



Tower Engineering Solutions, LLC

Melanie Bachman – Executive Director
State of Connecticut
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

December 19, 2017

Reference: Notice of Intent to make exempt modifications to an existing telecommunication facility located at 60 Adams Street, Manchester, Connecticut

Tower Owner:
SBA Towers VIII, LLC
Site ID: CT16504-A-SBA
60 Adams Street
Manchester, CT 06042

Dear Ms. Bachman,

Tower Engineering Solutions, Inc. (TES), is the Engineer of Record for SBA Towers VIII, LLC the owner of the telecommunications tower referenced above. Per RCSA 16-50j-72(b) we are requesting an exemption from a Certificate of Environmental Compatibility and Public Need as issued by the Connecticut Siting Council. In accordance with RCSA 16-50j-73 we are sending a copy of this notice to the Mayor and Zoning Enforcement Officer of Manchester Connecticut and the Property Owner. Names and addresses are listed below. We have included proof of delivery in our attachments listed below.

Narrative:

SBA Towers VIII, LLC (SBA), the tower owner, proposes to modify the existing telecommunications facility by adding structural reinforcement to the monopole shaft. **No antenna or equipment changes are included in this modification.** Note that the wireless carrier, T-Mobile was approved to make antenna changes prior to this notice under TS-T-MOBILE-077-171002 on November 9, 2017. This Notice of Intent is to comply with item 1 of the T-Mobile notice. The Council approved this facility on 12/17/1998. This modification will comply with RCSA 16-50j-73 for the following site:

SBA Site ID: CT16504-A-SBA
60 Adams Street
Manchester, CT 06042
Parcel number: 00200060
Site Latitude 41.7941, Longitude -72.5553
Compound Size: 75'x75' (5,265 SF)

Property owner: Pom-Pom Gali, LLC
79 Boston Post Road
Willimantic, CT 06226
860-747-5532



Tower Engineering Solutions, LLC

Per RCSA 16-50j-72(b)-(2) this modification will not have a substantial adverse environmental effect because:

- 1) The tower height is not increased
- 2) The site boundaries are not increased-all work is limited to the monopole
- 3) The noise level will not increase 6 decibels
- 4) There are no changes to the existing antennas
- 5) There is no change to the existing electromagnetic radiation density

Please consider this letter and accompanying documents as our Notice of Intent to make exempt modifications per RCSA 16-50j-73 to the existing telecommunications tower referenced above. We have attached the \$625 filing fee and two (2) sets of the following documents:

- 1) A written narrative describing the modifications per RSCA 16-50j-72(b). The narrative is listed above and detailed on Sheet T-1 of the attached TES drawing set 36710 dated 12/14/17.
- 2) TES Engineering drawings including plan and elevation views for TES project 36710, dated 12/14/17 stamped by a registered State of Connecticut Professional Engineer.
- 3) A post modification Engineering Structural Analysis describing the existing tower's structural capacity to accommodate the future antenna loadings proposed to be installed by T-Mobile **under a separate Connecticut Siting Council application TS-T-Mobile-077-171002.**
- 4) Proof of Delivery of this notice and documents to the parties listed below.

Thank you,

Charlie Douglass, PE
Operations Manager
Tower Engineering Solutions, LLC
214-334-3362
Charlie.douglass@testtower.us

CC via Certified Mail:

City of Manchester Connecticut

Mr. Jay Moran – Mayor
41 Center Street
Manchester, CT 06045-0191

Property Owner

Pom-Pom Gali, LLC
79 Boston Post Road
Willimantic, CT 06226

Zoning Enforcement Officer – Manchester, CT

Mr. James Davis
494 Main Street
Manchester, CT 06045-0191



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Post-Mod Structural Analysis Report

Existing 141 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT16504-A

Customer Site Name: Manchester 12, CT

Carrier Name: T-Mobile

Carrier Site ID / Name: CTHA039A / CTHA039A

Site Location: 60 Adams Street

Manchester, Connecticut

Hartford County

Latitude: 41.794100

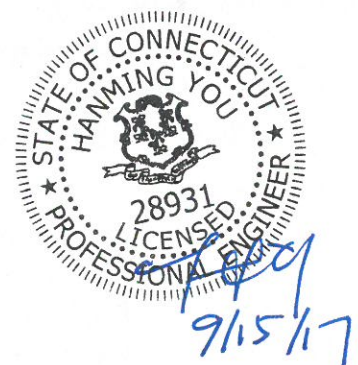
Longitude: -72.555300

Analysis Result:

Max Structural Usage: 93.9% [Pass]

Max Foundation Usage: 90% [Pass]

Report Prepared By : Ram Kodali





Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
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Post-Mod Structural Analysis Report

Existing 141 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT16504-A

Customer Site Name: Manchester 12, CT

Carrier Name: T-Mobile

Carrier Site ID / Name: CTHA039A / CTHA039A

Site Location: 60 Adams Street

Manchester, Connecticut

Hartford County

Latitude: 41.794100

Longitude: -72.555300

Analysis Result:

Max Structural Usage: 93.9% [Pass]

Max Foundation Usage: 90% [Pass]

Report Prepared By : Ram Kodali

Introduction

The purpose of this report is to summarize the analysis results on the 141 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	FDH, Mapping Report #15BRLA1500, dated June 15, 2015
Foundation Drawing	FDH, Mapping Report # 15BRLC1500, dated June 16, 2015
Geotechnical Report	FDH, Project # 15BRNG1600, dated June 17, 2015
Proposed Modification	TES Job # 36710

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 125$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_s = 0.178$, $S_1 = 0.064$

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
7	129.5	2	Raycap DC6-48-60-18-8F	Platform w/ Hand Rails*	(12) 1 1/4" (2) 0.40" Fiber & (4) 0.625" DC in (1) 2" Conduit	AT&T
8	125.0	3	7120.16 - Panel			
9		3	Kathrein 800-10121 - Panel			
10		3	CCI OPA-65R-LCUU-H6 - Panel			
11		3	KMW AM-X-CD-16-65-00T-RET - Panel			
12		3	Ericsson RRUS-32			
13		6	Ericsson RRUS-11			
14		6	CCI DTMAPB7819VG12A			
15		6	Kathrein 782 10250			
16	118.5	1	Andrew VHLP1-23-DW1 - Dish	Low Profile Platform**	(3) 1-1/4" (2) 2 1/8" F.C. (1) 3/4" Fiber (2) 5/8"	Sprint- Clearwire
17	1	Andrew VHLP2-23-DW1 - Dish				
18	117.0	3	RFS APXVTM14 - Panel			
19		3	RFS APXVSP18 - Panel			
20		3	Alcatel Lucent RRH8x20-25-FEU			
21	3	Alcatel Lucent RRH1900-4X45				
22	114.5	3	Argus LLPX310R-V1 - Panel			
23	114.0	1	20" x 18" x 9" Junction Box			
24	113.0	3	Samsung SPI-22132825WB			
25	112.5	3	Alcatel Lucent RRH2X50-800			
26	90.0	3	Swedcom SLCP 2x6014 - Panel	Platform w/ Hand Rails	(12) 1 5/8" (2) 1 5/8" Fiber	Verizon
27		6	Commscope SBNHH-1D65B - Panel			
28		3	Antel BXA-70063-6CF-EDIN-x - Panel			
29		3	Alcatel Lucent RRH2X60-AWS			
30		3	Alcatel Lucent RRH2X60-700			
31		3	Alcatel Lucent RRH2X60-PCS			
32		1	RFS DB-T1-6Z-8AB-OZ			

*At 125'.

**At 114'.

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	135.0	3	Ericsson AIR32 KRD901146-1_B66A_B2A - Panel	(3) Sector Frame (MCG23HDX-10M-9-96)	(2) 1 1/4" Fiber (2) 1 5/8"	T-Mobile
2		3	Commscope F-65C-R2 - Panel			
3		3	RFS APX16DWV-16DWVS-E-A20 - Panel			
4		3	Ericsson S11B12 - RRU			
5		3	Ericsson RRUS 32 B66A - RRU			
6		3	15" X 14" X 7.5" - RRU			

The proposed transmission lines can be installed inside or outside of the pole shafts. If installed outside, the lines shall be strapped tightly to the face of the pole shafts. Stacking of lines is not allowed.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	93.9%	76.7%	59%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Analysis Reactions	3445.4	32.9

The foundation has been investigated using the supplied documents and soils report and was found to be adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity)

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.8876 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-G standards under a basic wind speed of 97 mph no ice and 50 mph with 1" radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by TES Job # 36710

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed T-Mobile equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 93.93% at 70.0ft

Structure: CT16504-A-SBA
Site Name: Manchester 12, CT
Height: 140.50 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

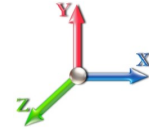
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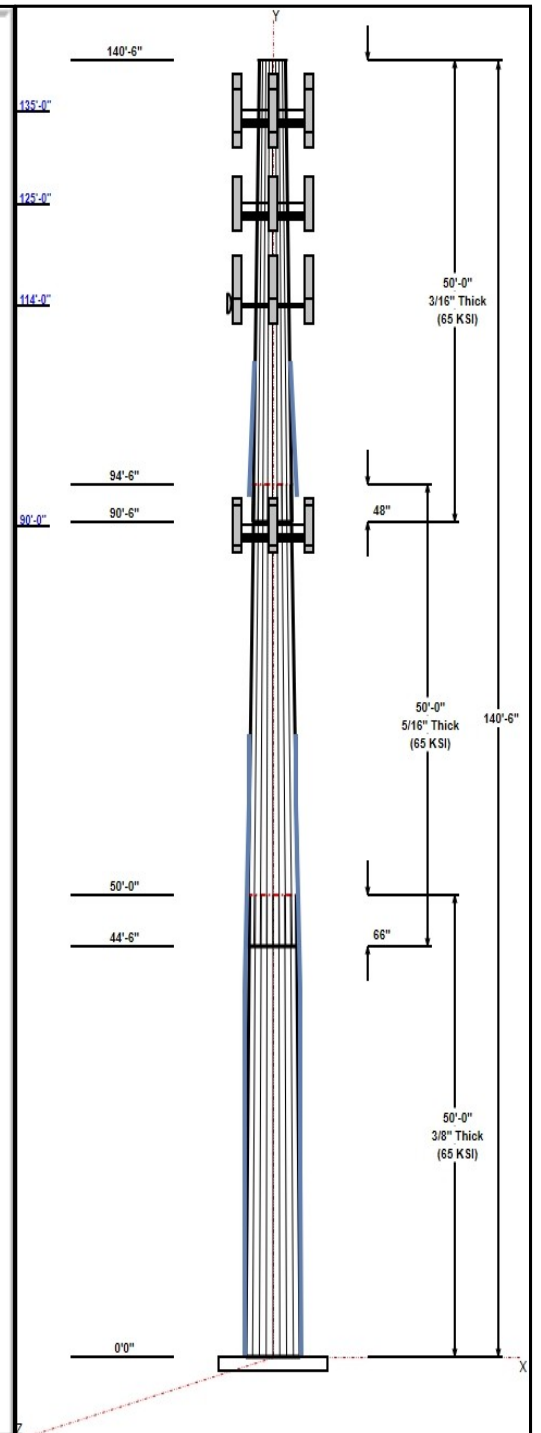
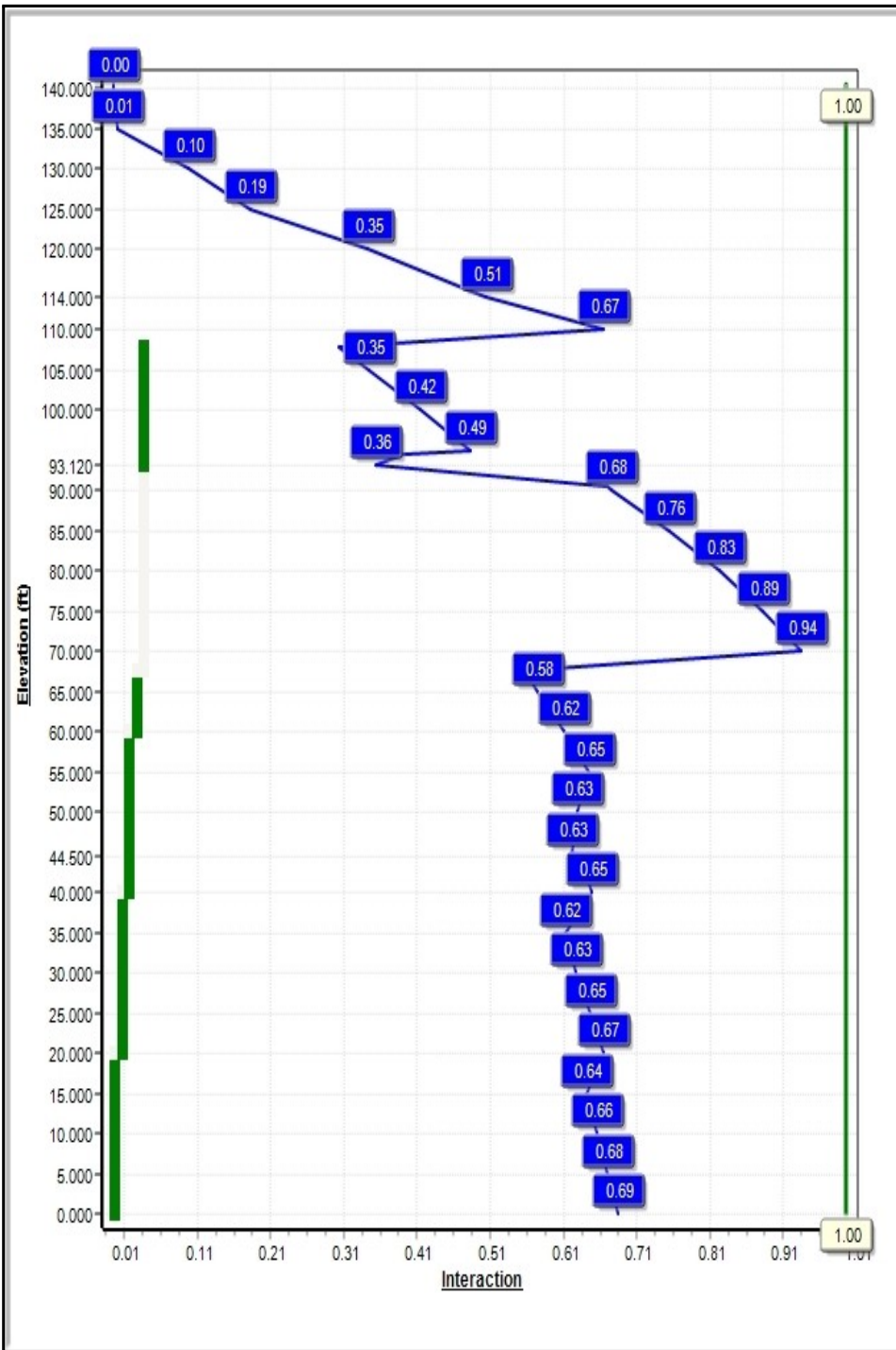
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 97 mph Wind



Iterations: 25

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Structure: CT16504-A-SBA

Type: Tapered
Site Name: Manchester 12, CT
Height: 140.50 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18206

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Shaft Properties

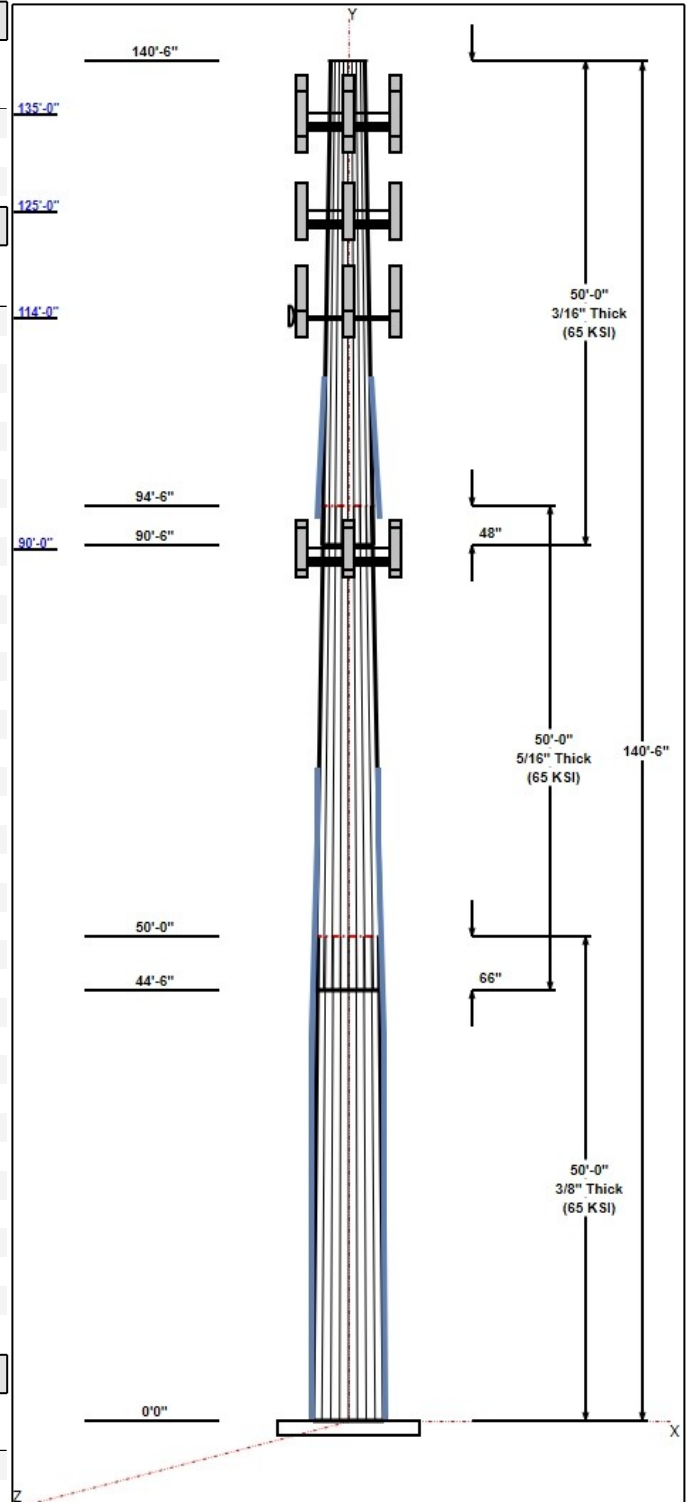
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	33.44	42.54	0.375		0.18206	65
2	50.00	25.96	35.06	0.313	Slip	0.18206	65
3	50.00	17.96	27.06	0.188	Slip	0.18206	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
135.00	135.00	3	Ericsson AIR32	T-Mobile
135.00	135.00	3	Commscope F-65C-R2	T-Mobile
135.00	135.00	3	RFS	T-Mobile
135.00	135.00	3	Ericsson S11B12	T-Mobile
135.00	135.00	3	Ericsson RRUS 32 B66A	T-Mobile
135.00	135.00	3	Expansion rights	T-Mobile
135.00	135.00	3	Sector Frame	T-Mobile
125.00	129.50	2	Raycap DC6-48-60-18-8F	AT&T
125.00	125.00	6	CCI DTMAPB7819VG12A	AT&T
125.00	125.00	6	Ericsson RRUS-11	AT&T
125.00	125.00	3	Ericsson RRUS-32	AT&T
125.00	125.00	3	Kathrein 800-10121	AT&T
125.00	125.00	3	KMW	AT&T
125.00	125.00	3	7120.16	AT&T
125.00	125.00	3	CCI OPA-65R-LCUU-H6	AT&T
125.00	125.00	6	Kathrein 782 10250	AT&T
125.00	125.00	1	Platform w/ Hand Rails	AT&T
114.00	118.50	1	Andrew VHLP1-23-DW1	Sprint-Clearwire
114.00	118.50	1	Andrew VHLP2-23-DW1	Sprint-Clearwire
114.00	114.50	3	Argus LLPX310R-V1	Sprint-Clearwire
114.00	113.00	3	Samsung	Sprint-Clearwire
114.00	114.00	1	20" x 18" x 9" Junction Box	Sprint-Clearwire
114.00	117.00	3	RFS APXVTM14	Sprint-Clearwire
114.00	115.00	3	RFS APXVSP18	Sprint-Clearwire
114.00	117.00	3	Alcatel Lucent	Sprint-Clearwire
114.00	112.50	3	Alcatel Lucent	Sprint-Clearwire
114.00	117.00	3	Alcatel Lucent	Sprint-Clearwire
114.00	114.00	1	Low Profile Platform	Sprint-Clearwire
90.00	90.00	3	Swedcom SLCP 2x6014	Verizon
90.00	90.00	6	Commscope	Verizon
90.00	90.00	3	Antel	Verizon
90.00	90.00	3	Alcatel Lucent	Verizon
90.00	90.00	3	Alcatel Lucent	Verizon
90.00	90.00	3	Alcatel Lucent	Verizon
90.00	90.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
90.00	90.00	1	Platform w/ Hand Rails	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	135.00	Outside	1 1/4" Fiber	T-Mobile
0.00	135.00	Outside	1 5/8" Coax	T-Mobile
0.00	125.00	Inside	0.40" Fiber	AT&T
0.00	125.00	Inside	0.625" DC	AT&T
0.00	125.00	Inside	1 1/4" Coax	AT&T
0.00	125.00	Inside	2" Conduit	AT&T
0.00	114.00	Inside	1-1/4"	Sprint-Clearwire



Structure: CT16504-A-SBA

Type: Tapered
Site Name: Manchester 12, CT
Height: 140.50 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18206

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0.00	114.00	Inside	2 1/8" F.C.	Sprint-Clearwire
0.00	114.00	Inside	3/4"	Sprint-Clearwire
0.00	114.00	Inside	5/8"	Sprint-Clearwire
90.50	110.50	Outside	1" Reinforcing plate	
90.50	110.50	Outside	1" Reinforcing plate	
0.00	90.00	Inside	1 5/8" Coax	Verizon
0.00	90.00	Inside	1 5/8" Fiber	Verizon
40.00	70.00	Outside	1" Reinforcing plate	
40.00	70.00	Outside	1" Reinforcing plate	
0.00	40.00	Outside	1.25" Reinforcing plate	
0.00	40.00	Outside	1.25" Reinforcing plate	

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	57.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	3445.4	32.9	39.7
0.9D + 1.6W 97 mph Wind	3400.3	32.8	29.7
1.2D + 1.0Di + 1.0Wi 50 mph Wind	991.0	9.1	81.9
1.2D + 1.0E	172.0	1.5	39.7
0.9D + 1.0E	169.5	1.5	29.8
1.0D + 1.0W 60 mph Wind	818.6	7.9	33.1

