.3125	65	Slip	57.00	4,549	33.45	81.620	32.87	4,559.7	17.46	107.04	24.23	128.87	23.72	1,714.6	12.26	77.54	0.1951
								125.12								895.5			
4-18	22.88	0.2500	65	Slip	45.00	1,419	25.46	3	20.01	1,606.6	16.55	101.85	21.00	148.00	16.46		13.40	84.00	0.1951

Shaft Weight 22,060

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
160.00	RFS APXVAARR24_43-U-NA20	3	1.00	0.000	127.90	20.243	0.63	389.54	22.715	0.63
160.00	Ericsson RRUS 4415 B25	3	1.00	0.000	46.00	1.842	0.50	78.68	2.440	0.50
160.00	Ericsson Radio 4449 B71 B85A	3	1.00	0.000	75.00	1.650	0.50	115.08	2.216	0.50
152.00	Quintel QD6616-7	3	0.80	0.000	130.00	51.400	0.64	324.96	58.559	0.64
152.00	Generic Round Sector Frame	3	0.75	0.000	300.00	14.400	0.67	545.15	25.432	0.67
152.00	Kathrein Scala 80010965	3	0.80	0.000	97.60	13.814	0.62	275.28	15.847	0.62
152.00	Raycap DC9-48-60-24-8C-EV	1	0.80	0.000	16.00	4.788	1.00	102.04	5.768	1.00
152.00	Ericsson Air 6449 B77D	3	0.80	0.000	81.60	4.028	0.65	150.14	4.944	0.65
152.00	Ericsson AIR 6419 B77G	3	0.80	0.000	66.10	3.797	0.65	130.76	4.675	0.65
152.00	Ericsson RRUS E2 B29	3	0.80	0.000	60.00	3.145	0.62	113.90	3.917	0.62
152.00	Ericsson RRUS 32 B2	3	0.80	0.000	53.00	2.743	0.67	102.02	3.522	0.67
152.00	Ericsson RRUS 32 B66	3	0.80	0.000	53.00	2.743	0.67	102.02	3.522	0.67
152.00	Ericsson RRUS 32 (50.8 lbs)	3	0.80	0.000	50.80	2.692	0.67	98.47	3.462	0.67
152.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	113.95	2.591	0.50
152.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.90	1.842	0.50	96.75	2.440	0.50
152.00	Raycap DC6-48-60-18-8F (23.5"	2	0.80	0.000	20.00	1.260	1.00	55.09	1.699	1.00
152.00	Powerwave Allgon LGP21401	6	0.80	0.000	14.10	1.104	0.50	30.73	1.580	0.50
152.00	Kaelus DBC0061F1V51-2	6	0.80	0.000	25.50	0.433	0.50	37.81	0.733	0.50
143.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	-1.000	44.00	4.800	0.72	127.59	5.744	0.72
143.00	Amphenol Antel BXA-80063-6BF-E	1	0.80	-1.000	19.20	7.262	1.00	114.96	9.029	1.00
143.00	Commscope CBC78T-DS-43-2X	4	0.80	0.000	20.70	0.552	0.50	35.37	0.889	0.50
143.00	Samsung Outdoor CBRS 20W RRH –	4	0.80	0.000	4.40	0.892	0.50	16.36	1.316	0.50
143.00	Samsung RT4401-48A	4	0.80	0.000	18.60	0.996	0.50	36.53	1.450	0.50
143.00	Samsung B2/B66A RRH-BR049	4	0.80	0.000	84.40	1.875	0.50	126.77	2.474	0.50
143.00	Samsung B5/B13 RRH-BR04C	4	0.80	0.000	70.30	1.875	0.50	108.29	2.474	0.50
143.00	Samsung MT6407-77A	4	0.80	0.000	81.60	4.709	0.61	149.29	5.718	0.61
143.00	Flat Low Profile Platform	1	1.00	0.000	1500.00	26.100	1.00	1930.30	38.780	1.00
143.00	Commscope JAHH-45B-R3B	4	0.80	0.000	83.80	11.400	0.63	235.56	13.251	0.63
143.00	Commscope JAHH-65B-R3B	4	0.80	0.000	60.60	9.113	0.69	194.96	10.956	0.69
143.00	Antel BXA-70063/6CF __ 2°	1	0.80	0.000	17.00	7.569	0.73	110.92	9.401	0.73
143.00	Antel BXA-80080/6CF	1	0.80	0.000	22.00	7.775	1.00	118.57	9.649	1.00
132.00	Ericsson AIR-32 B2A/B66Aa	3	0.80	0.000	132.20	6.510	0.71	237.39	7.954	0.71
132.00	Flat Low Profile Platform	1	1.00	0.000	1500.00	26.100	1.00	1926.99	38.682	1.00
132.00	Ericsson Air6449 B41	3	0.80	0.000	104.00	5.682	0.63	193.82	6.728	0.63
122.50	Commscope DT465B-2XR	3	0.80	0.000	58.00	9.098	0.69	190.12	10.909	0.69
122.50	RFS APXVSPP18-C-A20	3	0.80	0.000	57.00	8.024	0.69	169.81	9.848	0.69
120.00	Alcatel-Lucent RRH2x50-08	3	0.80	0.000	52.90	1.701	0.50	91.53	2.263	0.50
120.00	Alcatel-Lucent 800 MHz 2X50W R	3	0.80	0.000	64.00	2.058	0.67	114.23	2.682	0.67
120.00	Flat Low Profile Platform	1	1.00	0.000	1500.00	26.100	1.00	1922.37	38.546	1.00
120.00	Alcatel-Lucent 4x40W RRH (91 l	3	0.80	0.000	91.00	3.287	0.72	162.37	4.065	0.72
120.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.80	0.000	70.00	4.046	0.61	131.61	4.911	0.61
105.00	Antel BCD-87010 ___ 4°	1	1.00	0.000	26.50	2.900	1.00	100.57	5.495	1.00
100.00	Flat Side Arm	1	1.00	0.000	150.00	6.300	1.00	196.81	7.873	1.00
94.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.10	2.440	1.00
94.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	114.85	2.547	0.50
94.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.00	2.547	0.50
94.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	228.01	14.277	0.64
94.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3630.13	55.742	1.00
75.10	PCTEL GPS-TMG-HR-26N	1	1.00	0.000	0.60	0.090	1.00	3.62	0.202	1.00
75.00	Round Side Arm	1	1.00	0.000	150.00	5.200	1.00	195.44	6.888	1.00
Totals	Num Loadings: 50	136			15,799.60			27,914.26		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	160.00	3	1 1/4" Hybriflex Cabl	1.54	1	N	3	0	0.5	180	0.5	Y	T-MOBILE
0.00	160.00	2	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	0	0	0	0	0	N	T-MOBILE
0.00	160.00	1	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
0.00	152.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	152.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	152.00	2	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	152.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	152.00	1	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	152.00	1	0.92" (23.4mm) Cable	0.92	0.89	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	152.00	1	0.51" (13mm) Hybrid	0.51	0.14	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	143.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
10.00	143.00	2	1 5/8" Hybriflex	1.98	1.3	N	2	0	0.5	90	0.5	Y	VERIZON WIREL
0.00	132.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
10.00	132.00	1	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	1	0	0	190	0.5	Y	T-MOBILE
0.00	120.00	4	1 1/4" Hybriflex Cabl	1.54	1	N	2	0.5	0.5	1	0.5	Y	SPRINT NEXTEL
0.00	120.00	1	1" (25.4mm) Hybrid	1	0.65	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	113.30	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	135	0	Y	
0.00	113.30	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	225	0	Y	
0.00	113.30	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	315	0	Y	
0.00	113.30	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	45	0	Y	
10.00	105.00	1	7/8" Coax	1.09	0.33	N	0	0	0	0	0	N	SENSUS USA IN
0.00	94.00	1	1.75" (44.5mm) Hybrid	1.75	2.72	N	0	0	0	0	0	N	DISH WIRELESS
10.00	75.00	2	1/2" Coax	0.63	0.15	N	1	0	0	275	0.5	Y	SPRINT NEXTEL

ADDITIONAL STEEL

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connectors Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	105.13	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	N