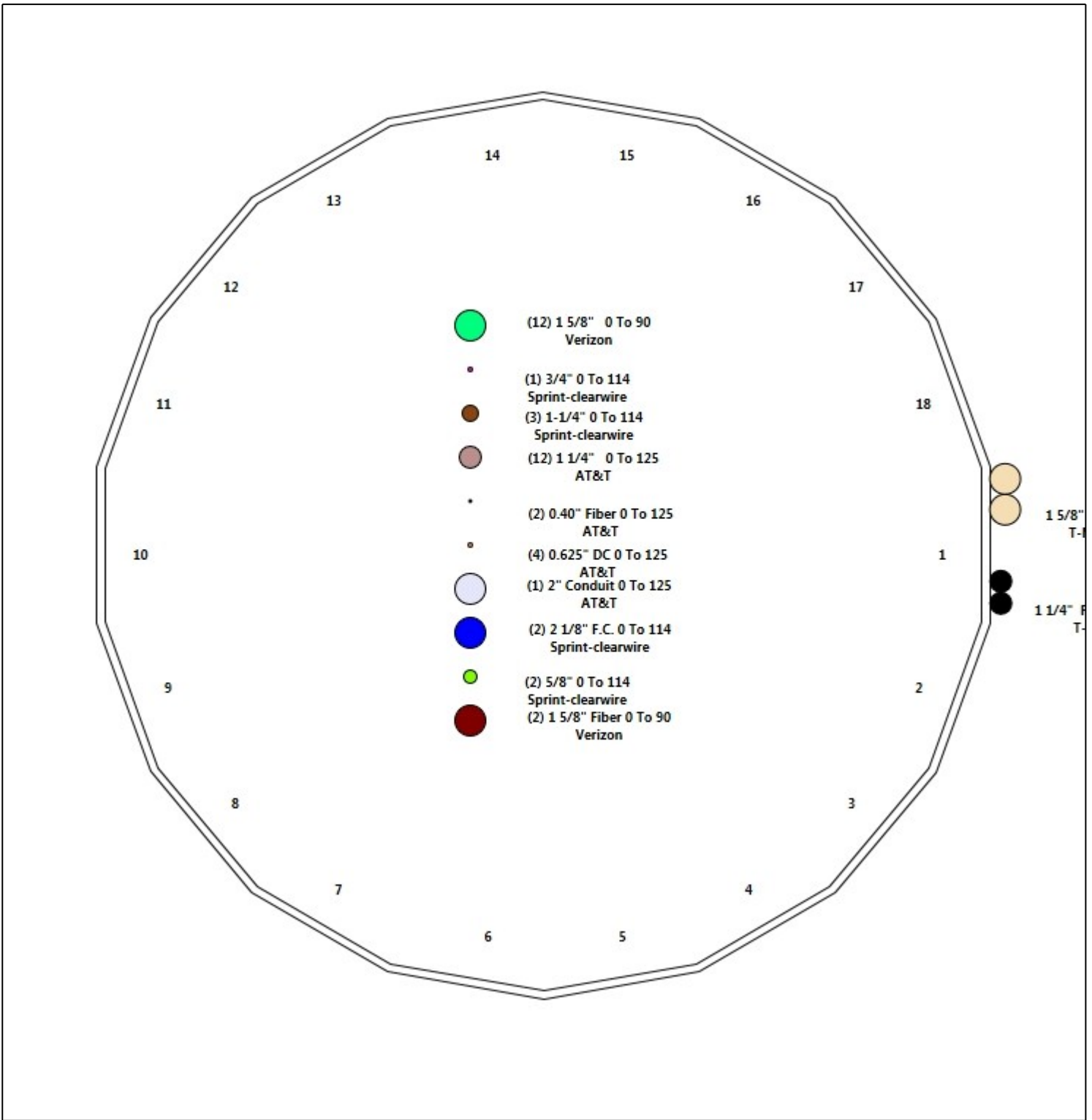
Structure: CT16504-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Manchester 12, CT
Height: 140.50 (ft)

9/15/2017



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Shaft Properties

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.3750	65		0.00	7,617
2	18	50.000	0.3125	65	Slip	66.00	5,096
3	18	50.000	0.1875	65	Slip	48.00	2,260
Total Shaft Weight:							14,973

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	42.54	0.00	50.19	11272.80	18.59	113.44	33.44	50.00	39.35	5434.44	14.31	89.16	0.182064
2	35.06	44.50	34.47	5258.76	18.37	112.20	25.96	94.50	25.44	2114.11	13.24	83.07	0.182064
3	27.06	90.50	15.99	1459.57	24.04	144.34	17.96	140.50	10.58	422.08	15.48	95.79	0.182064

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors			Termination Connectors		
							Description	Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty
0.00	20.00	4	LNP LP7X125-B-20A	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
20.00	40.00	4	LNP LP6X125-G-20AB	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
40.00	60.00	4	LNP LP6X100-G-20BC	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
60.00	67.50	4	LNP LP6X100-G-10CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
93.12	107.8	3	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	8	8

Load Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	135.00	Ericsson AIR32	3	132.20	6.51	0.87	389.88	8.081	0.87	0.00	0.00
2	135.00	Commscope F-65C-R2	3	61.70	14.17	0.84	521.15	16.432	0.84	0.00	0.00
3	135.00	RFS APX16DWV-16DWVS-E-A20	3	40.70	6.46	0.62	234.77	7.960	0.62	0.00	0.00
4	135.00	Ericsson S11B12	3	51.00	2.83	0.70	142.83	3.716	0.70	0.00	0.00
5	135.00	Ericsson RRUS 32 B66A	3	52.90	3.87	0.87	177.13	3.688	0.87	0.00	0.00
6	135.00	Expansion rights (15"X14"X7.5")	3	70.00	3.16	0.88	187.34	4.150	0.88	0.00	0.00
7	135.00	Sector Frame	3	817.00	15.00	0.75	1659.78	24.947	0.75	0.00	0.00
8	125.00	Raycap DC6-48-60-18-8F	2	32.80	1.47	0.90	113.74	2.386	0.90	0.00	4.50
9	125.00	CCI DTMABP7819VG12A	6	19.00	1.14	0.67	52.06	2.147	0.67	0.00	0.00
10	125.00	Ericsson RRUS-11	6	54.00	2.52	0.67	179.10	3.396	0.67	0.00	0.00
11	125.00	Ericsson RRUS-32	3	77.00	2.52	0.75	239.34	4.538	0.75	0.00	0.00
12	125.00	Kathrein 800-10121	3	44.10	5.15	0.79	234.79	6.546	0.79	0.00	0.00
13	125.00	KMW AM-X-CD-16-65-00T-RET	3	48.50	8.02	0.75	311.34	9.750	0.75	0.00	0.00
14	125.00	7120.16	3	15.40	3.94	1.22	228.71	5.206	1.22	0.00	0.00
15	125.00	CCI OPA-65R-LCUU-H6	3	73.00	9.66	0.79	392.78	11.481	0.79	0.00	0.00
16	125.00	Kathrein 782 10250	6	6.40	0.52	0.67	23.14	1.265	0.67	0.00	0.00
17	125.00	Platform w/ Hand Rails	1	2000.00	40.00	1.00	4741.90	67.419	1.00	0.00	0.00
18	114.00	Andrew VHLP1-23-DW1	1	14.00	1.61	1.00	59.93	2.594	1.00	0.00	4.50
19	114.00	Andrew VHLP2-23-DW1	1	31.00	4.69	1.00	157.95	6.346	1.00	0.00	4.50
20	114.00	Argus LLPX310R-V1	3	50.70	4.31	0.69	202.50	5.564	0.69	0.00	0.50
21	114.00	Samsung SPI-22132825WB	3	33.10	1.82	0.76	90.08	3.086	0.76	0.00	-1.00
22	114.00	20" x 18" x 9" Junction Box	1	20.00	3.15	1.00	145.93	4.779	1.00	0.00	0.00
23	114.00	RFS APXVTM14	3	116.70	6.34	0.79	337.46	7.812	0.79	0.00	3.00
24	114.00	RFS APXVSP18	3	125.30	8.02	0.83	399.38	9.733	0.83	0.00	1.00
25	114.00	Alcatel Lucent RRH8x20-25-FEU	3	70.00	4.05	0.69	222.34	5.129	0.69	0.00	3.00
26	114.00	Alcatel Lucent RRH2X50-800	3	64.00	2.40	0.97	164.15	3.852	0.97	0.00	-1.50
27	114.00	Alcatel Lucent RRH1900-4X45	3	60.00	2.71	0.98	164.76	4.349	0.98	0.00	3.00
28	114.00	Low Profile Platform	1	1800.00	25.00	1.00	3837.57	52.167	1.00	0.00	0.00
29	90.00	Swedcom SCLP 2x6014	3	45.60	6.49	0.89	309.79	7.890	0.89	0.00	0.00
30	90.00	Commscope SBNHH-1D65B	6	76.40	8.08	0.83	344.43	9.718	0.83	0.00	0.00
31	90.00	Antel BXA-70063-6CF-EDIN-x	3	42.60	7.57	0.73	276.01	9.198	0.73	0.00	0.00
32	90.00	Alcatel Lucent RRH2X60-AWS	3	90.00	3.50	0.76	255.88	4.500	0.76	0.00	0.00
33	90.00	Alcatel Lucent RRH2X60-700	3	90.00	3.50	0.76	255.88	4.500	0.76	0.00	0.00
34	90.00	Alcatel Lucent RRH2X60-PCS	3	55.00	1.51	0.90	168.94	3.026	0.90	0.00	0.00
35	90.00	RFS DB-T1-6Z-8AB-OZ	1	44.00	4.80	1.00	234.89	5.927	1.00	0.00	0.00
36	90.00	Platform w/ Hand Rails	1	2200.00	42.00	1.00	5118.61	69.859	1.00	0.00	0.00
Totals:			105	14,088.90			40,817.76				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	135.00	(2) 1 1/4" Fiber	0.00	Outside
0.00	135.00	(2) 1 5/8" Coax	2.00	Outside
0.00	125.00	(2) 0.40" Fiber	0.00	Inside
0.00	125.00	(4) 0.625" DC	0.00	Inside
0.00	125.00	(12) 1 1/4" Coax	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice		Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)		
0.00	125.00	(1) 2" Conduit		0.00						
0.00	114.00	(3) 1-1/4"		0.00						
0.00	114.00	(2) 2 1/8" F.C.		0.00						
0.00	114.00	(1) 3/4"		0.00						
0.00	114.00	(2) 5/8"		0.00						
90.50	110.50	(2) 1" Reinforcing plate		1.00						
90.50	110.50	(1) 1" Reinforcing plate		1.00						
0.00	90.00	(12) 1 5/8" Coax		0.00						
0.00	90.00	(2) 1 5/8" Fiber		0.00						
40.00	70.00	(2) 1" Reinforcing plate		1.00						
40.00	70.00	(2) 1" Reinforcing plate		1.00						
0.00	40.00	(2) 1.25" Reinforcing plate		1.00						
0.00	40.00	(2) 1.25" Reinforcing plate		1.00						

Shaft Section Properties

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1	0.3750	42.540	50.185	11272.8	18.59	113.44	65	80	0.0	35.00	9916.9	7009.3	
5.00		0.3750	41.630	49.102	10558.3	18.16	111.01	65	80	844.6	35.00	9511.8	6724.0	595.5
10.00		0.3750	40.719	48.018	9874.7	17.74	108.58	65	81	826.2	35.00	9115.2	6444.8	595.5
15.00		0.3750	39.809	46.935	9221.2	17.31	106.16	65	81	807.8	35.00	8727.1	6171.5	595.5
20.00	RT1 RB2	0.3750	38.899	45.851	8597.3	16.88	103.73	65	82	789.3	30.00	7139.4	5043.9	510.4
25.00		0.3750	37.988	44.768	8002.1	16.45	101.30	65	82	770.9	30.00	6821.4	4819.9	510.4
30.00		0.3750	37.078	43.684	7435.0	16.02	98.87	65	83	752.5	30.00	6510.6	4601.1	510.4
35.00		0.3750	36.168	42.601	6895.4	15.60	96.45	65	83	734.0	30.00	6207.1	4387.4	510.4
40.00	RT2 RB3	0.3750	35.257	41.517	6382.6	15.17	94.02	65	83	715.6	24.00	4664.1	3297.5	408.3
44.50	Bot - Section 2	0.3750	34.438	40.542	5943.3	14.78	91.84	65	83	628.3	24.00	4457.3	3151.9	367.5
45.00		0.3750	34.347	40.434	5895.8	14.74	91.59	65	83	127.5	24.00	4591.6	3246.4	40.8
50.00	Top - Section 1	0.3125	34.062	33.474	4817.1	17.81	109.00	65	80	1255.9	24.00	4363.9	3086.1	408.3
55.00		0.3125	33.151	32.571	4437.8	17.29	106.08	65	81	561.8	24.00	4142.0	2929.9	408.3
60.00	RT3 RB4	0.3125	32.241	31.668	4078.8	16.78	103.17	65	82	546.5	24.00	3926.0	2777.8	408.3
65.00		0.3125	31.331	30.765	3739.8	16.27	100.26	65	82	531.1	24.00	3715.9	2629.8	408.3
67.50	RT4	0.3125	30.876	30.314	3577.6	16.01	98.80	65	83	259.8	24.00	3613.0	2557.4	204.2
70.00		0.3125	30.421	29.862	3420.1	15.75	97.35	65	83	256.0				
75.00		0.3125	29.510	28.959	3119.2	15.24	94.43	65	83	500.4				
80.00		0.3125	28.600	28.057	2836.4	14.73	91.52	65	83	485.0				
85.00		0.3125	27.690	27.154	2571.3	14.21	88.61	65	83	469.7				
90.00		0.3125	26.779	26.251	2323.2	13.70	85.69	65	83	454.3				
90.50	Bot - Section 3	0.3125	26.688	26.160	2299.4	13.65	85.40	65	83	44.6				
93.12	RB5	0.3125	26.211	25.687	2176.8	13.38	83.88	65	83	372.4	18.00	1740.0	1740.0	160.5
94.50	Top - Section 2	0.1875	26.335	15.560	1344.1	23.36	140.45	65	74	193.5	18.00	1708.9	1708.9	84.5
95.00		0.1875	26.244	15.506	1330.1	23.27	139.97	65	74	26.4	18.00	1697.8	1697.8	30.6
100.00		0.1875	25.334	14.965	1195.5	22.41	135.11	65	75	259.2	18.00	1588.0	1588.0	306.2
105.00		0.1875	24.423	14.423	1070.3	21.56	130.26	65	76	250.0	18.00	1482.0	1482.0	306.2
107.87	RT5	0.1875	23.901	14.112	1002.6	21.07	127.47	65	77	139.3	18.00	1422.9	1422.9	175.8
110.00		0.1875	23.513	13.881	954.2	20.70	125.40	65	77	101.4				
114.00		0.1875	22.785	13.448	867.6	20.02	121.52	65	78	186.0				
115.00		0.1875	22.603	13.339	846.8	19.85	120.55	65	78	45.6				
120.00		0.1875	21.692	12.798	747.7	18.99	115.69	65	79	222.3				
125.00		0.1875	20.782	12.256	656.7	18.13	110.84	65	80	213.1				
130.00		0.1875	19.872	11.714	573.5	17.28	105.98	65	81	203.9				
135.00		0.1875	18.961	11.172	497.5	16.42	101.13	65	82	194.7				
140.00		0.1875	18.051	10.631	428.6	15.56	96.27	65	83	185.5				
140.50		0.1875	17.960	10.576	422.1	15.48	95.79	65	83	18.0				
Total Weight										14973.2	7546.2			

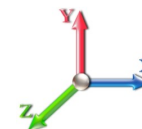
Wind Loading - Shaft

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	19.450	21.40	321.92	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	315.03	0.659 *	0.000	5.00	17.806	11.74	401.9	0.0	1013.6
10.00		1.00	0.85	19.450	21.40	308.14	0.664 *	0.000	5.00	17.421	11.57	395.9	0.0	991.4
15.00		1.00	0.85	19.450	21.40	301.25	0.669 *	0.000	5.00	17.036	11.39	389.9	0.0	969.3
20.00	RT1 RB2	1.00	0.90	20.638	22.70	303.21	0.674 *	0.000	5.00	16.650	11.22	407.4	0.0	947.2
25.00		1.00	0.95	21.630	23.79	303.16	0.679 *	0.000	5.00	16.265	11.04	420.3	0.0	925.1
30.00		1.00	0.98	22.477	24.72	301.63	0.684 *	0.000	5.00	15.880	10.87	429.8	0.0	902.9
35.00		1.00	1.01	23.218	25.54	299.03	0.690 *	0.000	5.00	15.495	10.69	436.8	0.0	880.8
40.00	RT2 RB3	1.00	1.04	23.880	26.27	295.63	0.696 *	0.000	5.00	15.110	10.51	441.9	0.0	858.7
44.50	Bot - Section 2	1.00	1.07	24.422	26.86	292.02	0.674 *	0.000	4.50	13.270	8.95	384.6	0.0	753.9
45.00		1.00	1.07	24.479	26.93	291.59	0.677 *	0.000	0.50	1.482	1.00	43.2	0.0	152.9
50.00	Top - Section 1	1.00	1.09	25.029	27.53	287.03	0.681 *	0.000	5.00	14.604	9.94	437.8	0.0	1507.1
55.00		1.00	1.12	25.536	28.09	287.45	0.682 *	0.000	5.00	14.219	9.70	436.1	0.0	674.2
60.00	RT3 RB4	1.00	1.14	26.008	28.61	282.13	0.689 *	0.000	5.00	13.834	9.53	436.1	0.0	655.8
65.00		1.00	1.16	26.450	29.09	276.48	0.695 *	0.000	5.00	13.448	9.35	435.4	0.0	637.3
67.50	RT4	1.00	1.17	26.661	29.33	273.55	0.701 *	0.000	2.50	6.580	4.61	216.3	0.0	311.8
70.00		1.00	1.17	26.866	29.55	270.55	0.704 *	0.000	2.50	6.484	4.57	215.9	0.0	307.1
75.00		1.00	1.19	27.259	29.98	264.37	0.650	0.000	5.00	12.678	8.24	395.4	0.0	600.5
80.00		1.00	1.21	27.632	30.39	257.96	0.650	0.000	5.00	12.293	7.99	388.6	0.0	582.0
85.00		1.00	1.22	27.987	30.79	251.35	0.650	0.000	5.00	11.908	7.74	381.3	0.0	563.6
90.00	Appurtenance(s)	1.00	1.24	28.325	31.16	244.55	0.650	0.000	5.00	11.523	7.49	373.4	0.0	545.2
90.50	Bot - Section 3	1.00	1.24	28.359	31.19	243.86	0.650	0.000	0.50	1.131	0.74	36.7	0.0	53.5
93.12	RB5	1.00	1.25	28.529	31.38	240.23	0.744 *	0.000	2.62	5.947	4.42	222.2	0.0	446.9
94.50	Top - Section 2	1.00	1.25	28.618	31.48	238.29	0.748 *	0.000	1.38	3.090	2.31	116.4	0.0	232.2
95.00		1.00	1.25	28.650	31.51	241.03	0.746 *	0.000	0.50	1.112	0.83	41.8	0.0	31.7
100.00		1.00	1.27	28.961	31.86	233.93	0.751 *	0.000	5.00	10.911	8.20	417.9	0.0	311.1
105.00		1.00	1.28	29.260	32.19	226.69	0.762 *	0.000	5.00	10.526	8.02	413.2	0.0	300.0
107.87	RT5	1.00	1.29	29.426	32.37	222.47	0.771 *	0.000	2.87	5.868	4.53	234.4	0.0	167.2
110.00		1.00	1.29	29.548	32.50	219.31	0.777 *	0.000	2.13	4.273	3.32	172.7	0.0	121.7
114.00	Appurtenance(s)	1.00	1.30	29.771	32.75	213.32	0.650	0.000	4.00	7.835	5.09	266.9	0.0	223.2
115.00		1.00	1.30	29.826	32.81	211.81	0.650	0.000	1.00	1.920	1.25	65.5	0.0	54.7
120.00		1.00	1.32	30.094	33.10	204.19	0.650	0.000	5.00	9.370	6.09	322.6	0.0	266.8
125.00	Appurtenance(s)	1.00	1.33	30.354	33.39	196.46	0.650	0.000	5.00	8.985	5.84	312.0	0.0	255.8
130.00		1.00	1.34	30.605	33.67	188.63	0.650	0.000	5.00	8.600	5.59	301.1	0.0	244.7
135.00	Appurtenance(s)	1.00	1.35	30.850	33.93	180.71	0.651 *	0.000	5.00	8.215	5.35	290.3	0.0	233.6
140.00		1.00	1.36	31.087	34.20	172.69	0.650	0.000	5.00	7.830	5.09	278.5	0.0	222.6
140.50		1.00	1.36	31.110	34.22	171.89	0.650	0.000	0.50	0.762	0.50	27.1	0.0	21.6
Totals:									140.50			10,987.5		17,967.8

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

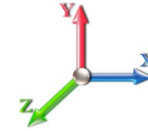
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	135.00	Expansion rights	3	30.850	33.934	0.70	0.80	6.67	252.00	0.000	0.000	362.36	0.00	0.00
2	135.00	Ericsson RRUS 32 B66A	3	30.850	33.934	0.70	0.80	8.08	190.44	0.000	0.000	438.74	0.00	0.00
3	135.00	Ericsson S11B12	3	30.850	33.934	0.56	0.80	4.75	183.60	0.000	0.000	258.14	0.00	0.00
4	135.00	RFS	3	30.850	33.934	0.50	0.80	9.61	146.52	0.000	0.000	521.91	0.00	0.00
5	135.00	Commscope F-65C-R2	3	30.850	33.934	0.67	0.80	28.57	222.12	0.000	0.000	1551.04	0.00	0.00
6	135.00	Ericsson AIR32	3	30.850	33.934	0.70	0.80	13.59	475.92	0.000	0.000	738.03	0.00	0.00
7	135.00	Sector Frame	3	30.850	33.934	0.56	0.75	25.31	2941.20	0.000	0.000	1374.35	0.00	0.00
8	125.00	Kathrein 782 10250	6	30.354	33.389	0.50	0.75	1.57	46.08	0.000	0.000	83.76	0.00	0.00
9	125.00	Raycap DC6-48-60-18-8F	2	30.581	33.639	0.81	0.90	2.38	78.72	0.000	4.500	128.17	0.00	576.77
10	125.00	CCI DTMABP7819VG12A	6	30.354	33.389	0.50	0.75	3.44	136.80	0.000	0.000	183.62	0.00	0.00
11	125.00	CCI OPA-65R-LCUU-H6	3	30.354	33.389	0.59	0.75	17.17	262.80	0.000	0.000	917.30	0.00	0.00
12	125.00	7120.16	3	30.354	33.389	0.92	0.75	10.82	55.44	0.000	0.000	577.78	0.00	0.00
13	125.00	KMW	3	30.354	33.389	0.56	0.75	13.53	174.60	0.000	0.000	723.01	0.00	0.00
14	125.00	Ericsson RRUS-11	6	30.354	33.389	0.50	0.75	7.60	388.80	0.000	0.000	405.89	0.00	0.00
15	125.00	Ericsson RRUS-32	3	30.354	33.389	0.56	0.75	4.25	277.20	0.000	0.000	227.18	0.00	0.00
16	125.00	Kathrein 800-10121	3	30.354	33.389	0.59	0.75	9.15	158.76	0.000	0.000	489.04	0.00	0.00
17	125.00	Platform w/ Hand Rails	1	30.354	33.389	1.00	1.00	40.00	2400.00	0.000	0.000	2136.90	0.00	0.00
18	114.00	Low Profile Platform	1	29.771	32.748	1.00	1.00	25.00	2160.00	0.000	0.000	1309.91	0.00	0.00
19	114.00	Alcatel Lucent	3	29.934	32.927	0.78	0.80	6.37	216.00	0.000	3.000	335.80	0.00	1007.41
20	114.00	Samsung	3	29.716	32.687	0.61	0.80	3.32	119.16	0.000	-1.000	173.62	0.00	-173.62
21	114.00	Andrew VHLP1-23-DW1	1	30.014	33.016	1.00	1.00	1.61	16.80	0.000	4.500	85.05	0.00	382.72
22	114.00	Andrew VHLP2-23-DW1	1	30.014	33.016	1.00	1.00	4.69	37.20	0.000	4.500	247.75	0.00	1114.88
23	114.00	Argus LLPX310R-V1	3	29.798	32.778	0.55	0.80	7.14	182.52	0.000	0.500	374.32	0.00	187.16
24	114.00	Alcatel Lucent	3	29.688	32.657	0.78	0.80	5.59	230.40	0.000	-1.500	291.93	0.00	-437.90
25	114.00	RFS APXVTM14	3	29.934	32.927	0.63	0.80	12.02	420.12	0.000	3.000	633.29	0.00	1899.88
26	114.00	RFS APXVSP18	3	29.826	32.808	0.66	0.80	15.98	451.08	0.000	1.000	838.62	0.00	838.62
27	114.00	Alcatel Lucent	3	29.934	32.927	0.55	0.80	6.71	252.00	0.000	3.000	353.34	0.00	1060.02
28	114.00	20" x 18" x 9" Junction	1	29.771	32.748	1.00	1.00	3.15	24.00	0.000	0.000	165.05	0.00	0.00
29	90.00	Alcatel Lucent	3	28.325	31.158	0.57	0.75	5.99	324.00	0.000	0.000	298.37	0.00	0.00
30	90.00	Swedcom SLCP 2x6014	3	28.325	31.158	0.67	0.75	13.00	164.16	0.000	0.000	647.90	0.00	0.00
31	90.00	Commscope	6	28.325	31.158	0.62	0.75	30.18	550.08	0.000	0.000	1504.50	0.00	0.00
32	90.00	Antel	3	28.325	31.158	0.55	0.75	12.43	153.36	0.000	0.000	619.86	0.00	0.00
33	90.00	RFS DB-T1-6Z-8AB-0Z	1	28.325	31.158	1.00	1.00	4.80	52.80	0.000	0.000	239.29	0.00	0.00
34	90.00	Alcatel Lucent	3	28.325	31.158	0.57	0.75	5.99	324.00	0.000	0.000	298.37	0.00	0.00
35	90.00	Alcatel Lucent	3	28.325	31.158	0.68	0.75	3.06	198.00	0.000	0.000	152.44	0.00	0.00
36	90.00	Platform w/ Hand Rails	1	28.325	31.158	1.00	1.00	42.00	2640.00	0.000	0.000	2093.82	0.00	0.00
Totals:									16,906.68			21,780.43		

Total Applied Force Summary

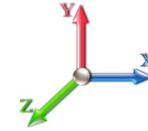
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		401.95	1234.66	0.00	0.00
10.00		395.95	1212.54	0.00	0.00
15.00		389.95	1190.42	0.00	0.00
20.00		407.39	1168.30	0.00	0.00
25.00		420.31	1146.18	0.00	0.00
30.00		429.82	1124.06	0.00	0.00
35.00		436.84	1101.94	0.00	0.00
40.00		441.93	1079.82	0.00	0.00
44.50		384.61	952.92	0.00	0.00
45.00		43.23	175.05	0.00	0.00
50.00		437.78	1728.22	0.00	0.00
55.00		436.10	895.32	0.00	0.00
60.00		436.14	876.89	0.00	0.00
65.00		435.39	858.45	0.00	0.00
67.50		216.35	422.31	0.00	0.00
70.00		215.94	417.70	0.00	0.00
75.00		395.36	821.58	0.00	0.00
80.00		388.59	803.15	0.00	0.00
85.00		381.25	784.72	0.00	0.00
90.00	(23) attachments	6227.92	5172.68	0.00	0.00
90.50		36.69	66.81	0.00	0.00
93.12		222.16	516.64	0.00	0.00
94.50		116.41	268.87	0.00	0.00
95.00		41.82	45.02	0.00	0.00
100.00		417.87	444.09	0.00	0.00
105.00		413.16	433.03	0.00	0.00
107.87		234.41	243.56	0.00	0.00
110.00		172.74	178.41	0.00	0.00
114.00	(25) attachments	5075.54	4438.89	0.00	5879.17
115.00		65.52	72.27	0.00	0.00
120.00		322.60	354.71	0.00	0.00
125.00	(36) attachments	6184.66	4322.85	0.00	576.77
130.00		301.11	265.09	0.00	0.00
135.00	(21) attachments	5534.85	4665.83	0.00	0.00
140.00		278.45	222.57	0.00	0.00
140.50		27.11	21.65	0.00	0.00
	Totals:	32,767.92	39,727.22	0.00	6,455.94

Linear Appurtenance Segment Forces (Factored)

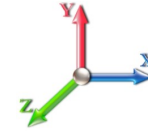
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.015	19.450	0.00	7.92
5.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.105	1.015	19.450	0.00	12.48
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.105	1.015	19.450	0.00	0.00
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.105	1.015	19.450	0.00	0.00
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	19.450	0.00	7.92
10.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.107	1.021	19.450	0.00	12.48
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	19.450	0.00	0.00
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	19.450	0.00	0.00
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	19.450	0.00	7.92
15.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.110	1.029	19.450	0.00	12.48
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	19.450	0.00	0.00
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	19.450	0.00	0.00
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	20.638	0.00	7.92
20.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.112	1.036	20.638	0.00	12.48
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	20.638	0.00	0.00
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	20.638	0.00	0.00
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	21.630	0.00	7.92
25.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.115	1.044	21.630	0.00	12.48
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	21.630	0.00	0.00
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	21.630	0.00	0.00
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	22.477	0.00	7.92
30.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.118	1.053	22.477	0.00	12.48
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	22.477	0.00	0.00
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	22.477	0.00	0.00
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	23.218	0.00	7.92
35.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.061	23.218	0.00	12.48
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	23.218	0.00	0.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	23.218	0.00	0.00
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	23.880	0.00	7.92
40.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.124	1.071	23.880	0.00	12.48
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	23.880	0.00	0.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	23.880	0.00	0.00
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	24.422	0.00	7.13
44.50	1 5/8" Coax	Yes	4.50	0.000	1.98	0.74	0.00	0.112	1.037	24.422	0.00	11.23
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	24.422	0.00	0.00
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	24.422	0.00	0.00
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	24.479	0.00	0.79
45.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.114	1.042	24.479	0.00	1.25
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	24.479	0.00	0.00
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	24.479	0.00	0.00
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	25.029	0.00	7.92
50.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.116	1.047	25.029	0.00	12.48
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	25.029	0.00	0.00
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	25.029	0.00	0.00
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	25.536	0.00	7.92
55.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.117	1.050	25.536	0.00	12.48
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	25.536	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

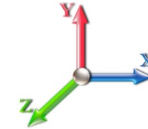
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	25.536	0.00	0.00
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	26.008	0.00	7.92
60.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.060	26.008	0.00	12.48
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	26.008	0.00	0.00
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	26.008	0.00	0.00
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	26.450	0.00	7.92
65.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.123	1.070	26.450	0.00	12.48
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	26.450	0.00	0.00
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	26.450	0.00	0.00
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	26.661	0.00	3.96
67.50	1 5/8" Coax	Yes	2.50	0.000	1.98	0.41	0.00	0.126	1.078	26.661	0.00	6.24
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	26.661	0.00	0.00
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	26.661	0.00	0.00
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	26.866	0.00	3.96
70.00	1 5/8" Coax	Yes	2.50	0.000	1.98	0.41	0.00	0.128	1.084	26.866	0.00	6.24
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	26.866	0.00	0.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	26.866	0.00	0.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	27.259	0.00	7.92
75.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.065	0.000	27.259	0.00	12.48
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	27.632	0.00	7.92
80.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.067	0.000	27.632	0.00	12.48
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	27.987	0.00	7.92
85.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.069	0.000	27.987	0.00	12.48
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	28.325	0.00	7.92
90.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.072	0.000	28.325	0.00	12.48
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	28.359	0.00	0.79
90.50	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.073	0.000	28.359	0.00	1.25
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	28.529	0.00	4.15
93.12	1 5/8" Coax	Yes	2.62	0.000	1.98	0.43	0.00	0.148	1.145	28.529	0.00	6.54
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	28.529	0.00	0.00
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	28.529	0.00	0.00
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	28.618	0.00	2.19
94.50	1 5/8" Coax	Yes	1.38	0.000	1.98	0.23	0.00	0.150	1.151	28.618	0.00	3.44
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	28.618	0.00	0.00
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	28.618	0.00	0.00
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	28.650	0.00	0.79
95.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.149	1.147	28.650	0.00	1.25
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	28.650	0.00	0.00
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	28.650	0.00	0.00
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	28.961	0.00	7.92
100.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.152	1.156	28.961	0.00	12.48
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	28.961	0.00	0.00
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	28.961	0.00	0.00
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	29.260	0.00	7.92
105.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.158	1.173	29.260	0.00	12.48
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	29.260	0.00	0.00
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	29.260	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

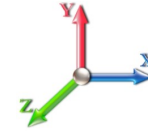


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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	29.426	0.00	4.55
107.87	1 5/8" Coax	Yes	2.87	0.000	1.98	0.47	0.00	0.162	1.187	29.426	0.00	7.16
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	29.426	0.00	0.00
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	29.426	0.00	0.00
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	29.548	0.00	3.37
110.00	1 5/8" Coax	Yes	2.13	0.000	1.98	0.35	0.00	0.165	1.196	29.548	0.00	5.32
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	29.548	0.00	0.00
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	29.548	0.00	0.00
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	29.771	0.00	6.34
114.00	1 5/8" Coax	Yes	4.00	0.000	1.98	0.66	0.00	0.095	0.000	29.771	0.00	9.98
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	29.771	0.00	0.00
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	29.771	0.00	0.00
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	29.826	0.00	1.58
115.00	1 5/8" Coax	Yes	1.00	0.000	1.98	0.17	0.00	0.086	0.000	29.826	0.00	2.50
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	30.094	0.00	7.92
120.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.088	0.000	30.094	0.00	12.48
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	30.354	0.00	7.92
125.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.092	0.000	30.354	0.00	12.48
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	30.605	0.00	7.92
130.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.096	0.000	30.605	0.00	12.48
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	30.850	0.00	7.92
135.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.100	1.001	30.850	0.00	12.48
Totals:											0.0	550.8

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



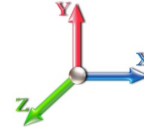
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Load Case: 1.2D + 1.6W 97 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.60



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.65	-32.86	0.00	-3445.4	0.00	3445.40	3592.24	1796.12	6217.42	3113.33	0.00	0.000	0.000	0.689
5.00	-38.27	-32.63	0.00	-3281.1	0.00	3281.10	3536.93	1768.47	5988.37	2998.63	0.14	-0.262	0.000	0.675
10.00	-36.91	-32.40	0.00	-3117.9	0.00	3117.95	3480.64	1740.32	5761.86	2885.21	0.55	-0.525	0.000	0.660
15.00	-35.57	-32.16	0.00	-2955.9	0.00	2955.97	3423.37	1711.69	5538.01	2773.12	1.25	-0.790	0.000	0.645
20.00	-34.26	-31.90	0.00	-2795.1	0.00	2795.18	3365.12	1682.56	5316.92	2662.41	2.21	-1.056	0.000	0.668
25.00	-32.97	-31.62	0.00	-2635.6	0.00	2635.69	3305.89	1652.94	5098.71	2553.15	3.47	-1.339	0.000	0.651
30.00	-31.70	-31.31	0.00	-2477.6	0.00	2477.62	3245.52	1622.76	4883.27	2445.26	5.02	-1.622	0.000	0.632
35.00	-30.46	-31.00	0.00	-2321.0	0.00	2321.05	3165.03	1582.51	4642.85	2324.87	6.88	-1.906	0.000	0.616
40.00	-29.25	-30.66	0.00	-2166.0	0.00	2166.07	3084.53	1542.26	4408.49	2207.52	9.02	-2.189	0.000	0.653
44.50	-28.23	-30.31	0.00	-2028.1	0.00	2028.11	3012.08	1506.04	4202.76	2104.51	11.22	-2.466	0.000	0.636
45.00	-27.97	-30.34	0.00	-2012.9	0.00	2012.96	3004.03	1502.02	4180.21	2093.21	11.48	-2.498	0.000	0.626
50.00	-26.10	-29.96	0.00	-1861.2	0.00	1861.25	2423.81	1211.90	3356.59	1680.79	14.25	-2.799	0.000	0.632
55.00	-25.07	-29.62	0.00	-1711.4	0.00	1711.44	2376.14	1188.07	3201.01	1602.88	17.34	-3.097	0.000	0.650
60.00	-24.06	-29.26	0.00	-1563.3	0.00	1563.37	2327.49	1163.75	3047.73	1526.13	20.76	-3.414	0.000	0.616
65.00	-23.12	-28.87	0.00	-1417.0	0.00	1417.06	2277.86	1138.93	2896.88	1450.59	24.50	-3.723	0.000	0.580
67.50	-22.64	-28.68	0.00	-1344.8	0.00	1344.89	2252.16	1126.08	2821.75	1412.97	26.49	-3.877	0.000	0.561
67.50	-22.64	-28.68	0.00	-1344.8	0.00	1344.89	2252.16	1126.08	2821.75	1412.97	26.49	-3.877	0.000	0.561
70.00	-22.07	-28.57	0.00	-1273.1	0.00	1273.19	2218.62	1109.31	2737.91	1370.99	28.55	-4.029	0.000	0.939
75.00	-21.04	-28.29	0.00	-1130.3	0.00	1130.35	2151.54	1075.77	2574.02	1288.93	33.04	-4.528	0.000	0.887
80.00	-20.04	-28.01	0.00	-988.89	0.00	988.89	2084.46	1042.23	2415.20	1209.39	38.04	-5.012	0.000	0.828
85.00	-19.08	-27.70	0.00	-848.86	0.00	848.86	2017.38	1008.69	2261.43	1132.40	43.53	-5.473	0.000	0.760
90.00	-14.46	-21.05	0.00	-710.35	0.00	710.35	1950.30	975.15	2112.72	1057.93	49.49	-5.904	0.000	0.679
90.50	-14.35	-21.04	0.00	-699.82	0.00	699.82	1943.59	971.80	2098.13	1050.62	50.11	-5.947	0.000	0.674
93.12	-13.81	-20.80	0.00	-644.69	0.00	644.69	1908.44	954.22	2022.49	1012.75	53.43	-6.165	0.000	0.359
94.50	-13.54	-20.66	0.00	-615.99	0.00	615.99	1035.36	517.68	1113.15	557.40	55.22	-6.228	0.000	0.395
95.00	-13.45	-20.65	0.00	-605.66	0.00	605.66	1033.16	516.58	1106.89	554.27	55.87	-6.251	0.000	0.488
100.00	-12.97	-20.24	0.00	-502.40	0.00	502.40	1010.63	505.31	1044.65	523.10	62.54	-6.511	0.000	0.420
105.00	-12.53	-19.82	0.00	-401.19	0.00	401.19	987.11	493.55	983.14	492.30	69.47	-6.742	0.000	0.349
107.87	-12.28	-19.58	0.00	-344.30	0.00	344.30	973.17	486.58	948.19	474.80	73.55	-6.861	0.000	0.307
107.87	-12.28	-19.58	0.00	-344.30	0.00	344.30	973.17	486.58	948.19	474.80	73.55	-6.861	0.000	0.307
110.00	-12.05	-19.43	0.00	-302.59	0.00	302.59	962.61	481.31	922.45	461.91	76.63	-6.942	0.000	0.669
114.00	-8.23	-13.87	0.00	-218.99	0.00	218.99	942.31	471.15	874.57	437.94	82.57	-7.257	0.000	0.510
115.00	-8.12	-13.82	0.00	-205.12	0.00	205.12	937.13	468.57	862.70	431.99	84.09	-7.326	0.000	0.484
120.00	-7.76	-13.49	0.00	-136.00	0.00	136.00	910.67	455.33	804.02	402.61	91.91	-7.613	0.000	0.347
125.00	-4.29	-6.79	0.00	-67.97	0.00	67.97	883.23	441.61	746.49	373.80	99.97	-7.807	0.000	0.187
130.00	-4.06	-6.46	0.00	-34.01	0.00	34.01	854.80	427.40	690.24	345.64	108.19	-7.918	0.000	0.103
135.00	-0.20	-0.34	0.00	-1.70	0.00	1.70	825.39	412.70	635.38	318.16	116.49	-7.962	0.000	0.006
140.00	-0.02	-0.03	0.00	-0.01	0.00	0.01	789.80	394.90	578.22	289.54	124.80	-7.964	0.000	0.000
140.50	0.00	-0.03	0.00	0.00	0.00	0.00	785.78	392.89	572.31	286.58	125.63	-7.964	0.000	0.000

Wind Loading - Shaft

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

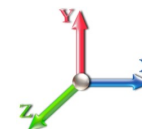


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	19.450	21.40	321.92	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	315.03	0.659 *	0.000	5.00	17.806	11.74	401.9	0.0	760.2
10.00		1.00	0.85	19.450	21.40	308.14	0.664 *	0.000	5.00	17.421	11.57	395.9	0.0	743.6
15.00		1.00	0.85	19.450	21.40	301.25	0.669 *	0.000	5.00	17.036	11.39	389.9	0.0	727.0
20.00	RT1 RB2	1.00	0.90	20.638	22.70	303.21	0.674 *	0.000	5.00	16.650	11.22	407.4	0.0	710.4
25.00		1.00	0.95	21.630	23.79	303.16	0.679 *	0.000	5.00	16.265	11.04	420.3	0.0	693.8
30.00		1.00	0.98	22.477	24.72	301.63	0.684 *	0.000	5.00	15.880	10.87	429.8	0.0	677.2
35.00		1.00	1.01	23.218	25.54	299.03	0.690 *	0.000	5.00	15.495	10.69	436.8	0.0	660.6
40.00	RT2 RB3	1.00	1.04	23.880	26.27	295.63	0.696 *	0.000	5.00	15.110	10.51	441.9	0.0	644.0
44.50	Bot - Section 2	1.00	1.07	24.422	26.86	292.02	0.674 *	0.000	4.50	13.270	8.95	384.6	0.0	565.4
45.00		1.00	1.07	24.479	26.93	291.59	0.677 *	0.000	0.50	1.482	1.00	43.2	0.0	114.7
50.00	Top - Section 1	1.00	1.09	25.029	27.53	287.03	0.681 *	0.000	5.00	14.604	9.94	437.8	0.0	1130.3
55.00		1.00	1.12	25.536	28.09	287.45	0.682 *	0.000	5.00	14.219	9.70	436.1	0.0	505.7
60.00	RT3 RB4	1.00	1.14	26.008	28.61	282.13	0.689 *	0.000	5.00	13.834	9.53	436.1	0.0	491.8
65.00		1.00	1.16	26.450	29.09	276.48	0.695 *	0.000	5.00	13.448	9.35	435.4	0.0	478.0
67.50	RT4	1.00	1.17	26.661	29.33	273.55	0.701 *	0.000	2.50	6.580	4.61	216.3	0.0	233.8
70.00		1.00	1.17	26.866	29.55	270.55	0.704 *	0.000	2.50	6.484	4.57	215.9	0.0	230.4
75.00		1.00	1.19	27.259	29.98	264.37	0.650	0.000	5.00	12.678	8.24	395.4	0.0	450.4
80.00		1.00	1.21	27.632	30.39	257.96	0.650	0.000	5.00	12.293	7.99	388.6	0.0	436.5
85.00		1.00	1.22	27.987	30.79	251.35	0.650	0.000	5.00	11.908	7.74	381.3	0.0	422.7
90.00	Appurtenance(s)	1.00	1.24	28.325	31.16	244.55	0.650	0.000	5.00	11.523	7.49	373.4	0.0	408.9
90.50	Bot - Section 3	1.00	1.24	28.359	31.19	243.86	0.650	0.000	0.50	1.131	0.74	36.7	0.0	40.1
93.12	RB5	1.00	1.25	28.529	31.38	240.23	0.744 *	0.000	2.62	5.947	4.42	222.2	0.0	335.2
94.50	Top - Section 2	1.00	1.25	28.618	31.48	238.29	0.748 *	0.000	1.38	3.090	2.31	116.4	0.0	174.1
95.00		1.00	1.25	28.650	31.51	241.03	0.746 *	0.000	0.50	1.112	0.83	41.8	0.0	23.8
100.00		1.00	1.27	28.961	31.86	233.93	0.751 *	0.000	5.00	10.911	8.20	417.9	0.0	233.3
105.00		1.00	1.28	29.260	32.19	226.69	0.762 *	0.000	5.00	10.526	8.02	413.2	0.0	225.0
107.87	RT5	1.00	1.29	29.426	32.37	222.47	0.771 *	0.000	2.87	5.868	4.53	234.4	0.0	125.4
110.00		1.00	1.29	29.548	32.50	219.31	0.777 *	0.000	2.13	4.273	3.32	172.7	0.0	91.3
114.00	Appurtenance(s)	1.00	1.30	29.771	32.75	213.32	0.650	0.000	4.00	7.835	5.09	266.9	0.0	167.4
115.00		1.00	1.30	29.826	32.81	211.81	0.650	0.000	1.00	1.920	1.25	65.5	0.0	41.0
120.00		1.00	1.32	30.094	33.10	204.19	0.650	0.000	5.00	9.370	6.09	322.6	0.0	200.1
125.00	Appurtenance(s)	1.00	1.33	30.354	33.39	196.46	0.650	0.000	5.00	8.985	5.84	312.0	0.0	191.8
130.00		1.00	1.34	30.605	33.67	188.63	0.650	0.000	5.00	8.600	5.59	301.1	0.0	183.5
135.00	Appurtenance(s)	1.00	1.35	30.850	33.93	180.71	0.651 *	0.000	5.00	8.215	5.35	290.3	0.0	175.2
140.00		1.00	1.36	31.087	34.20	172.69	0.650	0.000	5.00	7.830	5.09	278.5	0.0	166.9
140.50		1.00	1.36	31.110	34.22	171.89	0.650	0.000	0.50	0.762	0.50	27.1	0.0	16.2
Totals:									140.50			10,987.5		13,475.8