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.4375	48.000	66.044	18,876.30	17.93	109.71	80.3	774.6	0.0	0.0	19.640	7,401.70	0.0
5.00		0.4375	47.024	64.689	17,738.40	17.54	107.48	80.8	743.0	0.0	1,112.1	19.640	7,141.10	334.0
10.00		0.4375	46.049	63.335	16,647.30	17.15	105.25	81.2	712.0	0.0	1,089.1	19.640	6,885.30	334.0
15.00		0.4375	45.073	61.980	15,601.80	16.76	103.02	81.7	681.8	0.0	1,066.0	19.640	6,634.10	334.0
20.00		0.4375	44.098	60.626	14,601.00	16.36	100.79	82.2	652.1	0.0	1,043.0	19.640	6,387.60	334.0
25.00		0.4375	43.122	59.271	13,644.00	15.97	98.57	82.6	623.2	0.0	1,020.0	19.640	6,145.70	334.0
30.00		0.4375	42.147	57.916	12,729.70	15.58	96.34	82.6	594.9	0.0	996.9	19.640	5,908.60	334.0
35.00		0.4375	41.171	56.562	11,857.20	15.18	94.11	82.6	567.2	0.0	973.9	19.640	5,676.10	334.0
40.00		0.4375	40.196	55.207	11,025.50	14.79	91.88	82.6	540.3	0.0	950.8	19.640	5,448.20	334.0
41.16	Bot - Section 2	0.4375	39.969	54.892	10,837.80	14.70	91.36	82.6	534.1	0.0	217.9	19.640	5,395.90	77.7
45.00		0.4375	39.220	53.852	10,233.70	14.40	89.65	82.6	513.9	0.0	1,330.9	19.640	5,396.20	256.3
46.83	Top - Section 1	0.3750	39.613	46.701	9,084.40	17.22	105.63	81.2	451.7	0.0	625.9	19.640	5,314.40	122.2
50.00		0.3750	38.995	45.965	8,661.50	16.92	103.99	81.5	437.5	0.0	499.8	19.640	5,174.10	211.8
55.00		0.3750	38.019	44.804	8,021.60	16.47	101.38	82	415.6	0.0	772.2	19.640	4,956.70	334.0
60.00		0.3750	37.043	43.643	7,414.00	16.01	98.78	82.6	394.2	0.0	752.4	19.640	4,744.00	334.0
65.00		0.3750	36.068	42.482	6,837.80	15.55	96.18	82.6	373.4	0.0	732.7	19.640	4,536.00	334.0
70.00		0.3750	35.092	41.321	6,292.40	15.09	93.58	82.6	353.2	0.0	712.9	19.640	4,332.60	334.0
75.00		0.3750	34.117	40.160	5,776.70	14.63	90.98	82.6	333.5	0.0	693.1	19.640	4,133.90	334.0
75.10		0.3750	34.097	40.136	5,766.70	14.62	90.93	82.6	333.1	0.0	13.7	19.640	4,129.90	6.7
80.00		0.3750	33.141	38.999	5,290.00	14.17	88.38	82.6	314.4	0.0	659.7	19.640	3,939.80	327.3
81.62	Bot - Section 3	0.3750	32.824	38.622	5,138.10	14.02	87.53	82.6	308.3	0.0	214.4	19.640	3,877.80	108.4
85.00		0.3750	32.166	37.837	4,831.40	13.71	85.78	82.6	295.8	0.0	813.1	19.640	3,871.30	225.6
86.37	Top - Section 2	0.3125	32.523	31.947	4,187.70	16.94	104.07	81.5	253.6	0.0	326.0	19.640	3,819.20	91.7
90.00		0.3125	31.815	31.246	3,917.70	16.54	101.81	81.9	242.5	0.0	389.9	19.640	3,683.60	242.3
94.00		0.3125	31.035	30.471	3,633.70	16.10	99.31	82.5	230.6	0.0	420.0	19.640	3,536.80	267.2
95.00		0.3125	30.840	30.278	3,564.90	15.99	98.69	82.6	227.7	0.0	103.4	19.640	3,500.60	66.8
100.00		0.3125	29.864	29.310	3,233.90	15.44	95.56	82.6	213.3	0.0	506.9	19.640	3,322.20	334.0
105.00		0.3125	28.888	28.343	2,924.10	14.89	92.44	82.6	199.4	0.0	490.5	19.640	3,148.60	334.0
105.13	Reinf. Top	0.3125	28.863	28.318	2,916.30	14.88	92.36	82.6	199.0	0.0	12.5	19.640	3,144.10	8.7
110.00		0.3125	27.913	27.375	2,634.80	14.34	89.32	82.6	185.9	0.0	461.5			
115.00		0.3125	26.937	26.408	2,365.10	13.79	86.20	82.6	172.9	0.0	457.5			
120.00		0.3125	25.962	25.440	2,114.60	13.24	83.08	82.6	160.4	0.0	441.1			
122.50		0.3125	25.474	24.956	1,996.20	12.96	81.52	82.6	154.3	0.0	214.4			
125.00		0.3125	24.986	24.472	1,882.30	12.69	79.96	82.6	148.4	0.0	210.2			
125.12	Bot - Section 4	0.3125	24.962	24.449	1,876.80	12.67	79.88	82.6	148.1	0.0	10.3			
128.87	Top - Section 3	0.2500	24.731	19.425	1,470.80	16.03	98.92	82.5	117.1	0.0	558.9			
130.00		0.2500	24.511	19.250	1,431.50	15.88	98.04	82.6	115.0	0.0	74.1			
132.00		0.2500	24.120	18.941	1,363.50	15.60	96.48	82.6	111.3	0.0	130.0			
135.00		0.2500	23.535	18.476	1,265.70	15.19	94.14	82.6	105.9	0.0	191.0			
140.00		0.2500	22.560	17.702	1,113.20	14.50	90.24	82.6	97.2	0.0	307.8			
143.00		0.2500	21.974	17.238	1,027.80	14.09	87.90	82.6	92.1	0.0	178.3			
145.00		0.2500	21.584	16.928	973.40	13.81	86.34	82.6	88.8	0.0	116.3			
148.00		0.2500	20.999	16.464	895.50	13.40	83.99	82.6	84.0	0.0	170.4			
										Totals:	22,061.5			7,022.7

Load Case: 1.2D + 1.0W Normal 116 mph wind with no ice 24 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

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	-65.58	-29.45	0.00	-3,594.2	0.00	3,594.16	4,773.35	1,159.07	4,979.55	4,665.14	0	0	0.565
5.00	-63.33	-29.29	0.00	-3,446.9	0.00	3,446.93	4,702.37	1,135.30	4,777.40	4,500.65	0.1	-0.19	0.557
10.00	-61.11	-29.13	0.00	-3,300.5	0.00	3,300.46	4,630.26	1,111.53	4,579.44	4,337.97	0.41	-0.38	0.549
15.00	-58.89	-28.97	0.00	-3,154.8	0.00	3,154.79	4,557.02	1,087.75	4,385.67	4,177.17	0.91	-0.58	0.540
20.00	-56.70	-28.80	0.00	-3,009.9	0.00	3,009.94	4,482.66	1,063.98	4,196.09	4,018.33	1.62	-0.78	0.531
25.00	-54.54	-28.63	0.00	-2,865.9	0.00	2,865.93	4,403.54	1,040.21	4,010.70	3,858.33	2.54	-0.97	0.522
30.00	-52.41	-28.45	0.00	-2,722.8	0.00	2,722.80	4,302.90	1,016.43	3,829.49	3,683.11	3.67	-1.18	0.515
35.00	-50.30	-28.25	0.00	-2,580.6	0.00	2,580.57	4,202.25	992.66	3,652.48	3,511.96	5.01	-1.38	0.507
40.00	-48.26	-28.09	0.00	-2,439.3	0.00	2,439.34	4,101.61	968.88	3,479.65	3,344.88	6.56	-1.58	0.498
41.16	-47.76	-28.00	0.00	-2,406.7	0.00	2,406.66	4,078.20	963.35	3,440.04	3,306.59	6.96	-1.63	0.495
45.00	-45.47	-27.83	0.00	-2,299.2	0.00	2,299.25	4,000.97	945.11	3,311.01	3,181.88	8.33	-1.79	0.482
46.83	-44.36	-27.70	0.00	-2,248.3	0.00	2,248.33	3,410.91	819.61	2,904.91	2,749.16	9.03	-1.86	0.526
50.00	-43.16	-27.51	0.00	-2,160.5	0.00	2,160.53	3,371.30	806.69	2,814.06	2,673.99	10.32	-1.99	0.516
55.00	-41.30	-27.25	0.00	-2,023.0	0.00	2,023.00	3,307.89	786.31	2,673.71	2,556.79	12.52	-2.21	0.499
60.00	-39.47	-26.98	0.00	-1,886.8	0.00	1,886.77	3,242.46	765.93	2,536.95	2,440.62	14.95	-2.42	0.481
65.00	-37.66	-26.69	0.00	-1,751.9	0.00	1,751.89	3,156.19	745.56	2,403.77	2,311.85	17.6	-2.64	0.465
70.00	-35.89	-26.40	0.00	-1,618.4	0.00	1,618.43	3,069.93	725.18	2,274.19	2,186.56	20.48	-2.85	0.448
75.00	-34.01	-26.02	0.00	-1,486.4	0.00	1,486.45	2,983.66	704.80	2,148.20	2,064.76	23.57	-3.06	0.429
75.10	-33.93	-25.91	0.00	-1,483.8	0.00	1,483.85	2,981.94	704.39	2,145.71	2,062.36	23.63	-3.06	0.428
80.00	-32.27	-25.67	0.00	-1,356.9	0.00	1,356.91	2,897.40	684.42	2,025.80	1,946.46	26.88	-3.26	0.408
81.62	-31.71	-25.53	0.00	-1,315.2	0.00	1,315.24	2,869.39	677.81	1,986.83	1,908.80	28	-3.33	0.401
85.00	-30.14	-25.32	0.00	-1,229.0	0.00	1,229.05	2,811.13	664.05	1,906.98	1,831.65	30.4	-3.46	0.381
86.37	-29.48	-25.16	0.00	-1,194.3	0.00	1,194.28	2,342.64	560.68	1,631.27	1,549.74	31.4	-3.52	0.413
90.00	-28.36	-24.92	0.00	-1,103.0	0.00	1,103.02	2,304.38	548.36	1,560.40	1,490.62	34.13	-3.66	0.391
94.00	-23.56	-22.18	0.00	-1,003.4	0.00	1,003.36	2,261.50	534.77	1,484.05	1,426.29	37.26	-3.81	0.365
95.00	-23.24	-22.01	0.00	-981.2	0.00	981.18	2,249.50	531.38	1,465.26	1,409.62	38.06	-3.85	0.359
100.00	-21.60	-21.42	0.00	-871.1	0.00	871.14	2,177.61	514.40	1,373.12	1,320.52	42.2	-4.04	0.333
105.00	-20.14	-21.08	0.00	-764.0	0.00	764.05	2,105.72	497.42	1,283.98	1,234.33	46.52	-4.22	0.306
105.13	-20.09	-20.95	0.00	-761.3	0.00	761.31	2,103.86	496.97	1,281.70	1,232.13	46.63	-4.22	0.305
105.13	-20.09	-20.95	0.00	-761.3	0.00	761.31	2,103.86	496.97	1,281.70	1,232.13	46.63	-4.22	0.629
110.00	-19.06	-20.65	0.00	-659.3	0.00	659.30	2,033.84	480.43	1,197.82	1,151.05	51.02	-4.38	0.584
115.00	-18.04	-20.37	0.00	-556.0	0.00	556.05	1,961.95	463.45	1,114.65	1,070.68	55.79	-4.71	0.530
120.00	-14.50	-18.30	0.00	-454.2	0.00	454.20	1,890.06	446.47	1,034.48	993.22	60.88	-5.02	0.467
122.50	-13.75	-17.06	0.00	-408.4	0.00	408.45	1,854.12	437.98	995.52	955.58	63.55	-5.16	0.436
125.00	-13.35	-16.96	0.00	-365.8	0.00	365.81	1,818.18	429.49	957.30	918.67	66.28	-5.3	0.407
125.12	-13.31	-16.87	0.00	-363.7	0.00	363.71	1,816.40	429.07	955.44	916.87	66.42	-5.31	0.406
128.87	-12.41	-16.67	0.00	-300.4	0.00	300.44	1,443.05	340.90	753.84	725.17	70.66	-5.49	0.425
130.00	-12.24	-16.59	0.00	-281.7	0.00	281.66	1,430.19	337.84	740.36	712.19	71.96	-5.55	0.406
132.00	-9.49	-14.44	0.00	-248.5	0.00	248.49	1,407.19	332.41	716.74	689.35	74.3	-5.65	0.369
135.00	-9.09	-14.21	0.00	-205.2	0.00	205.17	1,372.68	324.26	682.03	655.79	77.9	-5.8	0.321
140.00	-8.45	-13.95	0.00	-134.1	0.00	134.13	1,315.17	310.67	626.08	601.71	84.07	-5.99	0.231
143.00	-4.55	-9.07	0.00	-92.3	0.00	92.29	1,280.67	302.52	593.67	570.38	87.85	-6.07	0.166
145.00	-4.33	-8.92	0.00	-74.1	0.00	74.14	1,257.66	297.09	572.54	549.96	90.4	-6.12	0.139
148.00	0.00	-8.41	0.00	-47.4	0.00	47.37	1,223.16	288.93	541.56	520.03	94.26	-6.17	0.092