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

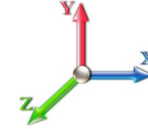


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	135.00	Expansion rights	3	30.850	33.934	0.70	0.80	6.67	189.00	0.000	0.000	362.36	0.00	0.00
2	135.00	Ericsson RRUS 32 B66A	3	30.850	33.934	0.70	0.80	8.08	142.83	0.000	0.000	438.74	0.00	0.00
3	135.00	Ericsson S11B12	3	30.850	33.934	0.56	0.80	4.75	137.70	0.000	0.000	258.14	0.00	0.00
4	135.00	RFS	3	30.850	33.934	0.50	0.80	9.61	109.89	0.000	0.000	521.91	0.00	0.00
5	135.00	Commscope F-65C-R2	3	30.850	33.934	0.67	0.80	28.57	166.59	0.000	0.000	1551.04	0.00	0.00
6	135.00	Ericsson AIR32	3	30.850	33.934	0.70	0.80	13.59	356.94	0.000	0.000	738.03	0.00	0.00
7	135.00	Sector Frame	3	30.850	33.934	0.56	0.75	25.31	2205.90	0.000	0.000	1374.35	0.00	0.00
8	125.00	Kathrein 782 10250	6	30.354	33.389	0.50	0.75	1.57	34.56	0.000	0.000	83.76	0.00	0.00
9	125.00	Raycap DC6-48-60-18-8F	2	30.581	33.639	0.81	0.90	2.38	59.04	0.000	4.500	128.17	0.00	576.77
10	125.00	CCI DTMABP7819VG12A	6	30.354	33.389	0.50	0.75	3.44	102.60	0.000	0.000	183.62	0.00	0.00
11	125.00	CCI OPA-65R-LCUU-H6	3	30.354	33.389	0.59	0.75	17.17	197.10	0.000	0.000	917.30	0.00	0.00
12	125.00	7120.16	3	30.354	33.389	0.92	0.75	10.82	41.58	0.000	0.000	577.78	0.00	0.00
13	125.00	KMW	3	30.354	33.389	0.56	0.75	13.53	130.95	0.000	0.000	723.01	0.00	0.00
14	125.00	Ericsson RRUS-11	6	30.354	33.389	0.50	0.75	7.60	291.60	0.000	0.000	405.89	0.00	0.00
15	125.00	Ericsson RRUS-32	3	30.354	33.389	0.56	0.75	4.25	207.90	0.000	0.000	227.18	0.00	0.00
16	125.00	Kathrein 800-10121	3	30.354	33.389	0.59	0.75	9.15	119.07	0.000	0.000	489.04	0.00	0.00
17	125.00	Platform w/ Hand Rails	1	30.354	33.389	1.00	1.00	40.00	1800.00	0.000	0.000	2136.90	0.00	0.00
18	114.00	Low Profile Platform	1	29.771	32.748	1.00	1.00	25.00	1620.00	0.000	0.000	1309.91	0.00	0.00
19	114.00	Alcatel Lucent	3	29.934	32.927	0.78	0.80	6.37	162.00	0.000	3.000	335.80	0.00	1007.41
20	114.00	Samsung	3	29.716	32.687	0.61	0.80	3.32	89.37	0.000	-1.000	173.62	0.00	-173.62
21	114.00	Andrew VHLP1-23-DW1	1	30.014	33.016	1.00	1.00	1.61	12.60	0.000	4.500	85.05	0.00	382.72
22	114.00	Andrew VHLP2-23-DW1	1	30.014	33.016	1.00	1.00	4.69	27.90	0.000	4.500	247.75	0.00	1114.88
23	114.00	Argus LLPX310R-V1	3	29.798	32.778	0.55	0.80	7.14	136.89	0.000	0.500	374.32	0.00	187.16
24	114.00	Alcatel Lucent	3	29.688	32.657	0.78	0.80	5.59	172.80	0.000	-1.500	291.93	0.00	-437.90
25	114.00	RFS APXVTM14	3	29.934	32.927	0.63	0.80	12.02	315.09	0.000	3.000	633.29	0.00	1899.88
26	114.00	RFS APXVSP18	3	29.826	32.808	0.66	0.80	15.98	338.31	0.000	1.000	838.62	0.00	838.62
27	114.00	Alcatel Lucent	3	29.934	32.927	0.55	0.80	6.71	189.00	0.000	3.000	353.34	0.00	1060.02
28	114.00	20" x 18" x 9" Junction	1	29.771	32.748	1.00	1.00	3.15	18.00	0.000	0.000	165.05	0.00	0.00
29	90.00	Alcatel Lucent	3	28.325	31.158	0.57	0.75	5.99	243.00	0.000	0.000	298.37	0.00	0.00
30	90.00	Swedcom SLCP 2x6014	3	28.325	31.158	0.67	0.75	13.00	123.12	0.000	0.000	647.90	0.00	0.00
31	90.00	Commscope	6	28.325	31.158	0.62	0.75	30.18	412.56	0.000	0.000	1504.50	0.00	0.00
32	90.00	Antel	3	28.325	31.158	0.55	0.75	12.43	115.02	0.000	0.000	619.86	0.00	0.00
33	90.00	RFS DB-T1-6Z-8AB-0Z	1	28.325	31.158	1.00	1.00	4.80	39.60	0.000	0.000	239.29	0.00	0.00
34	90.00	Alcatel Lucent	3	28.325	31.158	0.57	0.75	5.99	243.00	0.000	0.000	298.37	0.00	0.00
35	90.00	Alcatel Lucent	3	28.325	31.158	0.68	0.75	3.06	148.50	0.000	0.000	152.44	0.00	0.00
36	90.00	Platform w/ Hand Rails	1	28.325	31.158	1.00	1.00	42.00	1980.00	0.000	0.000	2093.82	0.00	0.00
Totals:								12,680.01			21,780.43			

Total Applied Force Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

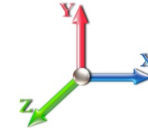


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		401.95	926.00	0.00	0.00
10.00		395.95	909.41	0.00	0.00
15.00		389.95	892.82	0.00	0.00
20.00		407.39	876.23	0.00	0.00
25.00		420.31	859.64	0.00	0.00
30.00		429.82	843.04	0.00	0.00
35.00		436.84	826.45	0.00	0.00
40.00		441.93	809.86	0.00	0.00
44.50		384.61	714.69	0.00	0.00
45.00		43.23	131.29	0.00	0.00
50.00		437.78	1296.16	0.00	0.00
55.00		436.10	671.49	0.00	0.00
60.00		436.14	657.66	0.00	0.00
65.00		435.39	643.84	0.00	0.00
67.50		216.35	316.73	0.00	0.00
70.00		215.94	313.28	0.00	0.00
75.00		395.36	616.19	0.00	0.00
80.00		388.59	602.36	0.00	0.00
85.00		381.25	588.54	0.00	0.00
90.00	(23) attachments	6227.92	3879.51	0.00	0.00
90.50		36.69	50.10	0.00	0.00
93.12		222.16	387.48	0.00	0.00
94.50		116.41	201.65	0.00	0.00
95.00		41.82	33.76	0.00	0.00
100.00		417.87	333.07	0.00	0.00
105.00		413.16	324.77	0.00	0.00
107.87		234.41	182.67	0.00	0.00
110.00		172.74	133.80	0.00	0.00
114.00	(25) attachments	5075.54	3329.17	0.00	5879.17
115.00		65.52	54.20	0.00	0.00
120.00		322.60	266.04	0.00	0.00
125.00	(36) attachments	6184.66	3242.14	0.00	576.77
130.00		301.11	198.82	0.00	0.00
135.00	(21) attachments	5534.85	3499.37	0.00	0.00
140.00		278.45	166.93	0.00	0.00
140.50		27.11	16.24	0.00	0.00
	Totals:	32,767.92	29,795.41	0.00	6,455.94

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

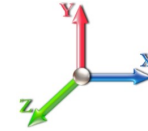


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.015	19.450	0.00	5.94
5.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.105	1.015	19.450	0.00	9.36
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.105	1.015	19.450	0.00	0.00
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.105	1.015	19.450	0.00	0.00
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	19.450	0.00	5.94
10.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.107	1.021	19.450	0.00	9.36
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	19.450	0.00	0.00
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	19.450	0.00	0.00
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	19.450	0.00	5.94
15.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.110	1.029	19.450	0.00	9.36
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	19.450	0.00	0.00
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	19.450	0.00	0.00
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	20.638	0.00	5.94
20.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.112	1.036	20.638	0.00	9.36
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	20.638	0.00	0.00
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	20.638	0.00	0.00
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	21.630	0.00	5.94
25.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.115	1.044	21.630	0.00	9.36
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	21.630	0.00	0.00
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	21.630	0.00	0.00
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	22.477	0.00	5.94
30.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.118	1.053	22.477	0.00	9.36
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	22.477	0.00	0.00
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	22.477	0.00	0.00
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	23.218	0.00	5.94
35.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.061	23.218	0.00	9.36
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	23.218	0.00	0.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	23.218	0.00	0.00
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	23.880	0.00	5.94
40.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.124	1.071	23.880	0.00	9.36
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	23.880	0.00	0.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	23.880	0.00	0.00
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	24.422	0.00	5.35
44.50	1 5/8" Coax	Yes	4.50	0.000	1.98	0.74	0.00	0.112	1.037	24.422	0.00	8.42
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	24.422	0.00	0.00
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	24.422	0.00	0.00
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	24.479	0.00	0.59
45.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.114	1.042	24.479	0.00	0.94
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	24.479	0.00	0.00
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	24.479	0.00	0.00
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	25.029	0.00	5.94
50.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.116	1.047	25.029	0.00	9.36
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	25.029	0.00	0.00
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	25.029	0.00	0.00
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	25.536	0.00	5.94
55.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.117	1.050	25.536	0.00	9.36
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	25.536	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

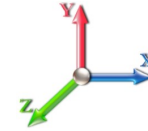


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	25.536	0.00	0.00
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	26.008	0.00	5.94
60.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.060	26.008	0.00	9.36
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	26.008	0.00	0.00
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	26.008	0.00	0.00
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	26.450	0.00	5.94
65.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.123	1.070	26.450	0.00	9.36
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	26.450	0.00	0.00
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	26.450	0.00	0.00
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	26.661	0.00	2.97
67.50	1 5/8" Coax	Yes	2.50	0.000	1.98	0.41	0.00	0.126	1.078	26.661	0.00	4.68
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	26.661	0.00	0.00
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	26.661	0.00	0.00
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	26.866	0.00	2.97
70.00	1 5/8" Coax	Yes	2.50	0.000	1.98	0.41	0.00	0.128	1.084	26.866	0.00	4.68
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	26.866	0.00	0.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	26.866	0.00	0.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	27.259	0.00	5.94
75.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.065	0.000	27.259	0.00	9.36
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	27.632	0.00	5.94
80.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.067	0.000	27.632	0.00	9.36
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	27.987	0.00	5.94
85.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.069	0.000	27.987	0.00	9.36
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	28.325	0.00	5.94
90.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.072	0.000	28.325	0.00	9.36
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	28.359	0.00	0.59
90.50	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.073	0.000	28.359	0.00	0.94
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	28.529	0.00	3.11
93.12	1 5/8" Coax	Yes	2.62	0.000	1.98	0.43	0.00	0.148	1.145	28.529	0.00	4.90
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	28.529	0.00	0.00
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	28.529	0.00	0.00
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	28.618	0.00	1.64
94.50	1 5/8" Coax	Yes	1.38	0.000	1.98	0.23	0.00	0.150	1.151	28.618	0.00	2.58
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	28.618	0.00	0.00
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	28.618	0.00	0.00
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	28.650	0.00	0.59
95.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.149	1.147	28.650	0.00	0.94
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	28.650	0.00	0.00
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	28.650	0.00	0.00
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	28.961	0.00	5.94
100.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.152	1.156	28.961	0.00	9.36
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	28.961	0.00	0.00
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	28.961	0.00	0.00
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	29.260	0.00	5.94
105.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.158	1.173	29.260	0.00	9.36
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	29.260	0.00	0.00
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	29.260	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

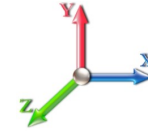


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	29.426	0.00	3.41
107.87	1 5/8" Coax	Yes	2.87	0.000	1.98	0.47	0.00	0.162	1.187	29.426	0.00	5.37
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	29.426	0.00	0.00
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	29.426	0.00	0.00
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	29.548	0.00	2.53
110.00	1 5/8" Coax	Yes	2.13	0.000	1.98	0.35	0.00	0.165	1.196	29.548	0.00	3.99
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	29.548	0.00	0.00
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	29.548	0.00	0.00
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	29.771	0.00	4.75
114.00	1 5/8" Coax	Yes	4.00	0.000	1.98	0.66	0.00	0.095	0.000	29.771	0.00	7.49
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	29.771	0.00	0.00
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	29.771	0.00	0.00
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	29.826	0.00	1.19
115.00	1 5/8" Coax	Yes	1.00	0.000	1.98	0.17	0.00	0.086	0.000	29.826	0.00	1.87
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	30.094	0.00	5.94
120.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.088	0.000	30.094	0.00	9.36
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	30.354	0.00	5.94
125.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.092	0.000	30.354	0.00	9.36
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	30.605	0.00	5.94
130.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.096	0.000	30.605	0.00	9.36
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	30.850	0.00	5.94
135.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.100	1.001	30.850	0.00	9.36
Totals:											0.0	413.1

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

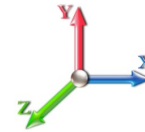


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Load Case: 0.9D + 1.6W 97 mph Wind

Iterations 25

Dead Load Factor 0.90
Wind Load Factor 1.60



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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-29.72	-32.84	0.00	-3400.2	0.00	3400.25	3592.24	1796.12	6217.42	3113.33	0.00	0.000	0.000	0.679
5.00	-28.65	-32.56	0.00	-3236.0	0.00	3236.07	3536.93	1768.47	5988.37	2998.63	0.14	-0.258	0.000	0.664
10.00	-27.59	-32.29	0.00	-3073.2	0.00	3073.27	3480.64	1740.32	5761.86	2885.21	0.55	-0.518	0.000	0.649
15.00	-26.56	-32.01	0.00	-2911.8	0.00	2911.84	3423.37	1711.69	5538.01	2773.12	1.23	-0.779	0.000	0.634
20.00	-25.54	-31.71	0.00	-2751.8	0.00	2751.81	3365.12	1682.56	5316.92	2662.41	2.18	-1.040	0.000	0.656
25.00	-24.54	-31.39	0.00	-2593.2	0.00	2593.28	3305.89	1652.94	5098.71	2553.15	3.42	-1.319	0.000	0.639
30.00	-23.56	-31.05	0.00	-2436.3	0.00	2436.34	3245.52	1622.76	4883.27	2445.26	4.95	-1.598	0.000	0.620
35.00	-22.59	-30.70	0.00	-2281.0	0.00	2281.08	3165.03	1582.51	4642.85	2324.87	6.78	-1.877	0.000	0.604
40.00	-21.65	-30.33	0.00	-2127.5	0.00	2127.58	3084.53	1542.26	4408.49	2207.52	8.89	-2.155	0.000	0.640
44.50	-20.88	-29.98	0.00	-1991.0	0.00	1991.08	3012.08	1506.04	4202.76	2104.51	11.05	-2.427	0.000	0.623
45.00	-20.66	-29.99	0.00	-1976.0	0.00	1976.09	3004.03	1502.02	4180.21	2093.21	11.31	-2.458	0.000	0.614
50.00	-19.24	-29.59	0.00	-1826.1	0.00	1826.15	2423.81	1211.90	3356.59	1680.79	14.04	-2.754	0.000	0.619
55.00	-18.43	-29.22	0.00	-1678.2	0.00	1678.20	2376.14	1188.07	3201.01	1602.88	17.08	-3.047	0.000	0.636
60.00	-17.65	-28.84	0.00	-1532.1	0.00	1532.11	2327.49	1163.75	3047.73	1526.13	20.43	-3.356	0.000	0.602
65.00	-16.92	-28.43	0.00	-1387.9	0.00	1387.91	2277.86	1138.93	2896.88	1450.59	24.11	-3.659	0.000	0.567
67.50	-16.54	-28.24	0.00	-1316.8	0.00	1316.83	2252.16	1126.08	2821.75	1412.97	26.07	-3.810	0.000	0.548
67.50	-16.54	-28.24	0.00	-1316.8	0.00	1316.83	2252.16	1126.08	2821.75	1412.97	26.07	-3.810	0.000	0.548
70.00	-16.09	-28.10	0.00	-1246.2	0.00	1246.23	2218.62	1109.31	2737.91	1370.99	28.10	-3.959	0.000	0.917
75.00	-15.27	-27.79	0.00	-1105.7	0.00	1105.75	2151.54	1075.77	2574.02	1288.93	32.51	-4.448	0.000	0.866
80.00	-14.48	-27.47	0.00	-966.83	0.00	966.83	2084.46	1042.23	2415.20	1209.39	37.42	-4.921	0.000	0.807
85.00	-13.72	-27.14	0.00	-829.50	0.00	829.50	2017.38	1008.69	2261.43	1132.40	42.81	-5.371	0.000	0.740
90.00	-10.39	-20.60	0.00	-693.81	0.00	693.81	1950.30	975.15	2112.72	1057.93	48.65	-5.792	0.000	0.662
90.50	-10.29	-20.59	0.00	-683.51	0.00	683.51	1943.59	971.80	2098.13	1050.62	49.26	-5.835	0.000	0.656
93.12	-9.88	-20.35	0.00	-629.58	0.00	629.58	1908.44	954.22	2022.49	1012.75	52.52	-6.047	0.000	0.349
94.50	-9.68	-20.22	0.00	-601.50	0.00	601.50	1035.36	517.68	1113.15	557.40	54.27	-6.109	0.000	0.384
95.00	-9.60	-20.20	0.00	-591.39	0.00	591.39	1033.16	516.58	1106.89	554.27	54.91	-6.131	0.000	0.475
100.00	-9.23	-19.78	0.00	-490.41	0.00	490.41	1010.63	505.31	1044.65	523.10	61.46	-6.385	0.000	0.408
105.00	-8.90	-19.36	0.00	-391.50	0.00	391.50	987.11	493.55	983.14	492.30	68.26	-6.611	0.000	0.339
107.87	-8.71	-19.12	0.00	-335.93	0.00	335.93	973.17	486.58	948.19	474.80	72.26	-6.727	0.000	0.298
107.87	-8.71	-19.12	0.00	-335.93	0.00	335.93	973.17	486.58	948.19	474.80	72.26	-6.727	0.000	0.298
110.00	-8.53	-18.97	0.00	-295.20	0.00	295.20	962.61	481.31	922.45	461.91	75.27	-6.806	0.000	0.649
114.00	-5.80	-13.54	0.00	-213.46	0.00	213.46	942.31	471.15	874.57	437.94	81.10	-7.113	0.000	0.494
115.00	-5.71	-13.49	0.00	-199.91	0.00	199.91	937.13	468.57	862.70	431.99	82.59	-7.181	0.000	0.470
120.00	-5.44	-13.16	0.00	-132.47	0.00	132.47	910.67	455.33	804.02	402.61	90.25	-7.460	0.000	0.336
125.00	-3.02	-6.61	0.00	-66.11	0.00	66.11	883.23	441.61	746.49	373.80	98.15	-7.649	0.000	0.181
130.00	-2.86	-6.29	0.00	-33.08	0.00	33.08	854.80	427.40	690.24	345.64	106.20	-7.757	0.000	0.099
135.00	-0.14	-0.33	0.00	-1.65	0.00	1.65	825.39	412.70	635.38	318.16	114.33	-7.800	0.000	0.005
140.00	-0.01	-0.03	0.00	-0.01	0.00	0.01	789.80	394.90	578.22	289.54	122.48	-7.802	0.000	0.000
140.50	0.00	-0.03	0.00	0.00	0.00	0.00	785.78	392.89	572.31	286.58	123.29	-7.802	0.000	0.000