Load Case: 0.9D + 1.0W Normal 116 mph wind with no ice 24 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

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	-49.17	-29.42	0.00	-3,541.4	0.00	3,541.43	4,773.35	1,159.07	4,979.55	4,665.14	0	0	0.554
5.00	-47.46	-29.21	0.00	-3,394.3	0.00	3,394.34	4,702.37	1,135.30	4,777.40	4,500.65	0.1	-0.19	0.546
10.00	-45.77	-29.00	0.00	-3,248.3	0.00	3,248.29	4,630.26	1,111.53	4,579.44	4,337.97	0.4	-0.38	0.538
15.00	-44.09	-28.79	0.00	-3,103.3	0.00	3,103.30	4,557.02	1,087.75	4,385.67	4,177.17	0.9	-0.57	0.529
20.00	-42.42	-28.57	0.00	-2,959.4	0.00	2,959.36	4,482.66	1,063.98	4,196.09	4,018.33	1.6	-0.76	0.520
25.00	-40.78	-28.36	0.00	-2,816.5	0.00	2,816.50	4,403.54	1,040.21	4,010.70	3,858.33	2.5	-0.96	0.511
30.00	-39.16	-28.13	0.00	-2,674.7	0.00	2,674.72	4,302.90	1,016.43	3,829.49	3,683.11	3.61	-1.16	0.504
35.00	-37.56	-27.90	0.00	-2,534.0	0.00	2,534.05	4,202.25	992.66	3,652.48	3,511.96	4.93	-1.36	0.495
40.00	-36.02	-27.73	0.00	-2,394.6	0.00	2,394.55	4,101.61	968.88	3,479.65	3,344.88	6.46	-1.56	0.486
41.16	-35.64	-27.62	0.00	-2,362.3	0.00	2,362.29	4,078.20	963.35	3,440.04	3,306.59	6.84	-1.6	0.484
45.00	-33.90	-27.44	0.00	-2,256.3	0.00	2,256.34	4,000.97	945.11	3,311.01	3,181.88	8.2	-1.76	0.471
46.83	-33.07	-27.30	0.00	-2,206.1	0.00	2,206.12	3,410.91	819.61	2,904.91	2,749.16	8.89	-1.83	0.514
50.00	-32.15	-27.08	0.00	-2,119.6	0.00	2,119.59	3,371.30	806.69	2,814.06	2,673.99	10.15	-1.96	0.504
55.00	-30.73	-26.80	0.00	-1,984.2	0.00	1,984.19	3,307.89	786.31	2,673.71	2,556.79	12.31	-2.17	0.487
60.00	-29.34	-26.50	0.00	-1,850.2	0.00	1,850.21	3,242.46	765.93	2,536.95	2,440.62	14.7	-2.38	0.470
65.00	-27.97	-26.20	0.00	-1,717.7	0.00	1,717.69	3,156.19	745.56	2,403.77	2,311.85	17.31	-2.59	0.454
70.00	-26.62	-25.89	0.00	-1,586.7	0.00	1,586.68	3,069.93	725.18	2,274.19	2,186.56	20.13	-2.8	0.437
75.00	-25.21	-25.52	0.00	-1,457.2	0.00	1,457.22	2,983.66	704.80	2,148.20	2,064.76	23.17	-3	0.418
75.10	-25.15	-25.39	0.00	-1,454.7	0.00	1,454.67	2,981.94	704.39	2,145.71	2,062.36	23.23	-3	0.418
80.00	-23.89	-25.16	0.00	-1,330.2	0.00	1,330.24	2,897.40	684.42	2,025.80	1,946.46	26.42	-3.2	0.399
81.62	-23.46	-25.01	0.00	-1,289.4	0.00	1,289.39	2,869.39	677.81	1,986.83	1,908.80	27.52	-3.27	0.392
85.00	-22.27	-24.82	0.00	-1,205.0	0.00	1,204.95	2,811.13	664.05	1,906.98	1,831.65	29.88	-3.4	0.372
86.37	-21.78	-24.65	0.00	-1,170.9	0.00	1,170.87	2,342.64	560.68	1,631.27	1,549.74	30.86	-3.45	0.403
90.00	-20.92	-24.40	0.00	-1,081.5	0.00	1,081.46	2,304.38	548.36	1,560.40	1,490.62	33.54	-3.59	0.381
94.00	-17.35	-21.74	0.00	-983.8	0.00	983.85	2,261.50	534.77	1,484.05	1,426.29	36.61	-3.74	0.356
95.00	-17.10	-21.56	0.00	-962.1	0.00	962.11	2,249.50	531.38	1,465.26	1,409.62	37.4	-3.78	0.351
100.00	-15.87	-20.98	0.00	-854.3	0.00	854.31	2,177.61	514.40	1,373.12	1,320.52	41.46	-3.97	0.325
105.00	-14.77	-20.66	0.00	-749.4	0.00	749.40	2,105.72	497.42	1,283.98	1,234.33	45.7	-4.14	0.298
105.13	-14.73	-20.52	0.00	-746.7	0.00	746.71	2,103.86	496.97	1,281.70	1,232.13	45.81	-4.14	0.297
105.13	-14.73	-20.52	0.00	-746.7	0.00	746.71	2,103.86	496.97	1,281.70	1,232.13	45.81	-4.14	0.615
110.00	-13.94	-20.22	0.00	-646.8	0.00	646.78	2,033.84	480.43	1,197.82	1,151.05	50.12	-4.3	0.571
115.00	-13.16	-19.93	0.00	-545.7	0.00	545.68	1,961.95	463.45	1,114.65	1,070.68	54.8	-4.62	0.518
120.00	-10.53	-17.93	0.00	-446.0	0.00	446.02	1,890.06	446.47	1,034.48	993.22	59.8	-4.92	0.456
122.50	-9.99	-16.69	0.00	-401.2	0.00	401.20	1,854.12	437.98	995.52	955.58	62.42	-5.07	0.427
125.00	-9.68	-16.60	0.00	-359.5	0.00	359.47	1,818.18	429.49	957.30	918.67	65.1	-5.2	0.398
125.12	-9.65	-16.51	0.00	-357.4	0.00	357.42	1,816.40	429.07	955.44	916.87	65.24	-5.21	0.397
128.87	-8.97	-16.32	0.00	-295.5	0.00	295.52	1,443.05	340.90	753.84	725.17	69.4	-5.39	0.416
130.00	-8.84	-16.23	0.00	-277.1	0.00	277.14	1,430.19	337.84	740.36	712.19	70.67	-5.45	0.398
132.00	-6.81	-14.16	0.00	-244.7	0.00	244.67	1,407.19	332.41	716.74	689.35	72.98	-5.55	0.362
135.00	-6.50	-13.93	0.00	-202.2	0.00	202.20	1,372.68	324.26	682.03	655.79	76.51	-5.69	0.315
140.00	-6.02	-13.68	0.00	-132.6	0.00	132.57	1,315.17	310.67	626.08	601.71	82.56	-5.88	0.227
143.00	-3.20	-8.92	0.00	-91.5	0.00	91.54	1,280.67	302.52	593.67	570.38	86.28	-5.96	0.164
145.00	-3.04	-8.78	0.00	-73.7	0.00	73.70	1,257.66	297.09	572.54	549.96	88.78	-6.01	0.137
148.00	0.00	-8.41	0.00	-47.4	0.00	47.37	1,223.16	288.93	541.56	520.03	92.57	-6.06	0.092

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1" radial ice			23 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				

CALCULATED FORCES

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	-85.87	-7.83	0.00	-941.0	0.00	941.01	4,773.35	1,159.07	4,979.55	4,665.14	0	0	0.159
5.00	-83.39	-7.79	0.00	-901.8	0.00	901.85	4,702.37	1,135.30	4,777.40	4,500.65	0.03	-0.05	0.157
10.00	-80.90	-7.74	0.00	-862.9	0.00	862.91	4,630.26	1,111.53	4,579.44	4,337.97	0.11	-0.1	0.154
15.00	-78.37	-7.70	0.00	-824.2	0.00	824.18	4,557.02	1,087.75	4,385.67	4,177.17	0.24	-0.15	0.152
20.00	-75.85	-7.65	0.00	-785.7	0.00	785.69	4,482.66	1,063.98	4,196.09	4,018.33	0.42	-0.2	0.149
25.00	-73.36	-7.60	0.00	-747.4	0.00	747.43	4,403.54	1,040.21	4,010.70	3,858.33	0.67	-0.25	0.146
30.00	-70.89	-7.55	0.00	-709.4	0.00	709.43	4,302.90	1,016.43	3,829.49	3,683.11	0.96	-0.31	0.144
35.00	-68.45	-7.49	0.00	-671.7	0.00	671.68	4,202.25	992.66	3,652.48	3,511.96	1.31	-0.36	0.141
40.00	-66.05	-7.45	0.00	-634.2	0.00	634.22	4,101.61	968.88	3,479.65	3,344.88	1.72	-0.41	0.139
41.16	-65.49	-7.42	0.00	-625.6	0.00	625.55	4,078.20	963.35	3,440.04	3,306.59	1.82	-0.43	0.138
45.00	-62.91	-7.37	0.00	-597.1	0.00	597.09	4,000.97	945.11	3,311.01	3,181.88	2.18	-0.47	0.134
46.83	-61.69	-7.33	0.00	-583.6	0.00	583.61	3,410.91	819.61	2,904.91	2,749.16	2.36	-0.49	0.147
50.00	-60.28	-7.28	0.00	-560.4	0.00	560.36	3,371.30	806.69	2,814.06	2,673.99	2.69	-0.52	0.144
55.00	-58.09	-7.20	0.00	-524.0	0.00	523.99	3,307.89	786.31	2,673.71	2,556.79	3.27	-0.58	0.139
60.00	-55.92	-7.12	0.00	-488.0	0.00	487.99	3,242.46	765.93	2,536.95	2,440.62	3.9	-0.63	0.134
65.00	-53.77	-7.03	0.00	-452.4	0.00	452.41	3,156.19	745.56	2,403.77	2,311.85	4.59	-0.69	0.129
70.00	-51.66	-6.94	0.00	-417.2	0.00	417.25	3,069.93	725.18	2,274.19	2,186.56	5.34	-0.74	0.125
75.00	-49.35	-6.84	0.00	-382.5	0.00	382.54	2,983.66	704.80	2,148.20	2,064.76	6.15	-0.79	0.119
75.10	-49.31	-6.80	0.00	-381.9	0.00	381.86	2,981.94	704.39	2,145.71	2,062.36	6.16	-0.8	0.119
80.00	-47.30	-6.73	0.00	-348.5	0.00	348.53	2,897.40	684.42	2,025.80	1,946.46	7.01	-0.85	0.114
81.62	-46.64	-6.69	0.00	-337.6	0.00	337.61	2,869.39	677.81	1,986.83	1,908.80	7.3	-0.86	0.112
85.00	-44.83	-6.62	0.00	-315.0	0.00	315.03	2,811.13	664.05	1,906.98	1,831.65	7.92	-0.9	0.106
86.37	-44.10	-6.58	0.00	-305.9	0.00	305.94	2,342.64	560.68	1,631.27	1,549.74	8.18	-0.91	0.115
90.00	-42.73	-6.50	0.00	-282.1	0.00	282.09	2,304.38	548.36	1,560.40	1,490.62	8.89	-0.95	0.109
94.00	-36.03	-5.81	0.00	-256.1	0.00	256.10	2,261.50	534.77	1,484.05	1,426.29	9.7	-0.99	0.101
95.00	-35.67	-5.75	0.00	-250.3	0.00	250.29	2,249.50	531.38	1,465.26	1,409.62	9.91	-1	0.099
100.00	-33.63	-5.59	0.00	-221.5	0.00	221.53	2,177.61	514.40	1,373.12	1,320.52	10.98	-1.05	0.092
105.00	-31.74	-5.47	0.00	-193.6	0.00	193.60	2,105.72	497.42	1,283.98	1,234.33	12.1	-1.09	0.085
105.13	-31.69	-5.43	0.00	-192.9	0.00	192.89	2,103.86	496.97	1,281.70	1,232.13	12.13	-1.09	0.084
105.13	-31.69	-5.43	0.00	-192.9	0.00	192.89	2,103.86	496.97	1,281.70	1,232.13	12.13	-1.09	0.172
110.00	-30.36	-5.34	0.00	-166.4	0.00	166.44	2,033.84	480.43	1,197.82	1,151.05	13.27	-1.13	0.160
115.00	-29.08	-5.25	0.00	-139.8	0.00	139.75	1,961.95	463.45	1,114.65	1,070.68	14.5	-1.22	0.145
120.00	-24.30	-4.68	0.00	-113.5	0.00	113.50	1,890.06	446.47	1,034.48	993.22	15.81	-1.29	0.127
122.50	-22.79	-4.37	0.00	-101.8	0.00	101.80	1,854.12	437.98	995.52	955.58	16.5	-1.33	0.119
125.00	-22.27	-4.34	0.00	-90.9	0.00	90.87	1,818.18	429.49	957.30	918.67	17.2	-1.36	0.111
125.12	-22.25	-4.31	0.00	-90.3	0.00	90.33	1,816.40	429.07	955.44	916.87	17.24	-1.36	0.111
128.87	-21.18	-4.25	0.00	-74.2	0.00	74.15	1,443.05	340.90	753.84	725.17	18.33	-1.41	0.117
130.00	-20.97	-4.22	0.00	-69.4	0.00	69.36	1,430.19	337.84	740.36	712.19	18.67	-1.42	0.112
132.00	-17.17	-3.65	0.00	-60.9	0.00	60.92	1,407.19	332.41	716.74	689.35	19.27	-1.45	0.101
135.00	-16.64	-3.57	0.00	-50.0	0.00	49.98	1,372.68	324.26	682.03	655.79	20.19	-1.49	0.088
140.00	-15.78	-3.48	0.00	-32.1	0.00	32.12	1,315.17	310.67	626.08	601.71	21.77	-1.53	0.066
143.00	-9.10	-2.23	0.00	-21.7	0.00	21.67	1,280.67	302.52	593.67	570.38	22.74	-1.55	0.045
145.00	-8.79	-2.18	0.00	-17.2	0.00	17.20	1,257.66	297.09	572.54	549.96	23.39	-1.56	0.038
148.00	0.00	-1.94	0.00	-10.6	0.00	10.65	1,223.16	288.93	541.56	520.03	24.38	-1.57	0.021

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 22 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

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	-54.69	-7.04	0.00	-852.9	0.00	852.92	4,773.35	1,159.07	4,979.55	4,665.14	0	0	0.140
5.00	-52.89	-7.00	0.00	-817.7	0.00	817.71	4,702.37	1,135.30	4,777.40	4,500.65	0.02	-0.05	0.138
10.00	-51.11	-6.95	0.00	-782.7	0.00	782.72	4,630.26	1,111.53	4,579.44	4,337.97	0.1	-0.09	0.136
15.00	-49.34	-6.90	0.00	-748.0	0.00	747.97	4,557.02	1,087.75	4,385.67	4,177.17	0.22	-0.14	0.134
20.00	-47.59	-6.86	0.00	-713.4	0.00	713.44	4,482.66	1,063.98	4,196.09	4,018.33	0.39	-0.18	0.132
25.00	-45.86	-6.81	0.00	-679.2	0.00	679.16	4,403.54	1,040.21	4,010.70	3,858.33	0.6	-0.23	0.129
30.00	-44.16	-6.76	0.00	-645.1	0.00	645.11	4,302.90	1,016.43	3,829.49	3,683.11	0.87	-0.28	0.127
35.00	-42.47	-6.71	0.00	-611.3	0.00	611.31	4,202.25	992.66	3,652.48	3,511.96	1.19	-0.33	0.125
40.00	-40.82	-6.67	0.00	-577.8	0.00	577.78	4,101.61	968.88	3,479.65	3,344.88	1.56	-0.37	0.123
41.16	-40.43	-6.64	0.00	-570.0	0.00	570.02	4,078.20	963.35	3,440.04	3,306.59	1.65	-0.39	0.122
45.00	-38.56	-6.60	0.00	-544.5	0.00	544.54	4,000.97	945.11	3,311.01	3,181.88	1.98	-0.42	0.119
46.83	-37.68	-6.57	0.00	-532.5	0.00	532.46	3,410.91	819.61	2,904.91	2,749.16	2.14	-0.44	0.130
50.00	-36.73	-6.52	0.00	-511.6	0.00	511.64	3,371.30	806.69	2,814.06	2,673.99	2.45	-0.47	0.127
55.00	-35.25	-6.45	0.00	-479.0	0.00	479.04	3,307.89	786.31	2,673.71	2,556.79	2.97	-0.52	0.123
60.00	-33.79	-6.39	0.00	-446.8	0.00	446.77	3,242.46	765.93	2,536.95	2,440.62	3.54	-0.57	0.119
65.00	-32.35	-6.32	0.00	-414.8	0.00	414.84	3,156.19	745.56	2,403.77	2,311.85	4.17	-0.62	0.115
70.00	-30.93	-6.24	0.00	-383.3	0.00	383.26	3,069.93	725.18	2,274.19	2,186.56	4.85	-0.67	0.111
75.00	-29.38	-6.16	0.00	-352.0	0.00	352.04	2,983.66	704.80	2,148.20	2,064.76	5.59	-0.72	0.106
75.10	-29.35	-6.13	0.00	-351.4	0.00	351.42	2,981.94	704.39	2,145.71	2,062.36	5.6	-0.72	0.106
80.00	-28.00	-6.07	0.00	-321.4	0.00	321.40	2,897.40	684.42	2,025.80	1,946.46	6.37	-0.77	0.101
81.62	-27.56	-6.04	0.00	-311.6	0.00	311.55	2,869.39	677.81	1,986.83	1,908.80	6.64	-0.79	0.099
85.00	-26.27	-5.99	0.00	-291.2	0.00	291.17	2,811.13	664.05	1,906.98	1,831.65	7.21	-0.82	0.094
86.37	-25.75	-5.95	0.00	-282.9	0.00	282.94	2,342.64	560.68	1,631.27	1,549.74	7.44	-0.83	0.102
90.00	-24.85	-5.89	0.00	-261.4	0.00	261.35	2,304.38	548.36	1,560.40	1,490.62	8.09	-0.87	0.097
94.00	-20.74	-5.25	0.00	-237.8	0.00	237.79	2,261.50	534.77	1,484.05	1,426.29	8.83	-0.9	0.090
95.00	-20.50	-5.21	0.00	-232.5	0.00	232.54	2,249.50	531.38	1,465.26	1,409.62	9.02	-0.91	0.089
100.00	-19.15	-5.07	0.00	-206.5	0.00	206.50	2,177.61	514.40	1,373.12	1,320.52	10	-0.96	0.083
105.00	-17.95	-4.99	0.00	-181.2	0.00	181.16	2,105.72	497.42	1,283.98	1,234.33	11.03	-1	0.076
105.13	-17.92	-4.96	0.00	-180.5	0.00	180.51	2,103.86	496.97	1,281.70	1,232.13	11.06	-1	0.076
105.13	-17.92	-4.96	0.00	-180.5	0.00	180.51	2,103.86	496.97	1,281.70	1,232.13	11.06	-1	0.155
110.00	-17.11	-4.89	0.00	-156.4	0.00	156.37	2,033.84	480.43	1,197.82	1,151.05	12.1	-1.04	0.144
115.00	-16.33	-4.82	0.00	-131.9	0.00	131.93	1,961.95	463.45	1,114.65	1,070.68	13.23	-1.12	0.132
120.00	-13.30	-4.34	0.00	-107.8	0.00	107.83	1,890.06	446.47	1,034.48	993.22	14.44	-1.19	0.116
122.50	-12.63	-4.04	0.00	-97.0	0.00	96.99	1,854.12	437.98	995.52	955.58	15.07	-1.22	0.108
125.00	-12.30	-4.02	0.00	-86.9	0.00	86.89	1,818.18	429.49	957.30	918.67	15.72	-1.26	0.101
125.12	-12.28	-4.00	0.00	-86.4	0.00	86.39	1,816.40	429.07	955.44	916.87	15.75	-1.26	0.101
128.87	-11.54	-3.95	0.00	-71.4	0.00	71.41	1,443.05	340.90	753.84	725.17	16.76	-1.3	0.107
130.00	-11.42	-3.93	0.00	-67.0	0.00	66.96	1,430.19	337.84	740.36	712.19	17.06	-1.32	0.102
132.00	-8.99	-3.43	0.00	-59.1	0.00	59.10	1,407.19	332.41	716.74	689.35	17.62	-1.34	0.092
135.00	-8.67	-3.37	0.00	-48.8	0.00	48.82	1,372.68	324.26	682.03	655.79	18.47	-1.37	0.081
140.00	-8.15	-3.31	0.00	-32.0	0.00	31.96	1,315.17	310.67	626.08	601.71	19.94	-1.42	0.059
143.00	-4.52	-2.16	0.00	-22.0	0.00	22.03	1,280.67	302.52	593.67	570.38	20.84	-1.44	0.042
145.00	-4.33	-2.12	0.00	-17.7	0.00	17.71	1,257.66	297.09	572.54	549.96	21.44	-1.45	0.036
148.00	0.00	-2.01	0.00	-11.3	0.00	11.34	1,223.16	288.93	541.56	520.03	22.36	-1.46	0.022