Wind Loading - Shaft

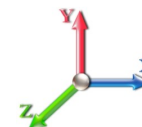
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.217 *	1.656	5.00	19.186	23.36	132.8	449.0	1462.5
10.00		1.00	0.85	5.168	5.68	0.00	1.226 *	1.775	5.00	18.900	23.17	131.7	472.4	1463.8
15.00		1.00	0.85	5.168	5.68	0.00	1.234 *	1.848	5.00	18.576	22.93	130.4	482.2	1451.5
20.00	RT1 RB2	1.00	0.90	5.483	6.03	0.00	1.244 *	1.902	5.00	18.236	22.68	136.8	486.0	1433.2
25.00		1.00	0.95	5.747	6.32	0.00	1.253 *	1.945	5.00	17.886	22.41	141.7	486.4	1411.5
30.00		1.00	0.98	5.972	6.57	0.00	1.263 *	1.981	5.00	17.531	22.14	145.5	484.5	1387.5
35.00		1.00	1.01	6.169	6.79	0.00	1.274 *	2.012	5.00	17.171	21.87	148.4	481.0	1361.8
40.00	RT2 RB3	1.00	1.04	6.345	6.98	0.00	1.285 *	2.039	5.00	16.809	21.60	150.7	476.1	1334.8
44.50	Bot - Section 2	1.00	1.07	6.489	7.14	0.00	1.245 *	2.061	4.50	14.815	18.44	131.6	423.8	1177.8
45.00		1.00	1.07	6.504	7.15	0.00	1.250 *	2.063	0.50	1.653	2.07	14.8	47.8	200.8
50.00	Top - Section 1	1.00	1.09	6.650	7.32	0.00	1.256 *	2.085	5.00	16.341	20.53	150.2	471.8	1979.0
55.00		1.00	1.12	6.785	7.46	0.00	1.260 *	2.105	5.00	15.973	20.12	150.2	464.6	1138.8
60.00	RT3 RB4	1.00	1.14	6.910	7.60	0.00	1.272 *	2.123	5.00	15.603	19.84	150.8	456.8	1112.6
65.00		1.00	1.16	7.028	7.73	0.00	1.284 *	2.140	5.00	15.232	19.56	151.2	448.5	1085.8
67.50	RT4	1.00	1.17	7.084	7.79	0.00	1.294 *	2.148	2.50	7.475	9.67	75.4	222.1	533.8
70.00		1.00	1.17	7.138	7.85	0.00	1.300 *	2.156	2.50	7.382	9.60	75.4	219.9	527.0
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	14.487	17.38	138.5	430.6	1031.1
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	14.114	16.94	136.8	421.1	1003.1
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	13.740	16.49	134.9	411.3	974.9
90.00	Appurtenance(s)	1.00	1.24	7.526	8.28	0.00	1.200	2.211	5.00	13.365	16.04	132.8	401.2	946.4
90.50	Bot - Section 3	1.00	1.24	7.535	8.29	0.00	1.200	2.212	0.50	1.315	1.58	13.1	40.0	93.5
93.12	RB5	1.00	1.25	7.580	8.34	0.00	1.373 *	2.219	2.62	6.916	9.50	79.2	209.6	656.5
94.50	Top - Section 2	1.00	1.25	7.604	8.36	0.00	1.381 *	2.222	1.38	3.601	4.97	41.6	109.6	341.8
95.00		1.00	1.25	7.612	8.37	0.00	1.377 *	2.223	0.50	1.298	1.79	15.0	39.6	71.3
100.00		1.00	1.27	7.695	8.46	0.00	1.387 *	2.234	5.00	12.773	17.72	150.0	385.6	696.6
105.00		1.00	1.28	7.774	8.55	0.00	1.407 *	2.245	5.00	12.397	17.44	149.2	374.8	674.8
107.87	RT5	1.00	1.29	7.819	8.60	0.00	1.424 *	2.251	2.87	6.945	9.89	85.1	211.5	378.7
110.00		1.00	1.29	7.851	8.64	0.00	1.435 *	2.256	2.13	5.074	7.28	62.9	155.0	276.7
114.00	Appurtenance(s)	1.00	1.30	7.910	8.70	0.00	1.200	2.264	4.00	9.345	11.21	97.6	283.9	507.1
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	1.00	2.298	2.76	24.0	70.5	125.2
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	11.267	13.52	118.9	341.3	608.1
125.00	Appurtenance(s)	1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	10.889	13.07	115.9	329.8	585.5
130.00		1.00	1.34	8.132	8.95	0.00	1.200	2.294	5.00	10.512	12.61	112.8	318.1	562.8
135.00	Appurtenance(s)	1.00	1.35	8.197	9.02	0.00	1.202 *	2.303	5.00	10.134	12.18	109.8	306.3	540.0
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	5.00	9.756	11.71	106.4	294.4	516.9
140.50		1.00	1.36	8.266	9.09	0.00	1.200	2.312	0.50	0.954	1.15	10.4	29.3	51.0
Totals:									140.50			3,852.2		29,704.4

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

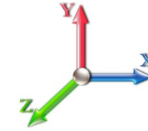
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	135.00	Expansion rights	3	8.197	9.016	0.70	0.80	8.76	538.02	0.000	0.000	79.02	0.00	0.00	
2	135.00	Ericsson RRUS 32 B66A	3	8.197	9.016	0.70	0.80	7.70	563.12	0.000	0.000	69.44	0.00	0.00	
3	135.00	Ericsson S11B12	3	8.197	9.016	0.56	0.80	6.24	410.79	0.000	0.000	56.29	0.00	0.00	
4	135.00	RFS	3	8.197	9.016	0.50	0.80	11.85	728.74	0.000	0.000	106.80	0.00	0.00	
5	135.00	Commscope F-65C-R2	3	8.197	9.016	0.67	0.80	33.13	1600.47	0.000	0.000	298.69	0.00	0.00	
6	135.00	Ericsson AIR32	3	8.197	9.016	0.70	0.80	16.87	1248.96	0.000	0.000	152.13	0.00	0.00	
7	135.00	Sector Frame	3	8.197	9.016	0.56	0.75	42.10	6270.53	0.000	0.000	379.58	0.00	0.00	
8	125.00	Kathrein 782 10250	6	8.065	8.872	0.50	0.75	3.81	124.93	0.000	0.000	33.84	0.00	0.00	
9	125.00	Raycap DC6-48-60-18-8F	2	8.125	8.938	0.81	0.90	3.87	205.20	0.000	4.500	34.55	0.00	155.48	
10	125.00	CCI DTMABP7819VG12A	6	8.065	8.872	0.50	0.75	6.47	301.88	0.000	0.000	57.44	0.00	0.00	
11	125.00	CCI OPA-65R-LCUU-H6	3	8.065	8.872	0.59	0.75	20.41	1222.14	0.000	0.000	181.05	0.00	0.00	
12	125.00	7120.16	3	8.065	8.872	0.92	0.75	14.29	695.38	0.000	0.000	126.79	0.00	0.00	
13	125.00	KMW	3	8.065	8.872	0.56	0.75	16.45	963.13	0.000	0.000	145.96	0.00	0.00	
14	125.00	Ericsson RRUS-11	6	8.065	8.872	0.50	0.75	10.24	1139.39	0.000	0.000	90.84	0.00	0.00	
15	125.00	Ericsson RRUS-32	3	8.065	8.872	0.56	0.75	7.66	764.21	0.000	0.000	67.94	0.00	0.00	
16	125.00	Kathrein 800-10121	3	8.065	8.872	0.59	0.75	11.64	730.84	0.000	0.000	103.23	0.00	0.00	
17	125.00	Platform w/ Hand Rails	1	8.065	8.872	1.00	1.00	67.42	4541.90	0.000	0.000	598.11	0.00	0.00	
18	114.00	Low Profile Platform	1	7.910	8.701	1.00	1.00	52.17	3797.57	0.000	0.000	453.92	0.00	0.00	
19	114.00	Alcatel Lucent	3	7.954	8.749	0.78	0.80	10.23	460.97	0.000	3.000	89.50	0.00	268.50	
20	114.00	Samsung	3	7.896	8.685	0.61	0.80	5.63	252.61	0.000	-1.000	48.88	0.00	-48.88	
21	114.00	Andrew VHLP1-23-DW1	1	7.975	8.772	1.00	1.00	2.59	52.63	0.000	4.500	22.76	0.00	102.41	
22	114.00	Andrew VHLP2-23-DW1	1	7.975	8.772	1.00	1.00	6.35	136.15	0.000	4.500	55.67	0.00	250.53	
23	114.00	Argus LLPX310R-V1	3	7.917	8.709	0.55	0.80	9.21	637.92	0.000	0.500	80.24	0.00	40.12	
24	114.00	Alcatel Lucent	3	7.888	8.677	0.78	0.80	8.97	464.55	0.000	-1.500	77.81	0.00	-116.71	
25	114.00	RFS APXVTM14	3	7.954	8.749	0.63	0.80	14.81	1082.40	0.000	3.000	129.58	0.00	388.75	
26	114.00	RFS APXVSP18	3	7.925	8.717	0.66	0.80	19.39	1273.33	0.000	1.000	169.00	0.00	169.00	
27	114.00	Alcatel Lucent	3	7.954	8.749	0.55	0.80	8.49	709.03	0.000	3.000	74.31	0.00	222.93	
28	114.00	20" x 18" x 9" Junction	1	7.910	8.701	1.00	1.00	4.78	131.93	0.000	0.000	41.58	0.00	0.00	
29	90.00	Alcatel Lucent	3	7.526	8.279	0.57	0.75	7.69	729.85	0.000	0.000	63.70	0.00	0.00	
30	90.00	Swedcom SLCP 2x6014	3	7.526	8.279	0.67	0.75	15.80	956.73	0.000	0.000	130.80	0.00	0.00	
31	90.00	Commscope	6	7.526	8.279	0.62	0.75	36.30	2158.27	0.000	0.000	300.50	0.00	0.00	
32	90.00	Antel	3	7.526	8.279	0.55	0.75	15.11	853.58	0.000	0.000	125.07	0.00	0.00	
33	90.00	RFS DB-T1-6Z-8AB-0Z	1	7.526	8.279	1.00	1.00	5.93	243.69	0.000	0.000	49.07	0.00	0.00	
34	90.00	Alcatel Lucent	3	7.526	8.279	0.57	0.75	7.69	729.85	0.000	0.000	63.70	0.00	0.00	
35	90.00	Alcatel Lucent	3	7.526	8.279	0.68	0.75	6.13	539.83	0.000	0.000	50.73	0.00	0.00	
36	90.00	Platform w/ Hand Rails	1	7.526	8.279	1.00	1.00	69.86	5358.61	0.000	0.000	578.35	0.00	0.00	
Totals:									42,619.14						5,186.89

Total Applied Force Summary

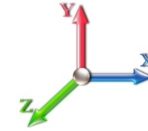
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		132.78	1836.19	0.00	0.00
10.00		131.70	1853.00	0.00	0.00
15.00		130.36	1850.67	0.00	0.00
20.00		136.79	1839.88	0.00	0.00
25.00		141.70	1824.19	0.00	0.00
30.00		145.47	1805.27	0.00	0.00
35.00		148.42	1784.03	0.00	0.00
40.00		150.72	1761.03	0.00	0.00
44.50		131.65	1556.17	0.00	0.00
45.00		14.79	242.86	0.00	0.00
50.00		150.18	2402.89	0.00	0.00
55.00		150.19	1565.66	0.00	0.00
60.00		150.81	1542.11	0.00	0.00
65.00		151.18	1517.87	0.00	0.00
67.50		75.35	750.46	0.00	0.00
70.00		75.38	744.22	0.00	0.00
75.00		138.51	1374.66	0.00	0.00
80.00		136.78	1347.87	0.00	0.00
85.00		134.87	1320.71	0.00	0.00
90.00	(23) attachments	1494.70	12863.63	0.00	0.00
90.50		13.08	119.41	0.00	0.00
93.12		79.20	841.93	0.00	0.00
94.50		41.59	439.55	0.00	0.00
95.00		14.96	106.77	0.00	0.00
100.00		149.98	1052.81	0.00	0.00
105.00		149.19	1032.63	0.00	0.00
107.87		85.05	584.66	0.00	0.00
110.00		62.89	429.84	0.00	0.00
114.00	(25) attachments	1340.83	9726.41	0.00	1276.64
115.00		24.04	168.84	0.00	0.00
120.00		118.92	827.03	0.00	0.00
125.00	(36) attachments	1555.68	11494.25	0.00	155.48
130.00		112.83	715.77	0.00	0.00
135.00	(21) attachments	1251.74	12054.25	0.00	0.00
140.00		106.37	516.95	0.00	0.00
140.50		10.41	50.97	0.00	0.00
Totals:		9,039.09	81,945.43	0.00	1,432.12

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



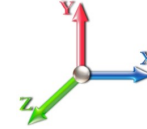
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.015	5.168	0.00	46.64
5.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.21	0.00	0.105	1.015	5.168	0.00	58.01
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.90	0.00	0.105	1.015	5.168	0.00	34.16
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.90	0.00	0.105	1.015	5.168	0.00	34.16
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	5.168	0.00	50.57
10.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.30	0.00	0.107	1.021	5.168	0.00	62.33
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.00	0.00	0.107	1.021	5.168	0.00	37.80
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.00	0.00	0.107	1.021	5.168	0.00	37.80
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	5.168	0.00	53.08
15.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.37	0.00	0.110	1.029	5.168	0.00	65.09
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.06	0.00	0.110	1.029	5.168	0.00	40.14
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.06	0.00	0.110	1.029	5.168	0.00	40.14
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	5.483	0.00	54.96
20.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.41	0.00	0.112	1.036	5.483	0.00	67.15
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.11	0.00	0.112	1.036	5.483	0.00	41.90
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.11	0.00	0.112	1.036	5.483	0.00	41.90
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	5.747	0.00	56.49
25.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.45	0.00	0.115	1.044	5.747	0.00	68.82
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.14	0.00	0.115	1.044	5.747	0.00	43.33
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.14	0.00	0.115	1.044	5.747	0.00	43.33
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	5.972	0.00	57.78
30.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.48	0.00	0.118	1.053	5.972	0.00	70.23
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.17	0.00	0.118	1.053	5.972	0.00	44.54
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.17	0.00	0.118	1.053	5.972	0.00	44.54
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	6.169	0.00	58.90
35.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.50	0.00	0.120	1.061	6.169	0.00	71.46
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.20	0.00	0.120	1.061	6.169	0.00	45.59
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.20	0.00	0.120	1.061	6.169	0.00	45.59
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	6.345	0.00	59.90
40.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.52	0.00	0.124	1.071	6.345	0.00	72.54
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.22	0.00	0.124	1.071	6.345	0.00	46.52
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	2.22	0.00	0.124	1.071	6.345	0.00	46.52
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	6.489	0.00	54.64
44.50	1 5/8" Coax	Yes	4.50	0.000	1.98	2.29	0.00	0.112	1.037	6.489	0.00	66.08
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	1.92	0.00	0.112	1.037	6.489	0.00	38.52
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	1.92	0.00	0.112	1.037	6.489	0.00	38.52
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	6.504	0.00	6.08
45.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.25	0.00	0.114	1.042	6.504	0.00	7.35
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.21	0.00	0.114	1.042	6.504	0.00	4.29
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.21	0.00	0.114	1.042	6.504	0.00	4.29
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	6.650	0.00	61.61
50.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.56	0.00	0.116	1.047	6.650	0.00	74.41
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.15	0.00	0.116	1.047	6.650	0.00	43.60
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.15	0.00	0.116	1.047	6.650	0.00	43.60
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	6.785	0.00	62.36
55.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.58	0.00	0.117	1.050	6.785	0.00	75.23
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.17	0.00	0.117	1.050	6.785	0.00	44.27

Linear Appurtenance Segment Forces (Factored)

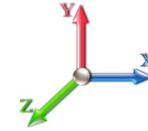
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.17	0.00	0.117	1.050	6.785	0.00	44.27
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	6.910	0.00	63.06
60.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.59	0.00	0.120	1.060	6.910	0.00	75.99
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.19	0.00	0.120	1.060	6.910	0.00	44.89
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.19	0.00	0.120	1.060	6.910	0.00	44.89
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	7.028	0.00	63.71
65.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.61	0.00	0.123	1.070	7.028	0.00	76.69
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.20	0.00	0.123	1.070	7.028	0.00	45.46
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.20	0.00	0.123	1.070	7.028	0.00	45.46
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	7.084	0.00	32.01
67.50	1 5/8" Coax	Yes	2.50	0.000	1.98	1.31	0.00	0.126	1.078	7.084	0.00	38.52
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	1.10	0.00	0.126	1.078	7.084	0.00	22.87
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	1.10	0.00	0.126	1.078	7.084	0.00	22.87
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	7.138	0.00	32.16
70.00	1 5/8" Coax	Yes	2.50	0.000	1.98	1.31	0.00	0.128	1.084	7.138	0.00	38.68
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	1.11	0.00	0.128	1.084	7.138	0.00	23.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	1.11	0.00	0.128	1.084	7.138	0.00	23.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	7.243	0.00	64.89
75.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.63	0.00	0.065	0.000	7.243	0.00	77.98
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	7.342	0.00	65.44
80.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.65	0.00	0.067	0.000	7.342	0.00	78.57
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	7.436	0.00	65.95
85.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.66	0.00	0.069	0.000	7.436	0.00	79.13
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	7.526	0.00	66.44
90.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.67	0.00	0.072	0.000	7.526	0.00	79.67
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	7.535	0.00	6.65
90.50	1 5/8" Coax	Yes	0.50	0.000	1.98	0.27	0.00	0.073	0.000	7.535	0.00	7.97
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	7.580	0.00	34.97
93.12	1 5/8" Coax	Yes	2.62	0.000	1.98	1.40	0.00	0.148	1.145	7.580	0.00	41.91
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	1.19	0.00	0.148	1.145	7.580	0.00	27.74
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	1.19	0.00	0.148	1.145	7.580	0.00	21.75
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	7.604	0.00	18.46
94.50	1 5/8" Coax	Yes	1.38	0.000	1.98	0.74	0.00	0.150	1.151	7.604	0.00	22.11
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.63	0.00	0.150	1.151	7.604	0.00	14.65
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.63	0.00	0.150	1.151	7.604	0.00	11.48
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	7.612	0.00	6.69
95.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.27	0.00	0.149	1.147	7.612	0.00	8.02
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.23	0.00	0.149	1.147	7.612	0.00	5.31
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.23	0.00	0.149	1.147	7.612	0.00	4.16
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	7.695	0.00	67.36
100.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.69	0.00	0.152	1.156	7.695	0.00	80.66
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.28	0.00	0.152	1.156	7.695	0.00	53.53
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.28	0.00	0.152	1.156	7.695	0.00	42.01
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	7.774	0.00	67.79
105.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.70	0.00	0.158	1.173	7.774	0.00	81.13
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.29	0.00	0.158	1.173	7.774	0.00	53.93
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	2.29	0.00	0.158	1.173	7.774	0.00	42.37

Linear Appurtenance Segment Forces (Factored)

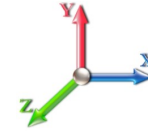
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	7.819	0.00	39.05
107.87	1 5/8" Coax	Yes	2.87	0.000	1.98	1.55	0.00	0.162	1.187	7.819	0.00	46.72
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	1.32	0.00	0.162	1.187	7.819	0.00	31.09
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	1.32	0.00	0.162	1.187	7.819	0.00	24.43
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	7.851	0.00	29.06
110.00	1 5/8" Coax	Yes	2.13	0.000	1.98	1.15	0.00	0.165	1.196	7.851	0.00	34.75
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.98	0.00	0.165	1.196	7.851	0.00	23.14
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.98	0.00	0.165	1.196	7.851	0.00	18.19
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	7.910	0.00	54.82
114.00	1 5/8" Coax	Yes	4.00	0.000	1.98	2.17	0.00	0.095	0.000	7.910	0.00	65.54
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.23	0.00	0.095	0.000	7.910	0.00	5.46
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.23	0.00	0.095	0.000	7.910	0.00	4.30
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	7.925	0.00	13.72
115.00	1 5/8" Coax	Yes	1.00	0.000	1.98	0.54	0.00	0.086	0.000	7.925	0.00	16.40
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	7.996	0.00	68.99
120.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.72	0.00	0.088	0.000	7.996	0.00	82.43
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	8.065	0.00	69.36
125.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.73	0.00	0.092	0.000	8.065	0.00	82.83
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	8.132	0.00	69.72
130.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.74	0.00	0.096	0.000	8.132	0.00	83.22
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	8.197	0.00	70.07
135.00	1 5/8" Coax	Yes	5.00	0.000	1.98	2.74	0.00	0.100	1.001	8.197	0.00	83.60
Totals:											0.0	5,320.0