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.260
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.058
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.592
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.276
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.093
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	2.540
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	54.690 k
Seismic Base Shear (E):	1.640 k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
42	146.5	278	5,964	0.013	21	349
41	144	188	3,896	0.008	14	236
40	141.5	308	6,173	0.013	22	387
39	137.5	524	9,915	0.021	35	658
38	133.5	321	5,720	0.012	20	403
37	131	224	3,843	0.008	14	281
36	129.4367	127	2,129	0.005	8	159
35	126.9983	735	11,856	0.026	42	923
34	125.0617	16	251	0.000	1	20
33	123.75	328	5,018	0.011	18	411
32	121.25	332	4,878	0.010	17	416
31	117.5	699	9,654	0.021	34	878
30	112.5	777	9,840	0.021	35	976
29	107.565	804	9,303	0.020	33	1,009
28	105.065	30	335	0.001	1	38
27	102.5	1,178	12,375	0.027	44	1,478
26	97.5	1,194	11,353	0.024	40	1,499
25	94.5	241	2,151	0.005	8	302
24	92	981	8,302	0.018	29	1,231
23	88.1867	898	6,987	0.015	25	1,128
22	85.6867	519	3,807	0.008	13	651
21	83.3117	1,287	8,930	0.019	32	1,615
20	80.8117	442	2,886	0.006	10	555
19	77.55	1,347	8,099	0.018	29	1,690
18	75.05	28	156	0.000	1	35
17	72.5	1,396	7,336	0.016	26	1,752
16	67.5	1,415	6,449	0.014	23	1,777
15	62.5	1,435	5,606	0.012	20	1,801
14	57.5	1,455	4,810	0.010	17	1,826
13	52.5	1,475	4,065	0.009	14	1,851
12	48.415	945	2,215	0.005	8	1,186
11	45.915	883	1,862	0.004	7	1,108
10	43.0817	1,870	3,471	0.008	12	2,347
9	40.5817	381	628	0.001	2	479

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	37.5	1,653	2,325	0.005	8	2,075
7	32.5	1,676	1,771	0.004	6	2,104
6	27.5	1,699	1,285	0.003	5	2,133
5	22.5	1,722	872	0.002	3	2,162
4	17.5	1,745	535	0.001	2	2,191
3	12.5	1,769	276	0.001	1	2,220
2	7.5	1,770	100	0.000	0	2,222
1	2.5	1,793	11	0.000	0	2,251
Ericsson Radio 4449 B71 B85A	148	225	4,928	0.011	17	282
Ericsson RRUS 4415 B25	148	138	3,023	0.006	11	173
RFS APXVAARR24_43-U-NA20	148	384	8,405	0.018	30	482
Kaelus DBC0061F1V51-2	148	153	3,351	0.007	12	192
Powerwave Allgon LGP21401	148	85	1,853	0.004	7	106
Raycap DC6-48-60-18-8F (23.5" Height)	148	40	876	0.002	3	50
Ericsson RRUS 4478 B14	148	180	3,936	0.008	14	226
Ericsson RRUS 4449 B5, B12	148	213	4,666	0.010	17	267
Ericsson RRUS 32 (50.8 lbs)	148	152	3,338	0.007	12	191
Ericsson RRUS 32 B66	148	159	3,483	0.008	12	200
Ericsson RRUS 32 B2	148	159	3,483	0.008	12	200
Ericsson RRUS E2 B29	148	180	3,943	0.008	14	226
Ericsson AIR 6419 B77G	148	198	4,344	0.009	15	249
Ericsson Air 6449 B77D	148	245	5,362	0.012	19	307
Raycap DC9-48-60-24-8C-EV	148	16	350	0.001	1	20
Kathrein Scala 80010965	148	293	6,413	0.014	23	368
Generic Round Sector Frame	148	900	19,714	0.042	70	1,130
Quintel QD6616-7	148	390	8,543	0.018	30	490
Commscope CBC78T-DS-43-2X	143	83	1,693	0.004	6	104
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	143	18	360	0.001	1	22
Samsung RT4401-48A	143	74	1,521	0.003	5	93
Samsung B2/B66A RRH-BR049	143	338	6,904	0.015	24	424
Samsung B5/B13 RRH-BR04C	143	281	5,750	0.012	20	353
Samsung MT6407-77A	143	326	6,675	0.014	24	410
RFS DB-T1-6Z-8AB-0Z	143	88	1,800	0.004	6	110
Amphenol Antel BXA-80063-6BF-EDIN-X	143	19	393	0.001	1	24
Antel BXA-70063/6CF __ 2°	143	17	348	0.001	1	21
Antel BXA-80080/6CF	143	22	450	0.001	2	28
Commscope JAHH-65B-R3B	143	242	4,957	0.011	18	304
Commscope JAHH-45B-R3B	143	335	6,855	0.015	24	421
Flat Low Profile Platform	143	1,500	30,674	0.066	109	1,883
Flat Low Profile Platform	132	1,500	26,136	0.056	93	1,883
Flat Low Profile Platform	120	1,500	21,600	0.047	76	1,883
Ericsson Air6449 B41	132	312	5,436	0.012	19	392
Ericsson AIR-32 B2A/B66Aa	132	397	6,910	0.015	24	498
RFS APXVSPP18-C-A20	122.5	171	2,566	0.006	9	215
Commscope DT465B-2XR	122.5	174	2,611	0.006	9	218
Alcatel-Lucent RRH2x50-08	120	159	2,285	0.005	8	199
Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	120	192	2,765	0.006	10	241
Alcatel-Lucent 4x40W RRH (91 lb)	120	273	3,931	0.008	14	343
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	120	210	3,024	0.006	11	264
Antel BCD-87010 ___ 4°	105	26	292	0.001	1	33
Flat Side Arm	100	150	1,500	0.003	5	188
Commscope RDIDC-9181-PF-48	94	22	194	0.000	1	27
Fujitsu TA08025-B605	94	225	1,988	0.004	7	282
Fujitsu TA08025-B604	94	192	1,694	0.004	6	241
JMA Wireless MX08FRO665-21	94	194	1,710	0.004	6	243
Generic Flat Platform with Handrails	94	2,500	22,090	0.048	78	3,138
PCTEL GPS-TMG-HR-26N	75.1	1	3	0.000	0	1
Round Side Arm	75	150	844	0.002	3	188
		54,690	463,403	1.000	1,641	68,646

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

Segment	Height Above Base	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)

	(ft)					
42	146.5	278	5,964	0.013	21	235
41	144	188	3,896	0.008	14	159
40	141.5	308	6,173	0.013	22	260
39	137.5	524	9,915	0.021	35	443
38	133.5	321	5,720	0.012	20	271
37	131	224	3,843	0.008	14	189
36	129.4367	127	2,129	0.005	8	107
35	126.9983	735	11,856	0.026	42	621
34	125.0617	16	251	0.000	1	14
33	123.75	328	5,018	0.011	18	277
32	121.25	332	4,878	0.010	17	280
31	117.5	699	9,654	0.021	34	591
30	112.5	777	9,840	0.021	35	657
29	107.565	804	9,303	0.020	33	679
28	105.065	30	335	0.001	1	26
27	102.5	1,178	12,375	0.027	44	995
26	97.5	1,194	11,353	0.024	40	1,009
25	94.5	241	2,151	0.005	8	203
24	92	981	8,302	0.018	29	829
23	88.1867	898	6,987	0.015	25	759
22	85.6867	519	3,807	0.008	13	438
21	83.3117	1,287	8,930	0.019	32	1,087
20	80.8117	442	2,886	0.006	10	373
19	77.55	1,347	8,099	0.018	29	1,138
18	75.05	28	156	0.000	1	23
17	72.5	1,396	7,336	0.016	26	1,179
16	67.5	1,415	6,449	0.014	23	1,196
15	62.5	1,435	5,606	0.012	20	1,212
14	57.5	1,455	4,810	0.010	17	1,229
13	52.5	1,475	4,065	0.009	14	1,246
12	48.415	945	2,215	0.005	8	798
11	45.915	883	1,862	0.004	7	746
10	43.0817	1,870	3,471	0.008	12	1,580
9	40.5817	381	628	0.001	2	322
8	37.5	1,653	2,325	0.005	8	1,397
7	32.5	1,676	1,771	0.004	6	1,416
6	27.5	1,699	1,285	0.003	5	1,436
5	22.5	1,722	872	0.002	3	1,455
4	17.5	1,745	535	0.001	2	1,475
3	12.5	1,769	276	0.001	1	1,494
2	7.5	1,770	100	0.000	0	1,495
1	2.5	1,793	11	0.000	0	1,515
Ericsson Radio 4449 B71 B85A	148	225	4,928	0.011	17	190
Ericsson RRUS 4415 B25	148	138	3,023	0.006	11	117
RFS APXVAARR24_43-U-NA20	148	384	8,405	0.018	30	324
Kaelus DBC0061F1V51-2	148	153	3,351	0.007	12	129
Powerwave Allgon LGP21401	148	85	1,853	0.004	7	71
Raycap DC6-48-60-18-8F (23.5" Height)	148	40	876	0.002	3	34
Ericsson RRUS 4478 B14	148	180	3,936	0.008	14	152
Ericsson RRUS 4449 B5, B12	148	213	4,666	0.010	17	180
Ericsson RRUS 32 (50.8 lbs)	148	152	3,338	0.007	12	129
Ericsson RRUS 32 B66	148	159	3,483	0.008	12	134
Ericsson RRUS 32 B2	148	159	3,483	0.008	12	134
Ericsson RRUS E2 B29	148	180	3,943	0.008	14	152
Ericsson AIR 6419 B77G	148	198	4,344	0.009	15	168
Ericsson Air 6449 B77D	148	245	5,362	0.012	19	207
Raycap DC9-48-60-24-8C-EV	148	16	350	0.001	1	14
Kathrein Scala 80010965	148	293	6,413	0.014	23	247
Generic Round Sector Frame	148	900	19,714	0.042	70	760
Quintel QD6616-7	148	390	8,543	0.018	30	329
Commscope CBC78T-DS-43-2X	143	83	1,693	0.004	6	70
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	143	18	360	0.001	1	15
Samsung RT4401-48A	143	74	1,521	0.003	5	63
Samsung B2/B66A RRH-BR049	143	338	6,904	0.015	24	285
Samsung B5/B13 RRH-BR04C	143	281	5,750	0.012	20	238
Samsung MT6407-77A	143	326	6,675	0.014	24	276
RFS DB-T1-6Z-8AB-0Z	143	88	1,800	0.004	6	74
Amphenol Antel BXA-80063-6BF-EDIN-X	143	19	393	0.001	1	16
Antel BXA-70063/6CF __ 2°	143	17	348	0.001	1	14
Antel BXA-80080/6CF	143	22	450	0.001	2	19
Commscope JAHH-65B-R3B	143	242	4,957	0.011	18	205
Commscope JAHH-45B-R3B	143	335	6,855	0.015	24	283

	(ft)					
Flat Low Profile Platform	143	1,500	30,674	0.066	109	1,267
Flat Low Profile Platform	132	1,500	26,136	0.056	93	1,267
Flat Low Profile Platform	120	1,500	21,600	0.047	76	1,267
Ericsson Air6449 B41	132	312	5,436	0.012	19	264
Ericsson AIR-32 B2A/B66Aa	132	397	6,910	0.015	24	335
RFS APXVSPP18-C-A20	122.5	171	2,566	0.006	9	144
Commscope DT465B-2XR	122.5	174	2,611	0.006	9	147
Alcatel-Lucent RRH2x50-08	120	159	2,285	0.005	8	134
Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	120	192	2,765	0.006	10	162
Alcatel-Lucent 4x40W RRH (91 lb)	120	273	3,931	0.008	14	231
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	120	210	3,024	0.006	11	177
Antel BCD-87010 ___ 4°	105	26	292	0.001	1	22
Flat Side Arm	100	150	1,500	0.003	5	127
Commscope RDIDC-9181-PF-48	94	22	194	0.000	1	19
Fujitsu TA08025-B605	94	225	1,988	0.004	7	190
Fujitsu TA08025-B604	94	192	1,694	0.004	6	162
JMA Wireless MX08FRO665-21	94	194	1,710	0.004	6	163
Generic Flat Platform with Handrails	94	2,500	22,090	0.048	78	2,112
PCTEL GPS-TMG-HR-26N	75.1	1	3	0.000	0	1
Round Side Arm	75	150	844	0.002	3	127
		54,690	463,403	1.000	1,641	46,202

1.2D + 1.0Ev + 1.0Eh Normal **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	-66.39	-1.65	0.00	-205.20	0.00	205.20	4,773.35	1,159.07	4,980	4,665.14	0.00	0.00	0.04
5.00	-64.17	-1.66	0.00	-196.97	0.00	196.97	4,702.37	1,135.30	4,777	4,500.65	0.01	-0.01	0.04
10.00	-61.95	-1.67	0.00	-188.68	0.00	188.68	4,630.26	1,111.53	4,579	4,337.97	0.02	-0.02	0.04
15.00	-59.76	-1.68	0.00	-180.34	0.00	180.34	4,557.02	1,087.75	4,386	4,177.17	0.05	-0.03	0.04
20.00	-57.60	-1.68	0.00	-171.96	0.00	171.96	4,482.66	1,063.98	4,196	4,018.33	0.09	-0.04	0.04
25.00	-55.47	-1.69	0.00	-163.54	0.00	163.54	4,403.54	1,040.21	4,011	3,858.33	0.15	-0.06	0.04
30.00	-53.36	-1.69	0.00	-155.10	0.00	155.10	4,302.90	1,016.43	3,829	3,683.11	0.21	-0.07	0.04
35.00	-51.29	-1.69	0.00	-146.65	0.00	146.65	4,202.25	992.66	3,652	3,511.96	0.29	-0.08	0.04
40.00	-50.81	-1.69	0.00	-138.20	0.00	138.20	4,101.61	968.88	3,480	3,344.88	0.37	-0.09	0.04
41.16	-48.46	-1.68	0.00	-136.23	0.00	136.23	4,078.20	963.35	3,440	3,306.59	0.40	-0.09	0.04
45.00	-47.35	-1.68	0.00	-129.77	0.00	129.77	4,000.97	945.11	3,311	3,181.88	0.48	-0.10	0.04
46.83	-46.16	-1.67	0.00	-126.70	0.00	126.70	3,410.91	819.61	2,905	2,749.16	0.52	-0.11	0.04
50.00	-44.31	-1.66	0.00	-121.40	0.00	121.40	3,371.30	806.69	2,814	2,673.99	0.59	-0.11	0.04
55.00	-42.49	-1.65	0.00	-113.08	0.00	113.08	3,307.89	786.31	2,674	2,556.79	0.71	-0.13	0.04
60.00	-40.68	-1.64	0.00	-104.82	0.00	104.82	3,242.46	765.93	2,537	2,440.62	0.85	-0.14	0.04
65.00	-38.91	-1.62	0.00	-96.64	0.00	96.64	3,156.19	745.56	2,404	2,311.85	1.00	-0.15	0.03
70.00	-37.16	-1.59	0.00	-88.56	0.00	88.56	3,069.93	725.18	2,274	2,186.56	1.17	-0.16	0.03
75.00	-36.93	-1.59	0.00	-80.59	0.00	80.59	2,983.66	704.80	2,148	2,064.76	1.34	-0.17	0.03
75.10	-35.24	-1.56	0.00	-80.44	0.00	80.44	2,981.94	704.39	2,146	2,062.36	1.34	-0.17	0.03
80.00	-34.69	-1.55	0.00	-72.78	0.00	72.78	2,897.40	684.42	2,026	1,946.46	1.53	-0.18	0.03
81.62	-33.07	-1.52	0.00	-70.26	0.00	70.26	2,869.39	677.81	1,987	1,908.80	1.59	-0.19	0.03
85.00	-32.42	-1.51	0.00	-65.12	0.00	65.12	2,811.13	664.05	1,907	1,831.65	1.72	-0.19	0.03
86.37	-31.29	-1.48	0.00	-63.05	0.00	63.05	2,342.64	560.68	1,631	1,549.74	1.78	-0.20	0.03
90.00	-30.06	-1.45	0.00	-57.67	0.00	57.67	2,304.38	548.36	1,560	1,490.62	1.93	-0.20	0.03
94.00	-25.83	-1.33	0.00	-51.86	0.00	51.86	2,261.50	534.77	1,484	1,426.29	2.11	-0.21	0.03
95.00	-24.33	-1.29	0.00	-50.52	0.00	50.52	2,249.50	531.38	1,465	1,409.62	2.15	-0.21	0.03
100.00	-22.66	-1.24	0.00	-44.07	0.00	44.07	2,177.61	514.40	1,373	1,320.52	2.38	-0.22	0.02
105.00	-22.59	-1.24	0.00	-37.87	0.00	37.87	2,105.72	497.42	1,284	1,234.33	2.62	-0.23	0.02
105.13	-21.58	-1.20	0.00	-37.71	0.00	37.71	2,103.86	496.97	1,282	1,232.13	2.63	-0.23	0.02
105.13	-21.58	-1.20	0.00	-37.71	0.00	37.71	2,103.86	496.97	1,282	1,232.13	2.63	-0.23	0.04
110.00	-20.61	-1.17	0.00	-31.85	0.00	31.85	2,033.84	480.43	1,198	1,151.05	2.87	-0.24	0.04
115.00	-19.73	-1.14	0.00	-26.01	0.00	26.01	1,961.95	463.45	1,115	1,070.68	3.13	-0.26	0.03
120.00	-16.38	-0.99	0.00	-20.33	0.00	20.33	1,890.06	446.47	1,034	993.22	3.41	-0.27	0.03
122.50	-15.54	-0.95	0.00	-17.86	0.00	17.86	1,854.12	437.98	996	955.58	3.55	-0.28	0.03
125.00	-15.52	-0.95	0.00	-15.49	0.00	15.49	1,818.18	429.49	957	918.67	3.70	-0.28	0.03
125.12	-14.60	-0.90	0.00	-15.38	0.00	15.38	1,816.40	429.07	955	916.87	3.70	-0.28	0.03
128.87	-14.44	-0.90	0.00	-11.99	0.00	11.99	1,443.05	340.90	754	725.17	3.93	-0.29	0.03
130.00	-14.16	-0.88	0.00	-10.98	0.00	10.98	1,430.19	337.84	740	712.19	4.00	-0.29	0.03
132.00	-10.98	-0.71	0.00	-9.22	0.00	9.22	1,407.19	332.41	717	689.35	4.12	-0.30	0.02
135.00	-10.32	-0.67	0.00	-7.09	0.00	7.09	1,372.68	324.26	682	655.79	4.31	-0.30	0.02