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

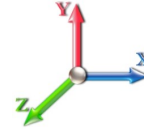


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-81.94	-9.09	0.00	-990.96	0.00	990.96	3592.24	1796.12	6217.42	3113.33	0.00	0.000	0.000	0.210
5.00	-80.09	-9.07	0.00	-945.49	0.00	945.49	3536.93	1768.47	5988.37	2998.63	0.04	-0.075	0.000	0.206
10.00	-78.23	-9.03	0.00	-900.17	0.00	900.17	3480.64	1740.32	5761.86	2885.21	0.16	-0.151	0.000	0.202
15.00	-76.36	-9.00	0.00	-855.00	0.00	855.00	3423.37	1711.69	5538.01	2773.12	0.36	-0.228	0.000	0.198
20.00	-74.51	-8.96	0.00	-810.00	0.00	810.00	3365.12	1682.56	5316.92	2662.41	0.64	-0.305	0.000	0.205
25.00	-72.68	-8.91	0.00	-765.21	0.00	765.21	3305.89	1652.94	5098.71	2553.15	1.00	-0.387	0.000	0.200
30.00	-70.86	-8.85	0.00	-720.66	0.00	720.66	3245.52	1622.76	4883.27	2445.26	1.45	-0.469	0.000	0.195
35.00	-69.06	-8.79	0.00	-676.40	0.00	676.40	3185.03	1582.51	4642.85	2324.87	1.99	-0.552	0.000	0.191
40.00	-67.29	-8.72	0.00	-632.46	0.00	632.46	3084.53	1542.26	4408.49	2207.52	2.61	-0.634	0.000	0.203
44.50	-65.73	-8.62	0.00	-593.24	0.00	593.24	3012.08	1506.04	4202.76	2104.51	3.25	-0.715	0.000	0.198
45.00	-65.48	-8.66	0.00	-588.93	0.00	588.93	3004.03	1502.02	4180.21	2093.21	3.32	-0.725	0.000	0.195
50.00	-63.07	-8.57	0.00	-545.66	0.00	545.66	2423.81	1211.90	3356.59	1680.79	4.13	-0.813	0.000	0.197
55.00	-61.49	-8.49	0.00	-502.81	0.00	502.81	2376.14	1188.07	3201.01	1602.88	5.03	-0.900	0.000	0.204
60.00	-59.94	-8.41	0.00	-460.35	0.00	460.35	2327.49	1163.75	3047.73	1526.13	6.02	-0.993	0.000	0.194
65.00	-58.41	-8.30	0.00	-418.29	0.00	418.29	2277.86	1138.93	2896.88	1450.59	7.11	-1.085	0.000	0.184
67.50	-57.66	-8.26	0.00	-397.53	0.00	397.53	2252.16	1126.08	2821.75	1412.97	7.69	-1.130	0.000	0.178
67.50	-57.66	-8.26	0.00	-397.53	0.00	397.53	2252.16	1126.08	2821.75	1412.97	7.69	-1.130	0.000	0.178
70.00	-56.90	-8.27	0.00	-376.88	0.00	376.88	2218.62	1109.31	2737.91	1370.99	8.29	-1.175	0.000	0.301
75.00	-55.51	-8.24	0.00	-335.55	0.00	335.55	2151.54	1075.77	2574.02	1288.93	9.60	-1.323	0.000	0.286
80.00	-54.15	-8.20	0.00	-294.36	0.00	294.36	2084.46	1042.23	2415.20	1209.39	11.07	-1.467	0.000	0.269
85.00	-52.81	-8.16	0.00	-253.35	0.00	253.35	2017.38	1008.69	2261.43	1132.40	12.68	-1.604	0.000	0.250
90.00	-39.99	-6.33	0.00	-212.57	0.00	212.57	1950.30	975.15	2112.72	1057.93	14.43	-1.733	0.000	0.221
90.50	-39.86	-6.34	0.00	-209.41	0.00	209.41	1943.59	971.80	2098.13	1050.62	14.61	-1.746	0.000	0.220
93.12	-39.02	-6.27	0.00	-192.78	0.00	192.78	1908.44	954.22	2022.49	1012.75	15.58	-1.811	0.000	0.118
94.50	-38.58	-6.22	0.00	-184.13	0.00	184.13	1035.36	517.68	1113.15	557.40	16.11	-1.830	0.000	0.130
95.00	-38.47	-6.23	0.00	-181.02	0.00	181.02	1033.16	516.58	1106.89	554.27	16.30	-1.837	0.000	0.161
100.00	-37.42	-6.10	0.00	-149.87	0.00	149.87	1010.63	505.31	1044.65	523.10	18.27	-1.915	0.000	0.140
105.00	-36.38	-5.94	0.00	-119.39	0.00	119.39	987.11	493.55	983.14	492.30	20.31	-1.983	0.000	0.118
107.87	-35.80	-5.86	0.00	-102.34	0.00	102.34	973.17	486.58	948.19	474.80	21.51	-2.019	0.000	0.105
107.87	-35.80	-5.86	0.00	-102.34	0.00	102.34	973.17	486.58	948.19	474.80	21.51	-2.019	0.000	0.105
110.00	-35.37	-5.82	0.00	-89.86	0.00	89.86	962.61	481.31	922.45	461.91	22.42	-2.043	0.000	0.231
114.00	-25.69	-4.15	0.00	-65.32	0.00	65.32	942.31	471.15	874.57	437.94	24.17	-2.136	0.000	0.176
115.00	-25.52	-4.14	0.00	-61.18	0.00	61.18	937.13	468.57	862.70	431.99	24.62	-2.157	0.000	0.169
120.00	-24.69	-4.02	0.00	-40.48	0.00	40.48	910.67	455.33	804.02	402.61	26.93	-2.242	0.000	0.128
125.00	-13.27	-2.02	0.00	-20.22	0.00	20.22	883.23	441.61	746.49	373.80	29.31	-2.300	0.000	0.069
130.00	-12.56	-1.88	0.00	-10.12	0.00	10.12	854.80	427.40	690.24	345.64	31.74	-2.333	0.000	0.044
135.00	-0.56	-0.14	0.00	-0.71	0.00	0.71	825.39	412.70	635.38	318.16	34.19	-2.346	0.000	0.003
140.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	789.80	394.90	578.22	289.54	36.65	-2.347	0.000	0.000
140.50	0.00	-0.01	0.00	0.00	0.00	0.00	785.78	392.89	572.31	286.58	36.90	-2.347	0.000	0.000

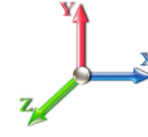
Seismic Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E					Iterations 22
Gust Response Factor	1.10			Sds 0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1 0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.26	SA 0.03	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	0.00	
5.00		844.63	0.00	0.03	0.02	18.52	
10.00		826.19	0.01	0.05	0.03	25.06	
15.00		807.76	0.02	0.06	0.04	27.57	
20.00	RT1 RB2	789.32	0.04	0.07	0.04	28.41	
25.00		770.89	0.06	0.07	0.04	28.61	
30.00		752.46	0.09	0.07	0.04	28.66	
35.00		734.02	0.12	0.07	0.03	28.70	
40.00	RT2 RB3	715.59	0.15	0.07	0.03	28.67	
44.50	Bot - Section 2	628.27	0.19	0.06	0.02	25.49	
45.00		127.45	0.19	0.06	0.02	5.17	
50.00	Top - Section 1	1255.9	0.24	0.06	0.02	50.13	
55.00		561.84	0.29	0.05	0.01	20.79	
60.00	RT3 RB4	546.48	0.34	0.03	0.01	16.67	
65.00		531.12	0.40	0.02	0.01	10.24	
67.50	RT4	259.80	0.44	0.01	0.01	3.07	
70.00		255.96	0.47	-0.01	0.01	0.89	
75.00		500.39	0.54	-0.03	0.01	-7.17	
80.00		485.03	0.61	-0.06	0.02	-14.54	
85.00		469.67	0.69	-0.08	0.03	-18.97	
90.00	Appurtenance(s)	4126.3	0.78	-0.11	0.05	-183.59	
90.50	Bot - Section 3	44.59	0.78	-0.11	0.05	-1.99	
93.12	RB5	372.44	0.83	-0.12	0.06	-16.34	
94.50	Top - Section 2	193.46	0.86	-0.12	0.07	-8.29	
95.00		26.43	0.86	-0.12	0.07	-1.12	
100.00		259.21	0.96	-0.12	0.11	-8.92	
105.00		250.00	1.06	-0.09	0.16	-5.22	
107.87	RT5	139.33	1.11	-0.06	0.20	-1.48	
110.00		101.45	1.16	-0.03	0.23	-0.19	
114.00	Appurtenance(s)	3610.3	1.24	0.05	0.29	62.25	
115.00		45.58	1.27	0.08	0.31	1.03	
120.00		222.35	1.38	0.24	0.41	11.70	
125.00	Appurtenance(s)	3529.1	1.50	0.49	0.54	311.83	
130.00		203.91	1.62	0.84	0.69	26.50	
135.00	Appurtenance(s)	3871.1	1.74	1.30	0.89	687.55	
140.00		185.48	1.88	1.91	1.11	42.93	
140.50		18.04	1.89	1.98	1.14	4.28	
Totals:		29,062.1				1,226.9	Total Wind: 32,767.9

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

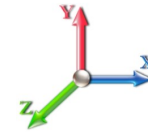
Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E							Iterations 22
Gust Response Factor	1.10					Sds 0.19	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1 0.10			S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.26	SA 0.03	Seismic Importance 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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.73	-1.50	0.00	-171.99	0.00	171.99	3592.24	1796.12	6217.42	3113.33	0.00	0.00	0.00	0.041
5.00	-38.49	-1.49	0.00	-164.49	0.00	164.49	3536.93	1768.47	5988.37	2998.63	0.01	-0.01	0.040	
10.00	-37.28	-1.47	0.00	-157.05	0.00	157.05	3480.64	1740.32	5761.86	2885.21	0.03	-0.03	0.039	
15.00	-36.09	-1.45	0.00	-149.69	0.00	149.69	3423.37	1711.69	5538.01	2773.12	0.06	-0.04	0.038	
20.00	-34.92	-1.43	0.00	-142.43	0.00	142.43	3365.12	1682.56	5316.92	2662.41	0.11	-0.05	0.040	
25.00	-33.77	-1.41	0.00	-135.28	0.00	135.28	3305.89	1652.94	5098.71	2553.15	0.17	-0.07	0.039	
30.00	-32.65	-1.39	0.00	-128.23	0.00	128.23	3245.52	1622.76	4883.27	2445.26	0.25	-0.08	0.038	
35.00	-31.55	-1.37	0.00	-121.28	0.00	121.28	3165.03	1582.51	4642.85	2324.87	0.35	-0.10	0.038	
40.00	-30.47	-1.34	0.00	-114.45	0.00	114.45	3084.53	1542.26	4408.49	2207.52	0.46	-0.11	0.040	
44.50	-29.51	-1.32	0.00	-108.41	0.00	108.41	3012.08	1506.04	4202.76	2104.51	0.57	-0.13	0.040	
45.00	-29.34	-1.32	0.00	-107.75	0.00	107.75	3004.03	1502.02	4180.21	2093.21	0.58	-0.13	0.039	
50.00	-27.61	-1.27	0.00	-101.16	0.00	101.16	2423.81	1211.90	3356.59	1680.79	0.73	-0.14	0.040	
55.00	-26.71	-1.26	0.00	-94.79	0.00	94.79	2376.14	1188.07	3201.01	1602.88	0.89	-0.16	0.042	
60.00	-25.84	-1.25	0.00	-88.51	0.00	88.51	2327.49	1163.75	3047.73	1526.13	1.06	-0.18	0.041	
65.00	-24.98	-1.24	0.00	-82.27	0.00	82.27	2277.86	1138.93	2896.88	1450.59	1.26	-0.20	0.039	
67.50	-24.56	-1.24	0.00	-79.18	0.00	79.18	2252.16	1126.08	2821.75	1412.97	1.37	-0.21	0.039	
67.50	-24.56	-1.24	0.00	-79.18	0.00	79.18	2252.16	1126.08	2821.75	1412.97	1.37	-0.21	0.039	
70.00	-24.14	-1.24	0.00	-76.08	0.00	76.08	2218.62	1109.31	2737.91	1370.99	1.48	-0.21	0.066	
75.00	-23.32	-1.25	0.00	-69.86	0.00	69.86	2151.54	1075.77	2574.02	1288.93	1.72	-0.24	0.065	
80.00	-22.51	-1.26	0.00	-63.60	0.00	63.60	2084.46	1042.23	2415.20	1209.39	1.99	-0.28	0.063	
85.00	-21.73	-1.27	0.00	-57.29	0.00	57.29	2017.38	1008.69	2261.43	1132.40	2.29	-0.31	0.061	
90.00	-16.55	-1.24	0.00	-50.94	0.00	50.94	1950.30	975.15	2112.72	1057.93	2.63	-0.34	0.057	
90.50	-16.49	-1.25	0.00	-50.32	0.00	50.32	1943.59	971.80	2098.13	1050.62	2.66	-0.34	0.056	
93.12	-15.97	-1.25	0.00	-47.05	0.00	47.05	1908.44	954.22	2022.49	1012.75	2.86	-0.35	0.031	
94.50	-15.70	-1.25	0.00	-45.33	0.00	45.33	1035.36	517.68	1113.15	557.40	2.96	-0.36	0.034	
95.00	-15.66	-1.25	0.00	-44.71	0.00	44.71	1033.16	516.58	1106.89	554.27	3.00	-0.36	0.042	
100.00	-15.21	-1.25	0.00	-38.46	0.00	38.46	1010.63	505.31	1044.65	523.10	3.38	-0.38	0.038	
105.00	-14.78	-1.25	0.00	-32.21	0.00	32.21	987.11	493.55	983.14	492.30	3.79	-0.40	0.034	
107.87	-14.53	-1.25	0.00	-28.62	0.00	28.62	973.17	486.58	948.19	474.80	4.03	-0.41	0.031	
107.87	-14.53	-1.25	0.00	-28.62	0.00	28.62	973.17	486.58	948.19	474.80	4.03	-0.41	0.031	
110.00	-14.35	-1.26	0.00	-25.95	0.00	25.95	962.61	481.31	922.45	461.91	4.22	-0.41	0.071	
114.00	-9.92	-1.16	0.00	-20.93	0.00	20.93	942.31	471.15	874.57	437.94	4.58	-0.44	0.058	
115.00	-9.84	-1.16	0.00	-19.77	0.00	19.77	937.13	468.57	862.70	431.99	4.67	-0.45	0.056	
120.00	-9.49	-1.15	0.00	-13.95	0.00	13.95	910.67	455.33	804.02	402.61	5.16	-0.48	0.045	
125.00	-5.17	-0.81	0.00	-8.18	0.00	8.18	883.23	441.61	746.49	373.80	5.67	-0.50	0.028	
130.00	-4.90	-0.78	0.00	-4.14	0.00	4.14	854.80	427.40	690.24	345.64	6.20	-0.51	0.018	
135.00	-0.24	-0.05	0.00	-0.25	0.00	0.25	825.39	412.70	635.38	318.16	6.74	-0.52	0.001	
140.00	-0.02	0.00	0.00	0.00	0.00	0.00	789.80	394.90	578.22	289.54	7.28	-0.52	0.000	
140.50	0.00	0.00	0.00	0.00	0.00	0.00	785.78	392.89	572.31	286.58	7.34	-0.52	0.000	

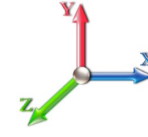
Seismic Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 22
Gust Response Factor	1.10			Sds 0.19	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1 0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.26	SA 0.03	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	0.00	
5.00		844.63	0.00	0.03	0.02	18.52	
10.00		826.19	0.01	0.05	0.03	25.06	
15.00		807.76	0.02	0.06	0.04	27.57	
20.00	RT1 RB2	789.32	0.04	0.07	0.04	28.41	
25.00		770.89	0.06	0.07	0.04	28.61	
30.00		752.46	0.09	0.07	0.04	28.66	
35.00		734.02	0.12	0.07	0.03	28.70	
40.00	RT2 RB3	715.59	0.15	0.07	0.03	28.67	
44.50	Bot - Section 2	628.27	0.19	0.06	0.02	25.49	
45.00		127.45	0.19	0.06	0.02	5.17	
50.00	Top - Section 1	1255.9	0.24	0.06	0.02	50.13	
55.00		561.84	0.29	0.05	0.01	20.79	
60.00	RT3 RB4	546.48	0.34	0.03	0.01	16.67	
65.00		531.12	0.40	0.02	0.01	10.24	
67.50	RT4	259.80	0.44	0.01	0.01	3.07	
70.00		255.96	0.47	-0.01	0.01	0.89	
75.00		500.39	0.54	-0.03	0.01	-7.17	
80.00		485.03	0.61	-0.06	0.02	-14.54	
85.00		469.67	0.69	-0.08	0.03	-18.97	
90.00	Appurtenance(s)	4126.3	0.78	-0.11	0.05	-183.59	
90.50	Bot - Section 3	44.59	0.78	-0.11	0.05	-1.99	
93.12	RB5	372.44	0.83	-0.12	0.06	-16.34	
94.50	Top - Section 2	193.46	0.86	-0.12	0.07	-8.29	
95.00		26.43	0.86	-0.12	0.07	-1.12	
100.00		259.21	0.96	-0.12	0.11	-8.92	
105.00		250.00	1.06	-0.09	0.16	-5.22	
107.87	RT5	139.33	1.11	-0.06	0.20	-1.48	
110.00		101.45	1.16	-0.03	0.23	-0.19	
114.00	Appurtenance(s)	3610.3	1.24	0.05	0.29	62.25	
115.00		45.58	1.27	0.08	0.31	1.03	
120.00		222.35	1.38	0.24	0.41	11.70	
125.00	Appurtenance(s)	3529.1	1.50	0.49	0.54	311.83	
130.00		203.91	1.62	0.84	0.69	26.50	
135.00	Appurtenance(s)	3871.1	1.74	1.30	0.89	687.55	
140.00		185.48	1.88	1.91	1.11	42.93	
140.50		18.04	1.89	1.98	1.14	4.28	
Totals:		29,062.1				1,226.9	Total Wind: 32,767.9

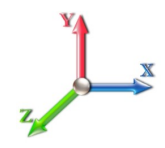
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E						Iterations 22
Gust Response Factor	1.10		Sds	0.19		Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.26	SA	0.03	Seismic Importance 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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-29.80	-1.50	0.00	-169.46	0.00	169.46	3592.24	1796.12	6217.42	3113.33	0.00	0.00	0.00	0.038
5.00	-28.87	-1.49	0.00	-161.98	0.00	161.98	3536.93	1768.47	5988.37	2998.63	0.01	-0.01	0.038	
10.00	-27.96	-1.47	0.00	-154.55	0.00	154.55	3480.64	1740.32	5761.86	2885.21	0.03	-0.03	0.037	
15.00	-27.07	-1.44	0.00	-147.22	0.00	147.22	3423.37	1711.69	5538.01	2773.12	0.06	-0.04	0.036	
20.00	-26.19	-1.42	0.00	-140.00	0.00	140.00	3365.12	1682.56	5316.92	2662.41	0.11	-0.05	0.038	
25.00	-25.33	-1.40	0.00	-132.89	0.00	132.89	3305.89	1652.94	5098.71	2553.15	0.17	-0.07	0.037	
30.00	-24.49	-1.37	0.00	-125.90	0.00	125.90	3245.52	1622.76	4883.27	2445.26	0.25	-0.08	0.036	
35.00	-23.66	-1.35	0.00	-119.02	0.00	119.02	3165.03	1582.51	4642.85	2324.87	0.34	-0.10	0.036	
40.00	-22.85	-1.33	0.00	-112.27	0.00	112.27	3084.53	1542.26	4408.49	2207.52	0.45	-0.11	0.038	
44.50	-22.13	-1.30	0.00	-106.30	0.00	106.30	3012.08	1506.04	4202.76	2104.51	0.56	-0.12	0.038	
45.00	-22.00	-1.30	0.00	-105.65	0.00	105.65	3004.03	1502.02	4180.21	2093.21	0.57	-0.13	0.037	
50.00	-20.71	-1.25	0.00	-99.14	0.00	99.14	2423.81	1211.90	3356.59	1680.79	0.71	-0.14	0.038	
55.00	-20.03	-1.24	0.00	-92.88	0.00	92.88	2376.14	1188.07	3201.01	1602.88	0.87	-0.16	0.040	
60.00	-19.38	-1.22	0.00	-86.69	0.00	86.69	2327.49	1163.75	3047.73	1526.13	1.05	-0.18	0.039	
65.00	-18.73	-1.22	0.00	-80.57	0.00	80.57	2277.86	1138.93	2896.88	1450.59	1.24	-0.19	0.037	
67.50	-18.42	-1.21	0.00	-77.53	0.00	77.53	2252.16	1126.08	2821.75	1412.97	1.34	-0.20	0.037	
67.50	-18.42	-1.21	0.00	-77.53	0.00	77.53	2252.16	1126.08	2821.75	1412.97	1.34	-0.20	0.037	
70.00	-18.10	-1.22	0.00	-74.50	0.00	74.50	2218.62	1109.31	2737.91	1370.99	1.45	-0.21	0.062	
75.00	-17.49	-1.23	0.00	-68.40	0.00	68.40	2151.54	1075.77	2574.02	1288.93	1.69	-0.24	0.061	
80.00	-16.88	-1.23	0.00	-62.28	0.00	62.28	2084.46	1042.23	2415.20	1209.39	1.95	-0.27	0.060	
85.00	-16.29	-1.24	0.00	-56.12	0.00	56.12	2017.38	1008.69	2261.43	1132.40	2.25	-0.30	0.058	
90.00	-12.41	-1.22	0.00	-49.94	0.00	49.94	1950.30	975.15	2112.72	1057.93	2.58	-0.33	0.054	
90.50	-12.36	-1.22	0.00	-49.33	0.00	49.33	1943.59	971.80	2098.13	1050.62	2.62	-0.33	0.053	
93.12	-11.98	-1.22	0.00	-46.13	0.00	46.13	1908.44	954.22	2022.49	1012.75	2.80	-0.35	0.029	
94.50	-11.77	-1.22	0.00	-44.44	0.00	44.44	1035.36	517.68	1113.15	557.40	2.90	-0.35	0.032	
95.00	-11.74	-1.22	0.00	-43.83	0.00	43.83	1033.16	516.58	1106.89	554.27	2.94	-0.35	0.040	
100.00	-11.41	-1.22	0.00	-37.72	0.00	37.72	1010.63	505.31	1044.65	523.10	3.32	-0.37	0.036	
105.00	-11.08	-1.22	0.00	-31.60	0.00	31.60	987.11	493.55	983.14	492.30	3.72	-0.39	0.032	
107.87	-10.90	-1.22	0.00	-28.09	0.00	28.09	973.17	486.58	948.19	474.80	3.96	-0.40	0.029	
107.87	-10.90	-1.22	0.00	-28.09	0.00	28.09	973.17	486.58	948.19	474.80	3.96	-0.40	0.029	
110.00	-10.76	-1.23	0.00	-25.48	0.00	25.48	962.61	481.31	922.45	461.91	4.14	-0.41	0.066	
114.00	-7.44	-1.14	0.00	-20.58	0.00	20.58	942.31	471.15	874.57	437.94	4.49	-0.43	0.055	
115.00	-7.38	-1.14	0.00	-19.43	0.00	19.43	937.13	468.57	862.70	431.99	4.58	-0.44	0.053	
120.00	-7.11	-1.13	0.00	-13.72	0.00	13.72	910.67	455.33	804.02	402.61	5.06	-0.47	0.042	
125.00	-3.87	-0.79	0.00	-8.05	0.00	8.05	883.23	441.61	746.49	373.80	5.56	-0.49	0.026	
130.00	-3.68	-0.77	0.00	-4.08	0.00	4.08	854.80	427.40	690.24	345.64	6.08	-0.50	0.016	
135.00	-0.18	-0.05	0.00	-0.25	0.00	0.25	825.39	412.70	635.38	318.16	6.61	-0.51	0.001	
140.00	-0.02	0.00	0.00	0.00	0.00	0.00	789.80	394.90	578.22	289.54	7.15	-0.51	0.000	
140.50	0.00	0.00	0.00	0.00	0.00	0.00	785.78	392.89	572.31	286.58	7.20	-0.51	0.000	