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
140.00	-9.94	-0.65	0.00	-3.73	0.00	3.73	1,315.17	310.67	626	601.71	4.63	-0.31	0.01
143.00	-5.50	-0.37	0.00	-1.78	0.00	1.78	1,280.67	302.52	594	570.38	4.83	-0.31	0.01
145.00	-5.16	-0.35	0.00	-1.04	0.00	1.04	1,257.66	297.09	573	549.96	4.96	-0.31	0.01
148.00	0.00	-0.32	0.00	0.00	0.00	0.00	1,223.16	288.93	542	520.03	5.15	-0.31	0.00

0.9D - 1.0Ev + 1.0Eh Normal **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	-44.69	-1.64	0.00	-201.37	0.00	201.37	4,773.35	1,159.07	4,980	4,665.14	0.00	0.00	0.04
5.00	-43.19	-1.65	0.00	-193.15	0.00	193.15	4,702.37	1,135.30	4,777	4,500.65	0.01	-0.01	0.04
10.00	-41.70	-1.66	0.00	-184.89	0.00	184.89	4,630.26	1,111.53	4,579	4,337.97	0.02	-0.02	0.04
15.00	-40.22	-1.66	0.00	-176.60	0.00	176.60	4,557.02	1,087.75	4,386	4,177.17	0.05	-0.03	0.04
20.00	-38.77	-1.67	0.00	-168.29	0.00	168.29	4,482.66	1,063.98	4,196	4,018.33	0.09	-0.04	0.04
25.00	-37.33	-1.67	0.00	-159.96	0.00	159.96	4,403.54	1,040.21	4,011	3,858.33	0.14	-0.05	0.04
30.00	-35.91	-1.67	0.00	-151.62	0.00	151.62	4,302.90	1,016.43	3,829	3,683.11	0.21	-0.07	0.03
35.00	-34.52	-1.66	0.00	-143.28	0.00	143.28	4,202.25	992.66	3,652	3,511.96	0.28	-0.08	0.03
40.00	-34.19	-1.67	0.00	-134.96	0.00	134.96	4,101.61	968.88	3,480	3,344.88	0.37	-0.09	0.03
41.16	-32.61	-1.65	0.00	-133.02	0.00	133.02	4,078.20	963.35	3,440	3,306.59	0.39	-0.09	0.03
45.00	-31.87	-1.65	0.00	-126.68	0.00	126.68	4,000.97	945.11	3,311	3,181.88	0.47	-0.10	0.03
46.83	-31.07	-1.64	0.00	-123.66	0.00	123.66	3,410.91	819.61	2,905	2,749.16	0.50	-0.10	0.04
50.00	-29.82	-1.63	0.00	-118.45	0.00	118.45	3,371.30	806.69	2,814	2,673.99	0.58	-0.11	0.03
55.00	-28.59	-1.62	0.00	-110.29	0.00	110.29	3,307.89	786.31	2,674	2,556.79	0.70	-0.12	0.03
60.00	-27.38	-1.60	0.00	-102.20	0.00	102.20	3,242.46	765.93	2,537	2,440.62	0.83	-0.13	0.03
65.00	-26.19	-1.58	0.00	-94.19	0.00	94.19	3,156.19	745.56	2,404	2,311.85	0.98	-0.15	0.03
70.00	-25.01	-1.56	0.00	-86.29	0.00	86.29	3,069.93	725.18	2,274	2,186.56	1.14	-0.16	0.03
75.00	-24.86	-1.55	0.00	-78.51	0.00	78.51	2,983.66	704.80	2,148	2,064.76	1.31	-0.17	0.03
75.10	-23.72	-1.53	0.00	-78.35	0.00	78.35	2,981.94	704.39	2,146	2,062.36	1.31	-0.17	0.03
80.00	-23.34	-1.52	0.00	-70.88	0.00	70.88	2,897.40	684.42	2,026	1,946.46	1.49	-0.18	0.03
81.62	-22.26	-1.48	0.00	-68.42	0.00	68.42	2,869.39	677.81	1,987	1,908.80	1.55	-0.18	0.03
85.00	-21.82	-1.47	0.00	-63.41	0.00	63.41	2,811.13	664.05	1,907	1,831.65	1.69	-0.19	0.02
86.37	-21.06	-1.45	0.00	-61.39	0.00	61.39	2,342.64	560.68	1,631	1,549.74	1.74	-0.19	0.03
90.00	-20.23	-1.42	0.00	-56.15	0.00	56.15	2,304.38	548.36	1,560	1,490.62	1.89	-0.20	0.03
94.00	-17.38	-1.30	0.00	-50.48	0.00	50.48	2,261.50	534.77	1,484	1,426.29	2.06	-0.21	0.02
95.00	-16.37	-1.26	0.00	-49.18	0.00	49.18	2,249.50	531.38	1,465	1,409.62	2.10	-0.21	0.02
100.00	-15.25	-1.21	0.00	-42.89	0.00	42.89	2,177.61	514.40	1,373	1,320.52	2.33	-0.22	0.02
105.00	-15.20	-1.21	0.00	-36.84	0.00	36.84	2,105.72	497.42	1,284	1,234.33	2.56	-0.23	0.02
105.13	-14.52	-1.17	0.00	-36.69	0.00	36.69	2,103.86	496.97	1,282	1,232.13	2.57	-0.23	0.02
105.13	-14.52	-1.17	0.00	-36.69	0.00	36.69	2,103.86	496.97	1,282	1,232.13	2.57	-0.23	0.04
110.00	-13.87	-1.14	0.00	-30.98	0.00	30.98	2,033.84	480.43	1,198	1,151.05	2.80	-0.24	0.03
115.00	-13.28	-1.10	0.00	-25.29	0.00	25.29	1,961.95	463.45	1,115	1,070.68	3.06	-0.25	0.03
120.00	-11.03	-0.96	0.00	-19.77	0.00	19.77	1,890.06	446.47	1,034	993.22	3.33	-0.26	0.03
122.50	-10.46	-0.92	0.00	-17.37	0.00	17.37	1,854.12	437.98	996	955.58	3.47	-0.27	0.02
125.00	-10.44	-0.92	0.00	-15.06	0.00	15.06	1,818.18	429.49	957	918.67	3.61	-0.28	0.02
125.12	-9.82	-0.88	0.00	-14.95	0.00	14.95	1,816.40	429.07	955	916.87	3.62	-0.28	0.02
128.87	-9.72	-0.87	0.00	-11.65	0.00	11.65	1,443.05	340.90	754	725.17	3.84	-0.28	0.02
130.00	-9.53	-0.86	0.00	-10.67	0.00	10.67	1,430.19	337.84	740	712.19	3.91	-0.29	0.02
132.00	-7.39	-0.69	0.00	-8.96	0.00	8.96	1,407.19	332.41	717	689.35	4.03	-0.29	0.02
135.00	-6.95	-0.65	0.00	-6.89	0.00	6.89	1,372.68	324.26	682	655.79	4.21	-0.29	0.02
140.00	-6.69	-0.63	0.00	-3.62	0.00	3.62	1,315.17	310.67	626	601.71	4.52	-0.30	0.01
143.00	-3.70	-0.36	0.00	-1.73	0.00	1.73	1,280.67	302.52	594	570.38	4.71	-0.30	0.01
145.00	-3.47	-0.34	0.00	-1.01	0.00	1.01	1,257.66	297.09	573	549.96	4.84	-0.30	0.01
148.00	0.00	-0.32	0.00	0.00	0.00	0.00	1,223.16	288.93	542	520.03	5.03	-0.30	0.00

ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	29.45	0.00	65.58	0.00	0.00	3594.16	105.13	0.63
0.9D + 1.0W Normal	29.42	0.00	49.17	0.00	0.00	3541.43	105.13	0.61
1.2D + 1.0Di + 1.0Wi Normal	7.83	0.00	85.87	0.00	0.00	941.01	105.13	0.17
1.2D + 1.0Ev + 1.0Eh Normal	1.69	0.00	66.39	0.00	0.00	205.20	0.00	0.04
0.9D - 1.0Ev + 1.0Eh Normal	1.67	0.00	44.69	0.00	0.00	201.37	0.00	0.04
1.0D + 1.0W Service Normal	7.04	0.00	54.69	0.00	0.00	852.92	105.13	0.16

ADDITIONAL STEEL SUMMARY

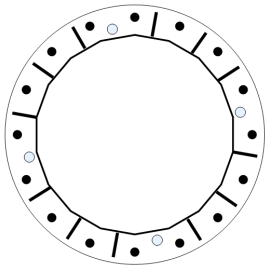
			Intermediate Connectors				Max member		
Elev From (ft)	Elev To (ft)	Member	VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio
0.00	105.13	SOL #20 All Thread Bar	311.4	9.3	16.8	0.5557	224.9	330.5	0.6805

			Upper Termination Connectors					Lower Termination Connectors				
Elev From (ft)	Elev To (ft)	Member	MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	105.13	SOL #20 All Thread Bar	132.2766	12	12	24	0.4593	0	12	0	0	0.0000

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 17309)

Diameter:	63	in
Shape:	Round	
Thickness:	2	in
Grade:	A871-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	c	
Clear Distance	-	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	270	°



ANCHOR ROD PARAMETERS

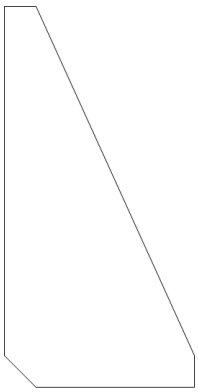
Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 17725]	Radial	16	2.25	57	A615-75	75	100	-	-

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 1160]	#20	2.5	80	100	Angle	2.19	54.88	12

STIFFENER PARAMETERS

Arrangement:	Radial	
Quantity:	12	
Height:	12	in
Width:	6	in
Thickness:	0.75	in
Notch:	1	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.375	in
Vertical Weld Fillet Size:	0.375	in
Weld Strength:	70	ksi
Orientation Offset:	-	°



ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (16) 2.25"ø [ID 17725]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.393	26.33	10.91	25.118	2049.848	133.48	1.12
2	0.785	20.15	20.15	19.224	1201.121	102.85	2.07
3	1.178	10.91	26.33	10.404	352.394	57.00	2.71
4	1.571	0.00	28.50	0.000	0.839	2.92	2.93
5	1.963	-10.91	26.33	-10.404	352.393	-51.16	2.71
6	2.356	-20.15	20.15	-19.224	1201.120	-97.00	2.07
7	2.749	-26.33	10.91	-25.118	2049.848	-127.64	1.12
8	3.142	-28.50	0.00	-27.188	2401.402	-138.39	0.00
9	3.534	-26.33	-10.91	-25.118	2049.847	-127.64	1.12
10	3.927	-20.15	-20.15	-19.224	1201.120	-97.00	2.07
11	4.320	-10.91	-26.33	-10.404	352.393	-51.16	2.71
12	4.712	0.00	-28.50	0.000	0.839	2.92	2.93
13	5.105	10.91	-26.33	10.404	352.394	57.00	2.71
14	5.498	20.15	-20.15	19.224	1201.120	102.85	2.07
15	5.890	26.33	-10.91	25.118	2049.847	133.48	1.12
16	6.283	28.50	0.00	27.188	2401.402	144.24	0.00

DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #20 [ID 1160]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)
1	1.780	-5.70	26.84	-5.705	161.688	-42.12
2	3.351	-26.84	-5.70	-26.840	3538.200	-215.58
3	4.922	5.70	-26.84	5.705	161.687	51.53
4	0.209	26.84	5.70	26.840	3538.199	224.99

STIFFENER GEOMETRY AND APPLIED LOADS

Position	Radians	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	6.109	26.590	2386.797	85.25	0.29
2	0.576	22.644	1734.702	72.86	0.91
3	0.960	15.487	818.567	50.37	1.37
4	1.396	4.689	87.289	16.46	1.65
5	2.094	-13.500	625.271	-40.68	1.45
6	2.531	-22.117	1655.518	-67.75	0.96
7	2.967	-26.590	2386.797	-81.80	0.29
8	3.700	-22.897	1773.409	-70.20	0.89
9	4.136	-14.705	739.384	-44.46	1.41
10	4.538	-4.689	87.289	-13.00	1.65
11	5.271	14.308	700.676	46.67	1.42
12	5.672	22.117	1655.519	71.20	0.96

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	48"ø x 0.4375" (18 Sides)	2563.1	65.58	29.45	0.713
Bolt Group	Original (16) 2.25"ø	2563.1	-	29.45	0.713
Dywidag Group	(4) #20	1031.0	-	-	0.287
Stiffeners	(12) 12"H x 6"W x 0.75"T	1136.4	-	13.06	0.316
	TOTALS	**3594.16**	**65.58**	**29.45**	

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	48"ø x 0.4375" (18 Sides)	65.0407	-	-	18395.99	-
Bolt Group	Original (16) 2.25"ø	3.9761	3.2477	0.8393	19217.93	4.5
Dywidag Group	(4) #20	4.9087	4.9087	1.9175	7399.77	-
Stiffeners	(12) 12"H x 6"W x 0.75"T	3.7500	3.3750	54.0000	14651.22	-

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	48.12	in
Point-to-Point Diameter:	48.87	in
Flat Width:	8.486	in
Flat Radians:	0.349	rad

PLATE PROPERTIES

Neutral Axis:	270	°
Bend Line Lower Limit:	5.688	rad
Bend Line Upper Limit:	0.596	rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment Mu (k-in)	Moment Capacity ϕMn (k-in)	Ratio
Flat	36.482	4.78	41.260	732.5	2228.0	0.329
Corner	35.481	4.19	39.667	579.9	2142.0	0.271
Circumferential	46.484	11.06	57.545	1132.4	3107.5	0.364

ELASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity ϕPn (k)	Ratio	Interaction
Original	16	2.25	144.2	0.0	243.6	0.592	0.592

DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity ϕPn (k)	Ratio
4	#20	54.88	225.0	368.2	0.611

BASE PLATE STIFFENER ANALYSIS

Quantity:	12	
Height:	12	in
Width:	6	in
Effective Width:	6.000	in
Thickness:	0.75	in
Notch:	1	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Horizontal Weld Type:	Fillet	
Horizontal Weld Fillet Size:	0.375	in
Horizontal Weld Bevel Size:		in
Vertical Weld Fillet Size:	0.375	in
Weld Strength:	70	ksi
Electrode Coefficient:	1.000	

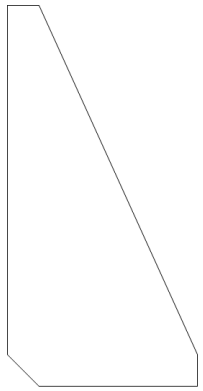


PLATE COMPRESSION

Radius of Gyration:	0.217	in^3
kl/r:	33.26	
4.71 √(E/Fy):	133.68	
Buckling Stress, Fe:	258.81	ksi
Crit. Buckling Stress, Fcr:	226.97	ksi
Applied Compression, Pu:	85.25	k
Compressive Capacity, ϕPn:	766.03	k
Pu/ϕPn:	**0.056**	

PLATE TENSION

Gross Cross Section:	3.7500	in^2
Net Cross Section:	3.3750	in^2
Applied Tension, Tu:	81.80	k
Tensile Capacity, ϕTn:	121.50	k
Tu/ϕTn:	**0.337**	

VERTICAL WELD TO POLE

Vertical Eccentricity Ratio, $a=e_x/l$:	0.167	
Spacing Ratio, k:	0.063	
Weld Coefficient, C:	3.670	
Applied Compression, Pu:	85.25	k
Compressive Capacity, ϕPn:	198.18	k
Horizontal Eccentricity Ratio, $a=e_x/l$:	0.333	
Weld Coefficient, C:	2.940	
Applied Shear, Vu	0.29	k
Shear Capacity, ϕVn:	158.76	k
Pu/ϕPn + Vu/ϕVn:	**0.432**	

HORIZONTAL WELD TO PLATE

Horizontal Eccentricity Ratio, $a=e_x/l$:	0.167	
Spacing Ratio, k:	0.125	
Weld Coefficient, C:	3.940	
Effective Fillet Size:	0.375	in
Applied Compression, Pu:	85.25	k
Compressive Capacity, ϕPn:	106.38	k
Vertical Eccentricity Ratio, $a=e_x/l$:	0.333	
Weld Coefficient, C:	3.090	
Applied Shear, Vu	0.29	k
Shear Capacity, ϕVn:	83.43	k
Pu/ϕPn + Vu/ϕVn:	**0.805**	

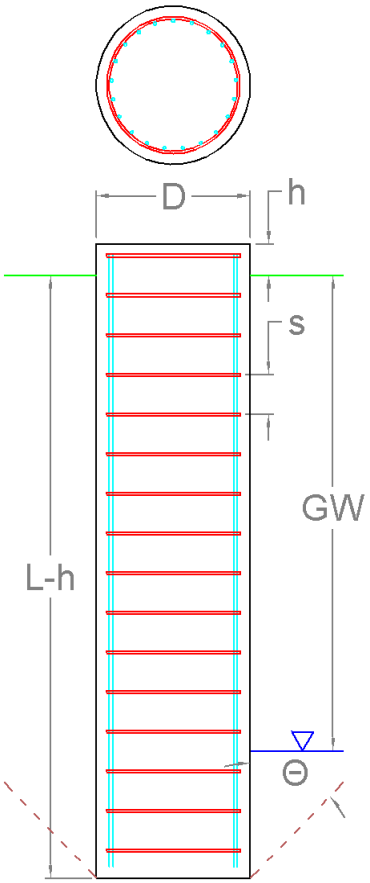
Pier Foundation Analysis (ANSI/TIA-222-H)

Foundation Analysis Parameters			
Pier Diameter	*D*	6.50	ft
Pier Embedment	*L-h*	24.0	ft
Pier Height above Ground	*H*	1.00	ft
Water Table Depth [BGL]	*GW*	22	ft
Pullout Angle	Θ	30	°
Unit Weight of Concrete		150	pcf
Uplift Skin Friction Factor		0.850	

Reactions		
Moment, M_u	3,594.2	k-ft
Shear, V_u	29.5	k
Axial, P_u	65.6	k
Uplift, T_u	0.0	k

Soil Properties

Layer Depth (ft)		Unit Weight	Cohesion	Friction Angle	Ultimate Skin Friction	Ultimate Bearing Pressure
TOP	BTM	pcf	psf	°	psf	psf
0.0	3.0	105	0	0	0	0
3.0	5.0	110	0	30	0	0
5.0	11.0	105	0	28	213	0
11.0	16.0	119	0	32	1,405	0
16.0	22.0	127	0	37	1,857	0
22.0	27.0	134	4,587	0	2,159	21,860



Soil Strength Capacities

Volume of Concrete	829.6	ft^3
Weight of Concrete [Buoyancy Considered]	120.3	k
Average Soil Unit Weight	111.0	pcf
Skin Friction Resistance	485.2	k
Compressive Bearing Resistance	725.4	k
Pullout Weight [Minus Concrete Weight]	912.9	k
Compressive Force, P_u	97.8	k
Nominal Compressive Capacity, $\phi_s P_n$	908.0	k
P_u / $\phi_s P_n$	**10.8%**	
Total Lateral Resistance	2,034.6	k
Inflection Point [BGL]	18.6	ft
Moment at Inflection Point, M_D	4,172.4	k-ft
Nominal Moment Capacity, $\phi_s M_n$	6,468.1	k-ft
M_D / $\phi_s M_n$	**64.5%**	

Pier Strength Capacities			
Concrete Compressive Strength, f'_c		4,000	psi
Rebar Size #		11	
Rebar Area (Single)		1.56	in^2
Rebar Quantity		21	
Rebar Yield Strength, F_y		60	ksi
Vertical Rebar Clear Cover		4	in
Tie Rebar Size #		5	
Tie Rebar Area (Single)		0.31	in^2
Tie Rebar Spacing	*s*	12.0	in
Tie Rebar Yield Strength, F_y		60	ksi
Rebar Cage Diameter		67.34	in
Strength Bending/Tension Reduction Factor, ϕ_B		0.90	
Strength Shear Reduction Factor, ϕ_V		0.75	
Strength Compression Reduction Factor, ϕ_C		0.65	
Steel Elastic Modulus		29,000	ksi
Design Moment, M_u		3,629.7	k-ft
Moment Capacity, $\phi_B M_n$		4,397.8	k-ft
$M_u / \phi_B M_n$		**82.5%**	
Design Shear, V_u		400.5	k
Shear Capacity, $\phi_V V_n$		601.5	k
$V_u / \phi_V V_n$		**66.6%**	
Design Compression, P_u		97.8	k
Compression Capacity, $\phi_P P_n$		9,412.3	k
$P_u / \phi_P P_n$		**1.0%**	
Bending Reinforcement Ratio		0.007	