Wind Loading - Shaft

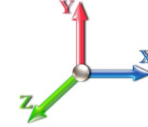
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	7.442	8.19	199.12	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	194.86	0.659 *	0.000	5.00	17.806	11.74	96.1	0.0	844.6
10.00		1.00	0.85	7.442	8.19	190.60	0.664 *	0.000	5.00	17.421	11.57	94.7	0.0	826.2
15.00		1.00	0.85	7.442	8.19	186.34	0.669 *	0.000	5.00	17.036	11.39	93.2	0.0	807.8
20.00	RT1 RB2	1.00	0.90	7.896	8.69	187.56	0.674 *	0.000	5.00	16.650	11.22	97.4	0.0	789.3
25.00		1.00	0.95	8.276	9.10	187.52	0.679 *	0.000	5.00	16.265	11.04	100.5	0.0	770.9
30.00		1.00	0.98	8.600	9.46	186.57	0.684 *	0.000	5.00	15.880	10.87	102.8	0.0	752.5
35.00		1.00	1.01	8.883	9.77	184.97	0.690 *	0.000	5.00	15.495	10.69	104.5	0.0	734.0
40.00	RT2 RB3	1.00	1.04	9.137	10.05	182.87	0.696 *	0.000	5.00	15.110	10.51	105.7	0.0	715.6
44.50	Bot - Section 2	1.00	1.07	9.344	10.28	180.63	0.674 *	0.000	4.50	13.270	8.95	92.0	0.0	628.3
45.00		1.00	1.07	9.366	10.30	180.37	0.677 *	0.000	0.50	1.482	1.00	10.3	0.0	127.5
50.00	Top - Section 1	1.00	1.09	9.576	10.53	177.54	0.681 *	0.000	5.00	14.604	9.94	104.7	0.0	1255.9
55.00		1.00	1.12	9.770	10.75	177.80	0.682 *	0.000	5.00	14.219	9.70	104.3	0.0	561.8
60.00	RT3 RB4	1.00	1.14	9.951	10.95	174.51	0.689 *	0.000	5.00	13.834	9.53	104.3	0.0	546.5
65.00		1.00	1.16	10.120	11.13	171.02	0.695 *	0.000	5.00	13.448	9.35	104.1	0.0	531.1
67.50	RT4	1.00	1.17	10.201	11.22	169.21	0.701 *	0.000	2.50	6.580	4.61	51.7	0.0	259.8
70.00		1.00	1.17	10.279	11.31	167.35	0.704 *	0.000	2.50	6.484	4.57	51.6	0.0	256.0
75.00		1.00	1.19	10.430	11.47	163.53	0.650	0.000	5.00	12.678	8.24	94.5	0.0	500.4
80.00		1.00	1.21	10.572	11.63	159.56	0.650	0.000	5.00	12.293	7.99	92.9	0.0	485.0
85.00		1.00	1.22	10.708	11.78	155.47	0.650	0.000	5.00	11.908	7.74	91.2	0.0	469.7
90.00	Appurtenance(s)	1.00	1.24	10.838	11.92	151.27	0.650	0.000	5.00	11.523	7.49	89.3	0.0	454.3
90.50	Bot - Section 3	1.00	1.24	10.850	11.94	150.84	0.650	0.000	0.50	1.131	0.74	8.8	0.0	44.6
93.12	RB5	1.00	1.25	10.916	12.01	148.59	0.744 *	0.000	2.62	5.947	4.42	53.1	0.0	372.4
94.50	Top - Section 2	1.00	1.25	10.950	12.04	147.40	0.748 *	0.000	1.38	3.090	2.31	27.8	0.0	193.5
95.00		1.00	1.25	10.962	12.06	149.09	0.746 *	0.000	0.50	1.112	0.83	10.0	0.0	26.4
100.00		1.00	1.27	11.081	12.19	144.70	0.751 *	0.000	5.00	10.911	8.20	99.9	0.0	259.2
105.00		1.00	1.28	11.195	12.31	140.22	0.762 *	0.000	5.00	10.526	8.02	98.8	0.0	250.0
107.87	RT5	1.00	1.29	11.259	12.38	137.61	0.771 *	0.000	2.87	5.868	4.53	56.1	0.0	139.3
110.00		1.00	1.29	11.305	12.44	135.65	0.777 *	0.000	2.13	4.273	3.32	41.3	0.0	101.4
114.00	Appurtenance(s)	1.00	1.30	11.391	12.53	131.95	0.650	0.000	4.00	7.835	5.09	63.8	0.0	186.0
115.00		1.00	1.30	11.412	12.55	131.01	0.650	0.000	1.00	1.920	1.25	15.7	0.0	45.6
120.00		1.00	1.32	11.514	12.67	126.30	0.650	0.000	5.00	9.370	6.09	77.1	0.0	222.3
125.00	Appurtenance(s)	1.00	1.33	11.614	12.78	121.52	0.650	0.000	5.00	8.985	5.84	74.6	0.0	213.1
130.00		1.00	1.34	11.710	12.88	116.68	0.650	0.000	5.00	8.600	5.59	72.0	0.0	203.9
135.00	Appurtenance(s)	1.00	1.35	11.803	12.98	111.78	0.651 *	0.000	5.00	8.215	5.35	69.4	0.0	194.7
140.00		1.00	1.36	11.894	13.08	106.82	0.650	0.000	5.00	7.830	5.09	66.6	0.0	185.5
140.50		1.00	1.36	11.903	13.09	106.32	0.650	0.000	0.50	0.762	0.50	6.5	0.0	18.0
Totals:									140.50			2,627.5		14,973.2

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

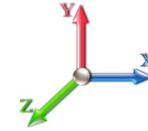
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	135.00	Expansion rights	3	11.803	12.984	0.70	0.80	6.67	210.00	0.000	0.000	86.65	0.00	0.00	
2	135.00	Ericsson RRUS 32 B66A	3	11.803	12.984	0.70	0.80	8.08	158.70	0.000	0.000	104.92	0.00	0.00	
3	135.00	Ericsson S11B12	3	11.803	12.984	0.56	0.80	4.75	153.00	0.000	0.000	61.73	0.00	0.00	
4	135.00	RFS	3	11.803	12.984	0.50	0.80	9.61	122.10	0.000	0.000	124.81	0.00	0.00	
5	135.00	Commscope F-65C-R2	3	11.803	12.984	0.67	0.80	28.57	185.10	0.000	0.000	370.90	0.00	0.00	
6	135.00	Ericsson AIR32	3	11.803	12.984	0.70	0.80	13.59	396.60	0.000	0.000	176.49	0.00	0.00	
7	135.00	Sector Frame	3	11.803	12.984	0.56	0.75	25.31	2451.00	0.000	0.000	328.65	0.00	0.00	
8	125.00	Kathrein 782 10250	6	11.614	12.775	0.50	0.75	1.57	38.40	0.000	0.000	20.03	0.00	0.00	
9	125.00	Raycap DC6-48-60-18-8F	2	11.701	12.871	0.81	0.90	2.38	65.60	0.000	4.500	30.65	0.00	137.92	
10	125.00	CCI DTMABP7819VG12A	6	11.614	12.775	0.50	0.75	3.44	114.00	0.000	0.000	43.91	0.00	0.00	
11	125.00	CCI OPA-65R-LCUU-H6	3	11.614	12.775	0.59	0.75	17.17	219.00	0.000	0.000	219.36	0.00	0.00	
12	125.00	7120.16	3	11.614	12.775	0.92	0.75	10.82	46.20	0.000	0.000	138.17	0.00	0.00	
13	125.00	KMW	3	11.614	12.775	0.56	0.75	13.53	145.50	0.000	0.000	172.89	0.00	0.00	
14	125.00	Ericsson RRUS-11	6	11.614	12.775	0.50	0.75	7.60	324.00	0.000	0.000	97.06	0.00	0.00	
15	125.00	Ericsson RRUS-32	3	11.614	12.775	0.56	0.75	4.25	231.00	0.000	0.000	54.33	0.00	0.00	
16	125.00	Kathrein 800-10121	3	11.614	12.775	0.59	0.75	9.15	132.30	0.000	0.000	116.94	0.00	0.00	
17	125.00	Platform w/ Hand Rails	1	11.614	12.775	1.00	1.00	40.00	2000.00	0.000	0.000	511.00	0.00	0.00	
18	114.00	Low Profile Platform	1	11.391	12.530	1.00	1.00	25.00	1800.00	0.000	0.000	313.24	0.00	0.00	
19	114.00	Alcatel Lucent	3	11.453	12.598	0.78	0.80	6.37	180.00	0.000	3.000	80.30	0.00	240.90	
20	114.00	Samsung	3	11.370	12.507	0.61	0.80	3.32	99.30	0.000	-1.000	41.52	0.00	-41.52	
21	114.00	Andrew VHLP1-23-DW1	1	11.484	12.632	1.00	1.00	1.61	14.00	0.000	4.500	20.34	0.00	91.52	
22	114.00	Andrew VHLP2-23-DW1	1	11.484	12.632	1.00	1.00	4.69	31.00	0.000	4.500	59.25	0.00	266.60	
23	114.00	Argus LLPX310R-V1	3	11.401	12.541	0.55	0.80	7.14	152.10	0.000	0.500	89.51	0.00	44.76	
24	114.00	Alcatel Lucent	3	11.359	12.495	0.78	0.80	5.59	192.00	0.000	-1.500	69.81	0.00	-104.72	
25	114.00	RFS APXVTM14	3	11.453	12.598	0.63	0.80	12.02	350.10	0.000	3.000	151.44	0.00	454.32	
26	114.00	RFS APXVSP18	3	11.412	12.553	0.66	0.80	15.98	375.90	0.000	1.000	200.54	0.00	200.54	
27	114.00	Alcatel Lucent	3	11.453	12.598	0.55	0.80	6.71	210.00	0.000	3.000	84.50	0.00	253.49	
28	114.00	20" x 18" x 9" Junction	1	11.391	12.530	1.00	1.00	3.15	20.00	0.000	0.000	39.47	0.00	0.00	
29	90.00	Alcatel Lucent	3	10.838	11.921	0.57	0.75	5.99	270.00	0.000	0.000	71.35	0.00	0.00	
30	90.00	Swedcom SLCP 2x6014	3	10.838	11.921	0.67	0.75	13.00	136.80	0.000	0.000	154.93	0.00	0.00	
31	90.00	Commscope	6	10.838	11.921	0.62	0.75	30.18	458.40	0.000	0.000	359.77	0.00	0.00	
32	90.00	Antel	3	10.838	11.921	0.55	0.75	12.43	127.80	0.000	0.000	148.23	0.00	0.00	
33	90.00	RFS DB-T1-6Z-8AB-0Z	1	10.838	11.921	1.00	1.00	4.80	44.00	0.000	0.000	57.22	0.00	0.00	
34	90.00	Alcatel Lucent	3	10.838	11.921	0.57	0.75	5.99	270.00	0.000	0.000	71.35	0.00	0.00	
35	90.00	Alcatel Lucent	3	10.838	11.921	0.68	0.75	3.06	165.00	0.000	0.000	36.45	0.00	0.00	
36	90.00	Platform w/ Hand Rails	1	10.838	11.921	1.00	1.00	42.00	2200.00	0.000	0.000	500.70	0.00	0.00	
Totals:									14,088.90						5,208.41

Total Applied Force Summary

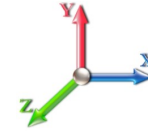
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		96.12	1028.89	0.00	0.00
10.00		94.68	1010.45	0.00	0.00
15.00		93.25	992.02	0.00	0.00
20.00		97.42	973.58	0.00	0.00
25.00		100.51	955.15	0.00	0.00
30.00		102.78	936.72	0.00	0.00
35.00		104.46	918.28	0.00	0.00
40.00		105.68	899.85	0.00	0.00
44.50		91.97	794.10	0.00	0.00
45.00		10.34	145.88	0.00	0.00
50.00		104.69	1440.18	0.00	0.00
55.00		104.28	746.10	0.00	0.00
60.00		104.29	730.74	0.00	0.00
65.00		104.12	715.38	0.00	0.00
67.50		51.74	351.93	0.00	0.00
70.00		51.64	348.09	0.00	0.00
75.00		94.54	684.65	0.00	0.00
80.00		92.92	669.29	0.00	0.00
85.00		91.17	653.93	0.00	0.00
90.00	(23) attachments	1489.30	4310.57	0.00	0.00
90.50		8.77	55.67	0.00	0.00
93.12		53.13	430.53	0.00	0.00
94.50		27.84	224.06	0.00	0.00
95.00		10.00	37.51	0.00	0.00
100.00		99.93	370.07	0.00	0.00
105.00		98.80	360.86	0.00	0.00
107.87		56.05	202.97	0.00	0.00
110.00		41.31	148.67	0.00	0.00
114.00	(25) attachments	1213.73	3699.08	0.00	1405.90
115.00		15.67	60.23	0.00	0.00
120.00		77.14	295.60	0.00	0.00
125.00	(36) attachments	1478.95	3602.38	0.00	137.92
130.00		72.01	220.91	0.00	0.00
135.00	(21) attachments	1323.56	3888.19	0.00	0.00
140.00		66.59	185.48	0.00	0.00
140.50		6.48	18.04	0.00	0.00
	Totals:	7,835.88	33,106.01	0.00	1,543.83

Linear Appurtenance Segment Forces (Factored)

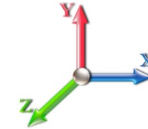
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.015	7.442	0.00	6.60
5.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.105	1.015	7.442	0.00	10.40
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.105	1.015	7.442	0.00	0.00
5.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.105	1.015	7.442	0.00	0.00
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	7.442	0.00	6.60
10.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.107	1.021	7.442	0.00	10.40
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	7.442	0.00	0.00
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	7.442	0.00	0.00
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	7.442	0.00	6.60
15.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.110	1.029	7.442	0.00	10.40
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	7.442	0.00	0.00
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	7.442	0.00	0.00
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	7.896	0.00	6.60
20.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.112	1.036	7.896	0.00	10.40
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	7.896	0.00	0.00
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	7.896	0.00	0.00
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	8.276	0.00	6.60
25.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.115	1.044	8.276	0.00	10.40
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	8.276	0.00	0.00
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	8.276	0.00	0.00
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	8.600	0.00	6.60
30.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.118	1.053	8.600	0.00	10.40
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	8.600	0.00	0.00
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	8.600	0.00	0.00
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	8.883	0.00	6.60
35.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.061	8.883	0.00	10.40
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	8.883	0.00	0.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	8.883	0.00	0.00
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	9.137	0.00	6.60
40.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.124	1.071	9.137	0.00	10.40
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	9.137	0.00	0.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	9.137	0.00	0.00
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	9.344	0.00	5.94
44.50	1 5/8" Coax	Yes	4.50	0.000	1.98	0.74	0.00	0.112	1.037	9.344	0.00	9.36
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	9.344	0.00	0.00
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	9.344	0.00	0.00
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	9.366	0.00	0.66
45.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.114	1.042	9.366	0.00	1.04
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	9.366	0.00	0.00
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	9.366	0.00	0.00
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	9.576	0.00	6.60
50.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.116	1.047	9.576	0.00	10.40
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	9.576	0.00	0.00
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	9.576	0.00	0.00
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	9.770	0.00	6.60
55.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.117	1.050	9.770	0.00	10.40
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	9.770	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

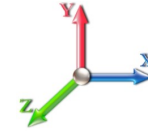
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	9.770	0.00	0.00
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	9.951	0.00	6.60
60.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.060	9.951	0.00	10.40
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	9.951	0.00	0.00
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	9.951	0.00	0.00
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	10.120	0.00	6.60
65.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.123	1.070	10.120	0.00	10.40
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	10.120	0.00	0.00
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	10.120	0.00	0.00
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	10.201	0.00	3.30
67.50	1 5/8" Coax	Yes	2.50	0.000	1.98	0.41	0.00	0.126	1.078	10.201	0.00	5.20
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	10.201	0.00	0.00
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	10.201	0.00	0.00
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	10.279	0.00	3.30
70.00	1 5/8" Coax	Yes	2.50	0.000	1.98	0.41	0.00	0.128	1.084	10.279	0.00	5.20
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	10.279	0.00	0.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	10.279	0.00	0.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	10.430	0.00	6.60
75.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.065	0.000	10.430	0.00	10.40
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	10.572	0.00	6.60
80.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.067	0.000	10.572	0.00	10.40
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	10.708	0.00	6.60
85.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.069	0.000	10.708	0.00	10.40
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	10.838	0.00	6.60
90.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.072	0.000	10.838	0.00	10.40
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	10.850	0.00	0.66
90.50	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.073	0.000	10.850	0.00	1.04
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	10.916	0.00	3.46
93.12	1 5/8" Coax	Yes	2.62	0.000	1.98	0.43	0.00	0.148	1.145	10.916	0.00	5.45
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	10.916	0.00	0.00
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	10.916	0.00	0.00
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	10.950	0.00	1.82
94.50	1 5/8" Coax	Yes	1.38	0.000	1.98	0.23	0.00	0.150	1.151	10.950	0.00	2.87
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	10.950	0.00	0.00
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	10.950	0.00	0.00
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	10.962	0.00	0.66
95.00	1 5/8" Coax	Yes	0.50	0.000	1.98	0.08	0.00	0.149	1.147	10.962	0.00	1.04
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	10.962	0.00	0.00
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	10.962	0.00	0.00
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	11.081	0.00	6.60
100.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.152	1.156	11.081	0.00	10.40
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	11.081	0.00	0.00
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	11.081	0.00	0.00
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	11.195	0.00	6.60
105.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.158	1.173	11.195	0.00	10.40
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	11.195	0.00	0.00
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	11.195	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

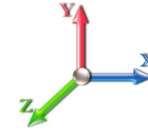
Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	11.259	0.00	3.79
107.87	1 5/8" Coax	Yes	2.87	0.000	1.98	0.47	0.00	0.162	1.187	11.259	0.00	5.97
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	11.259	0.00	0.00
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	11.259	0.00	0.00
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	11.305	0.00	2.81
110.00	1 5/8" Coax	Yes	2.13	0.000	1.98	0.35	0.00	0.165	1.196	11.305	0.00	4.43
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	11.305	0.00	0.00
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	11.305	0.00	0.00
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	11.391	0.00	5.28
114.00	1 5/8" Coax	Yes	4.00	0.000	1.98	0.66	0.00	0.095	0.000	11.391	0.00	8.32
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	11.391	0.00	0.00
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	11.391	0.00	0.00
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	11.412	0.00	1.32
115.00	1 5/8" Coax	Yes	1.00	0.000	1.98	0.17	0.00	0.086	0.000	11.412	0.00	2.08
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	11.514	0.00	6.60
120.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.088	0.000	11.514	0.00	10.40
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	11.614	0.00	6.60
125.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.092	0.000	11.614	0.00	10.40
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	11.710	0.00	6.60
130.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.096	0.000	11.710	0.00	10.40
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	11.803	0.00	6.60
135.00	1 5/8" Coax	Yes	5.00	0.000	1.98	0.82	0.00	0.100	1.001	11.803	0.00	10.40
Totals:											0.0	459.0

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



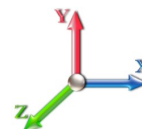
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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 23

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.10	-7.85	0.00	-818.57	0.00	818.57	3592.24	1796.12	6217.42	3113.33	0.00	0.000	0.000	0.168
5.00	-32.06	-7.79	0.00	-779.30	0.00	779.30	3536.93	1768.47	5988.37	2998.63	0.03	-0.062	0.000	0.164
10.00	-31.05	-7.73	0.00	-740.34	0.00	740.34	3480.64	1740.32	5761.86	2885.21	0.13	-0.125	0.000	0.160
15.00	-30.05	-7.67	0.00	-701.70	0.00	701.70	3423.37	1711.69	5538.01	2773.12	0.30	-0.188	0.000	0.157
20.00	-29.06	-7.60	0.00	-663.37	0.00	663.37	3365.12	1682.56	5316.92	2662.41	0.53	-0.251	0.000	0.162
25.00	-28.10	-7.53	0.00	-625.38	0.00	625.38	3305.89	1652.94	5098.71	2553.15	0.82	-0.318	0.000	0.158
30.00	-27.16	-7.45	0.00	-587.75	0.00	587.75	3245.52	1622.76	4883.27	2445.26	1.19	-0.385	0.000	0.153
35.00	-26.23	-7.37	0.00	-550.51	0.00	550.51	3185.03	1582.51	4642.85	2324.87	1.63	-0.452	0.000	0.150
40.00	-25.32	-7.28	0.00	-513.66	0.00	513.66	3084.53	1542.26	4408.49	2207.52	2.14	-0.519	0.000	0.159
44.50	-24.52	-7.20	0.00	-480.88	0.00	480.88	3012.08	1506.04	4202.76	2104.51	2.66	-0.585	0.000	0.154
45.00	-24.37	-7.21	0.00	-477.28	0.00	477.28	3004.03	1502.02	4180.21	2093.21	2.73	-0.593	0.000	0.152
50.00	-22.93	-7.11	0.00	-441.25	0.00	441.25	2423.81	1211.90	3356.59	1680.79	3.38	-0.664	0.000	0.153
55.00	-22.17	-7.03	0.00	-405.69	0.00	405.69	2376.14	1188.07	3201.01	1602.88	4.12	-0.735	0.000	0.158
60.00	-21.43	-6.94	0.00	-370.54	0.00	370.54	2327.49	1163.75	3047.73	1526.13	4.93	-0.810	0.000	0.150
65.00	-20.71	-6.85	0.00	-335.83	0.00	335.83	2277.86	1138.93	2896.88	1450.59	5.82	-0.883	0.000	0.141
67.50	-20.36	-6.80	0.00	-318.72	0.00	318.72	2252.16	1126.08	2821.75	1412.97	6.29	-0.920	0.000	0.137
67.50	-20.36	-6.80	0.00	-318.72	0.00	318.72	2252.16	1126.08	2821.75	1412.97	6.29	-0.920	0.000	0.137
70.00	-20.00	-6.77	0.00	-301.71	0.00	301.71	2218.62	1109.31	2737.91	1370.99	6.78	-0.956	0.000	0.229
75.00	-19.31	-6.71	0.00	-267.84	0.00	267.84	2151.54	1075.77	2574.02	1288.93	7.84	-1.074	0.000	0.217
80.00	-18.62	-6.64	0.00	-234.32	0.00	234.32	2084.46	1042.23	2415.20	1209.39	9.03	-1.189	0.000	0.203
85.00	-17.96	-6.56	0.00	-201.14	0.00	201.14	2017.38	1008.69	2261.43	1132.40	10.33	-1.298	0.000	0.187
90.00	-13.68	-4.99	0.00	-168.32	0.00	168.32	1950.30	975.15	2112.72	1057.93	11.75	-1.400	0.000	0.166
90.50	-13.62	-4.98	0.00	-165.83	0.00	165.83	1943.59	971.80	2098.13	1050.62	11.90	-1.410	0.000	0.165
93.12	-13.19	-4.93	0.00	-152.77	0.00	152.77	1908.44	954.22	2022.49	1012.75	12.69	-1.462	0.000	0.088
94.50	-12.97	-4.90	0.00	-145.97	0.00	145.97	1035.36	517.68	1113.15	557.40	13.11	-1.477	0.000	0.097
95.00	-12.93	-4.89	0.00	-143.52	0.00	143.52	1033.16	516.58	1106.89	554.27	13.26	-1.482	0.000	0.120
100.00	-12.56	-4.80	0.00	-119.06	0.00	119.06	1010.63	505.31	1044.65	523.10	14.85	-1.544	0.000	0.103
105.00	-12.19	-4.70	0.00	-95.08	0.00	95.08	987.11	493.55	983.14	492.30	16.50	-1.599	0.000	0.087
107.87	-11.99	-4.64	0.00	-81.60	0.00	81.60	973.17	486.58	948.19	474.80	17.47	-1.627	0.000	0.077
107.87	-11.99	-4.64	0.00	-81.60	0.00	81.60	973.17	486.58	948.19	474.80	17.47	-1.627	0.000	0.077
110.00	-11.84	-4.60	0.00	-71.72	0.00	71.72	962.61	481.31	922.45	461.91	18.20	-1.646	0.000	0.168
114.00	-8.18	-3.29	0.00	-51.90	0.00	51.90	942.31	471.15	874.57	437.94	19.61	-1.721	0.000	0.127
115.00	-8.11	-3.28	0.00	-48.61	0.00	48.61	937.13	468.57	862.70	431.99	19.97	-1.737	0.000	0.121
120.00	-7.82	-3.20	0.00	-32.22	0.00	32.22	910.67	455.33	804.02	402.61	21.83	-1.805	0.000	0.089
125.00	-4.26	-1.61	0.00	-16.09	0.00	16.09	883.23	441.61	746.49	373.80	23.75	-1.851	0.000	0.048
130.00	-4.04	-1.53	0.00	-8.05	0.00	8.05	854.80	427.40	690.24	345.64	25.70	-1.877	0.000	0.028
135.00	-0.20	-0.08	0.00	-0.40	0.00	0.40	825.39	412.70	635.38	318.16	27.67	-1.888	0.000	0.002
140.00	-0.02	-0.01	0.00	0.00	0.00	0.00	789.80	394.90	578.22	289.54	29.65	-1.888	0.000	0.000
140.50	0.00	-0.01	0.00	0.00	0.00	0.00	785.78	392.89	572.31	286.58	29.85	-1.888	0.000	0.000

Final Analysis Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-G	9/15/2017
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	32.9	0.00	39.65	0.00	0.00	3445.40
0.9D + 1.6W 97 mph Wind	32.8	0.00	29.72	0.00	0.00	3400.25
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.1	0.00	81.94	0.00	0.00	990.96
1.2D + 1.0E	1.5	0.00	39.73	0.00	0.00	171.99
0.9D + 1.0E	1.5	0.00	29.80	0.00	0.00	169.46
1.0D + 1.0W 60 mph Wind	7.9	0.00	33.10	0.00	0.00	818.57

Max Stresses

Load Case	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)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-22.07	-28.57	0.00	-1273.1	0.00	-1273.1	2218.62	1109.3	2737.91	1370.99	70.00	0.939
0.9D + 1.6W 97 mph Wind	-16.09	-28.10	0.00	-1246.2	0.00	-1246.2	2218.62	1109.3	2737.91	1370.99	70.00	0.917
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-56.90	-8.27	0.00	-376.88	0.00	-376.88	2218.62	1109.3	2737.91	1370.99	70.00	0.301
1.2D + 1.0E	-14.35	-1.26	0.00	-25.95	0.00	-25.95	962.61	481.31	922.45	461.91	110.00	0.071
0.9D + 1.0E	-10.76	-1.23	0.00	-25.48	0.00	-25.48	962.61	481.31	922.45	461.91	110.00	0.066
1.0D + 1.0W 60 mph Wind	-20.00	-6.77	0.00	-301.71	0.00	-301.71	2218.62	1109.3	2737.91	1370.99	70.00	0.229

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	20.0	(4) LNP-LP7X125-B-20A	-354.8	-8.52	25.3	399.5	25.3	16	0	373.1	25.3			399.55	460.8	440.63	0.907
20.0	40.0	(4) LNP-LP6X125-G-20AB	-365.7	-8.78	25.3	342.2	25.3			310.0	25.3			342.21	395.0	365.63	0.936
40.0	60.0	(4) LNP-LP6X100-G-20BC	-391.1	-9.39	25.3	271.5	25.3			250.7	25.3			271.52	297.8	292.50	0.928
60.0	67.5	(4) LNP-LP6X100-G-10CT	-410.0	-9.84	25.3	250.7	25.3			230.7	25.3	10	0	250.71	297.8	292.50	0.857
93.1	107.9	(3) LNP-LP6X100-G-20TT	603.1	14.47	25.3	163.5	25.3	7	8	127.3	25.3	6	8	196.18	297.8	292.50	0.671



Pier Foundation Design For Monopole			Date
			9/15/2017
Customer Name:	T-Mobile	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	140.5
Site Number:	CT16504-A-SBA	Engineer Name:	Rama K.
Engr. Number:	36710	Engineer Login ID:	

Foundation Info Obtained from:

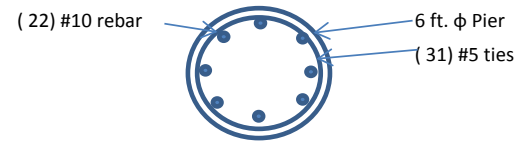
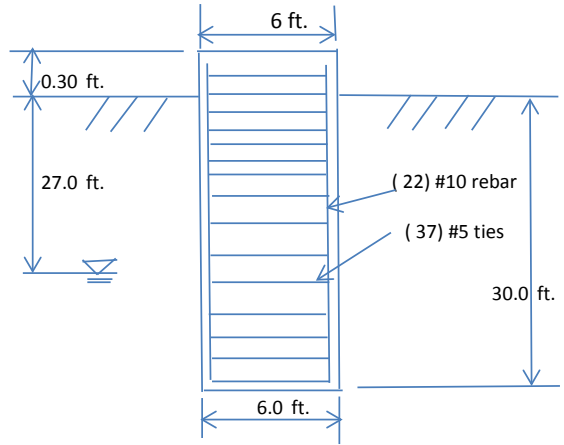
Mapping Operation	Acceptable overstress ()	0.0%
Structure Type:	Monopole	
Analysis or Design?	Analysis	

Base Reactions (Factored):

Axial Load (Kips):	39.7	Shear Force (Kips):	32.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3445.4

Foundation Geometries:

Mods required -Yes/No ?:	No		ft.
Diameter of Pier (ft.):	6.0	Depth of Base B. G. S. :	30.0 ft.
Pier Height A. G. (ft.):	0.30		



Monopole Pier Foundation

Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40	ksi
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	22	Tie Spacing:	12.0	in.
Concrete Cover (in.):	4	Concrete unit weight:	150.0	pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	27.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:	Calculations	Please Enter Ultimate End Bearing Pressure (psf):	11600	
Kc = 1.15 For Sand		Kt = 0.7 For Sand and Silt	Friction δ	
Kc = 1.0 Silt/Clay		Kt = 0.85 For Clay	Between Pier & Soil =	0.95

Depth of Layers (ft)		γ_{soil}	ϕ	Cohesion			Soil Types	Ultimate Uplift Skin Friction (psf)	Ultimate Axial Skin Friction (psf)	Kc	Kt	α
Top	Bottom	(pcf)	(°)	(psf)								
0.0	1.0	100	0	0		0	Sand			1.15	0.70	
1.0	5.0	135	40	0		0	Sand	175.0	287.5	1.15	0.70	
5.0	7.0	120	33	0		0	Sand	187.6	308.3	1.15	0.70	
7.0	10.0	130	38	0		0	Sand	324.1	532.5	1.15	0.70	
10.0	15.0	128	37	0		0	Sand	470.7	773.3	1.15	0.70	
15.0	30.0	132	39	0		11600	Sand	988.8	1624.5	1.15	0.70	
30.0	35.0	127	36	0		11600	Sand	982.1	1613.4	1.15	0.70	

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75
Total Dry Soil Volume from Conical Failure (cu. Ft.):	14255	Dry Soil Weight from Conical Failure:	1845 Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	58	Buoyant Soil Weight from Conical Failure (Kips):	5 Kips
Total Dry Concrete Volume (cu. Ft.):	772	Total Dry Concrete Weight:	115.8 Kips
Total Buoyant Concrete Volume (cu. Ft.):	84.8	Total Buoyant Concrete Weight:	7.43 Kips
Total Effective Concrete Weight (Kips):	123.2	Total Effective Soil Weight:	1849.7 Kips
Total Effective Vertical Load on Base (Kips):	56.8		

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	16167.9	>	Design Factored Moment (kips-ft):	4128	Usage	0.26	OK!
Factor of Safety of Passive Soil Resistance against Moment:	3.92	OK!					

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Reinforcing Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.27	Tie / Stirrup Area (sq. in./each):	0.31	Usage	
Calculated Moment Capacity (Mn,Kips-Ft):	3931.4	>	Design Factored Moment (Mu, K-Ft):	3538.0	0.90 OK!
Calculated Shear Capacity (Kips):	707.8	>	Design Factored Shear (Kips):	296.3	0.42 OK!
Calculated Tension Capacity (Tn, Kips):	1508.8	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	5362	>	Design Factored Axial Load (Pu Kips):	39.7	0.01 OK!
Moment & Axial Strength Combination:	0.90	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			





December 18, 2017

Dear Customer:

The following is the proof-of-delivery for tracking number **771011382578**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	H.HUOL	Delivery location:	41 CENTER STREET MANCHESTER, CT 06045
Service type:	FedEx 2Day	Delivery date:	Dec 18, 2017 10:19
Special Handling:	Deliver Weekday Direct Signature Required		



Shipping Information:

Tracking number:	771011382578	Ship date:	Dec 15, 2017
		Weight:	1.0 lbs/0.5 kg

Recipient:
Mayor Jay Moran
City of Manchester CT
41 Center Street
MANCHESTER, CT 06045 US

Shipper:
Tower Engineering Solutions, LLC
Jaime Reyes
8445 Freeport Parkway
Suite 375
Irving, TX 75063 US
CT16504 City Mayor

Reference

Thank you for choosing FedEx.



December 18,2017

Dear Customer:

The following is the proof-of-delivery for tracking number **771007360982**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	L.CAIN	Delivery location:	79 BOSTON POST RD WILLIMANTIC, CT 06226
Service type:	FedEx 2Day	Delivery date:	Dec 18, 2017 12:11
Special Handling:	Deliver Weekday Direct Signature Required		



Shipping Information:

Tracking number:	771007360982	Ship date:	Dec 15, 2017
		Weight:	1.0 lbs/0.5 kg

Recipient:
Property Manager
Pom-Pom Gali, LLC
79 Boston Post Road
WILLIMANTIC, CT 06226 US

Reference

Shipper:
Tower Engineering Solutions, LLC
Jaime Reyes
8445 Freeport Parkway
Suite 375
Irving, TX 75063 US
CT16504 Prop Owner

Thank you for choosing FedEx.



December 18, 2017

Dear Customer:

The following is the proof-of-delivery for tracking number **771008049839**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	P.PEEK	Delivery location:	494 MAIN STREET MANCHESTER, CT 06045
Service type:	FedEx 2Day	Delivery date:	Dec 18, 2017 10:23
Special Handling:	Deliver Weekday Direct Signature Required		



Shipping Information:

Tracking number:	771008049839	Ship date:	Dec 15, 2017
		Weight:	1.0 lbs/0.5 kg

Recipient:
James Davis - Zoning Enforcement
City of Manchester CT
41 Center Street
MANCHESTER, CT 06045 US

Shipper:
Tower Engineering Solutions, LLC
Jaime Reyes
8445 Freeport Parkway
Suite 375
Irving, TX 75063 US
CT16504 Zoning Enforcement

Reference

Thank you for choosing FedEx.

STATE OF CONNECTICUT SITING COUNCIL NARRATIVE

SBA TOWERS VIII, LLC., THE TOWER OWNER, PROPOSES TO MODIFY THE EXISTING TELECOMMUNICATIONS FACILITY BY ADDING STRUCTURAL REINFORCEMENT TO THE MONOPOLE SHAFT. NO ANTENNA OR EQUIPMENT CHANGES ARE INCLUDED IN THIS MODIFICATION. THIS MODIFICATION WILL COMPLY WITH RCSA 16-50J-73 FOR THE FOLLOWING SITE:

SBA SITE ID: CT16504-A-SBA
 SITE ADDRESS:
 60 ADAMS STREET
 MANCHESTER, CT 06042
 PARCEL NUMBER: 002000060

PROPERTY OWNER:
 POM-POM GALLI, LLC
 79 BOSTON POST ROAD
 WILLIMANTIC, CT 06226
 860-747-5532

SITE LATITUDE 41.794100, LONGITUDE -72.555300
 COMPOUND SIZE: APPROXIMATELY 75' X 75' (5,265 SF)

PER RCSA 16-50J-72(B)-(2) THIS MODIFICATION WILL NOT HAVE A SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT BECAUSE:

- 1) THE TOWER HEIGHT IS NOT INCREASED
- 2) THE SITE BOUNDARIES ARE NOT INCREASED
- 3) THE NOISE LEVEL WILL NOT INCREASE BY 6 DECIBELS
- 4) THERE ARE NO CHANGES TO THE EXISTING ANTENNAS
- 5) THERE IS NO CHANGE TO THE EXISTING ELECTROMAGNETIC RADIATION DENSITY.

1

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 141' EEI MONOPOLE

PROPOSED CARRIER: T-MOBILE

SITE: CT16504-A-SBA / MANCHESTER 12, CT
 COORDINATES (LATITUDE: 41.794100°, LONGITUDE: -72.555300°)

CONSTRUCTION CLASS

TES HAS DETERMINED THIS AS A CLASS III CONSTRUCTION PROJECT PER ANSI/ASSE A10.48

COMPLETE FABRICATION DRAWINGS FOR ALL MATERIALS REQUIRED FOR THIS PROJECT ARE AVAILABLE FROM TOWER ENGINEERING SOLUTIONS (TES). PLEASE CONTACT TES FOR MORE INFORMATION.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	1
BOM	BILL OF MATERIALS	1
GN-1	GENERAL NOTES	0
SP-1	SITE PLAN	1
A-1	TOWER PROFILE	1
A-2	REINFORCEMENT INTERFACE TYPE BW TO FOUNDATION DETAILS	1
A-3	REINFORCEMENT ASSEMBLY	1
A-4	REINFORCEMENT ASSEMBLY	0
A-5	REINFORCEMENT ASSEMBLY	0
A-6	REINFORCEMENT ASSEMBLY	0
A-7	REINFORCEMENT ASSEMBLY	0
A-LP-AB	SPLICE CONNECTION PLATE INSTALLATION DETAILS (TYPE AB)	0
A-LP-BC	SPLICE CONNECTION PLATE INSTALLATION DETAILS (TYPE BC)	0
A-LP-CC	SPLICE CONNECTION PLATE INSTALLATION DETAILS (TYPE CC)	0
SPEC-1	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0
SPEC-2	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE TES PROJECT NO. 36588, DATED 08/01/17.



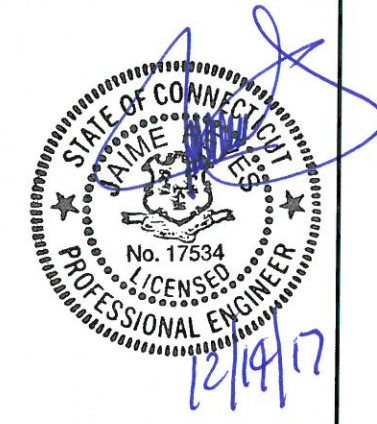
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 8445 FREEPORT PARKWAY, SUITE 375
 IRVING, TX 75063
 PH: (972) 483-0607



5900 BROKEN SOUND PARKWAY, NW
 BOCA RATON, FL 33487
 (800)-487-SITE

TES JOB NO:
 36710

CUSTOMER SITE NO:
 CT16504-A-SBA
 CUSTOMER SITE NAME:
 MANCHESTER 12, CT
 60 ADAMS STREET
 MANCHESTER, CT 06042



DRAWN BY: CB CHECKED BY: RAM/KMM

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	CB	09/19/17
2	ADDED NOTES	JRL	12/14/17
3			
4			

SHEET TITLE:
 TITLE SHEET

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SHEET NUMBER: T-1 REV #: 1

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES	
1			MATERIAL & HARDWARE							
3	3	LP6X125-G-20AB	6" x 1.25" Flat Bar, 20 ft. Long, Standard, Connection Type AB	20'-0"	A-4	LP6X125-G-20AB	709.2	2127.6	Galvanized	
1	1	LP6X125-S-20AB	6" x 1.25" Flat Bar, 20 ft. Long with Step Bolt Brackets, Connection Type AB	20'-0"	A-4	LP6X125-S-20AB	718.8	718.8	Galvanized	
3	3	LP6X100-G-20BC	6" x 1.00" Flat Bar, 20 ft. Long, Standard, Connection Type BC	20'-0"	A-5	LP6X100-G-20BC	531.1	1593.3	Galvanized	
1	1	LP6X100-S-20BC	6" x 1.00" Flat Bar, 20 ft. Long with Step Bolt Brackets, Connection Type BC	20'-0"	A-5	LP6X100-S-20BC	540.7	540.7	Galvanized	
3	3	LP6X100-G-10CT	6" x 1.00" Flat Bar, 10 ft. Long, Standard, Connection Type C with Termination at top	10'-0"	A-6	LP6X100-G-10CT	299.1	897.3	Galvanized	
1	1	LP6X100-S-10CT	6" x 1.00" Flat Bar, 10 ft. Long with Step Bolt Brackets, Connection Type C with Termination at top	10'-0"	A-6	LP6X100-S-10CT	304.5	304.5	Galvanized	
3	3	LP6X100-G-20TT	6" x 1.00" Flat Bar, 20 ft. Long, Standard, Termination at both ends	20'-0"	A-7	LP6X100-G-20TT	408.3	1224.9	Galvanized	
4	4	CPL-A	Link Plate Cover, PL 3/8" x 4 1/4" x 2'-1", A572, Grade 50	---	A-4	F-C	11.5	46.0	Galvanized	
4	4	CPL-B	Link Plate Cover, PL 3/8" x 3 3/4" x 1'- 8 1/2", A572, Grade 50	---	A-5	F-C	8.3	33.2	Galvanized	
4	4	CPL-C	Link Plate Cover, PL 3/8" x 3 1/4" x 1'- 6 13/16", A572, Grade 50	---	A-6	F-C	6.6	26.4	Galvanized	
1										
48	51	STEP BOLT	Step Bolt 5/8" Dia x 8 1/4" Long	---	A-3,A-4,A-5,A-6	F-A	0.75	38.3	Galvanized	
221	233	HB16-2	Lindapter 5/8" Type HB Hollo-Bolt (HCF)	---	A-3 - A-7	---	---	---	Galvanized	
24	26	HB20-3	Lindapter 3/4" Type HB Hollo-Bolt (HCF)	---	A-4,A-5,A-6	---	---	---	Galvanized	
4	4	SHIM-M16-1	1/4" Thick Shim For HB16-2 Hollo-Bolt	---	A-1	SH2	0.3	1.1	Galvanized	
4	4	SHIM-M16-2	3/16" Thick Shim For HB16-2 Hollo-Bolt	---	A-1	SH2	0.2	0.8	Galvanized	
8	10	SHIM-M20-1	1/4" Thick Shim For HB20-3 Hollo-Bolt	---	A-LP-BC	SH2	0.6	6.4	Galvanized	
Following Items are Non-standard Parts										
2	2	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER (OR EQUIV) (GALLON)	---	---	---	---	---	PROVIDED BY CONTRACTOR	
2	2	LP7X125-BR4.75-20A	7" x 1.25" Flat Bar, 20 ft. Long, Base Section with 4.75" Offset, Connection Type A	20'-0"	A-3	LP7X125-BR4.75-20A	752.1	1504.2	Galvanized	
1	1	LP7X125-BL4.75-20A	7" x 1.25" Flat Bar, 20 ft. Long, Base Section with 4.75" Offset, Connection Type A	20'-0"	A-3	LP7X125-BL4.75-20A	752.1	752.1	Galvanized	
1	1	LP7X125-BL4.75S-20A	7" x 1.25" Flat Bar, 20 ft. Long with Step Bolt Brackets, Base Section with 4.75" Offset, Connection Type A	20'-0"	A-3	LP7X125-BL4.75S-20A	794.7	794.7	Galvanized	
40	42	2NG2048	M20 X 95 NEXGEN2 BLIND BOLT ASSEMBLY	---	A-3	---	---	---	Galvanized	
4	4	2TRGB721441212	ALLFASTENER 2 1/4" DIA. ALL-THREAD ROD (OR EQUIV. F1554-105/A193-B7 THREADED ROD)	12'-0"	A-2	---	---	---	Galvanized	
8	8	2HHNG21445G2H	2 1/4" NUT (ALLFASTENER A194 GRADE 2H) (OR EQUIV. HEAVY HEX NUT)	---	A-2	---	---	---	Galvanized	
8	8	PLW-1	PL 1 1/4" X 4 1/2" FLAT WASHER, A527-65	---	A-2	F-A	3.7	29.6	Galvanized	
1										
ALL LPXXXX and RLPXXXX PARTS ARE AVAILABLE FROM METROSITE, LLC. 180 IND PARK BLVD COMMERCE, GA 30529 OFFICE: (706) 335-7045 FAX: (706) 335-7056										
NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.										
TOTAL WEIGHT (LBS) =								10639.9		



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IRVING, TX 75063
PH: (972) 483-0607



5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
36710
CUSTOMER SITE NO:
CT16504-A-SBA
CUSTOMER SITE NAME:
MANCHESTER 12, CT
60 ADAMS STREET
MANCHESTER, CT 06042

DRAWN BY: CB CHECKED BY: RAM/KMM

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	CB	09/19/17
2	REVISED BOM	JRL	12/14/17

SHEET TITLE:
BILL OF MATERIALS

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SHEET NUMBER:
BOM
REV #:
1

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G/2016 CONNECTICUT STATE BUILDING CODE, ANSI/ASSE A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER TIA-1019-A, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2012 SECTION 1705 - TABLE 1705.2.2 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING^{a,b}

BOLT LENGTH ^f	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 ^d	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS ^d
NOT MORE THAN 4d _b	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN 4d _b BUT NOT MORE THAN 8d _b	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN 8d _b BUT NOT MORE THAN 12d _b	2/3 TURN	5/6 TURN	1 TURN

^a NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

^b APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

^c WHEN THE BOLT LENGTH EXCEEDS 12d_b, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

^d BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.



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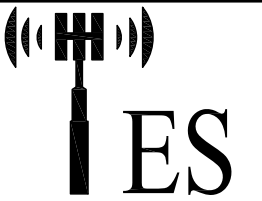
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GN-1 0



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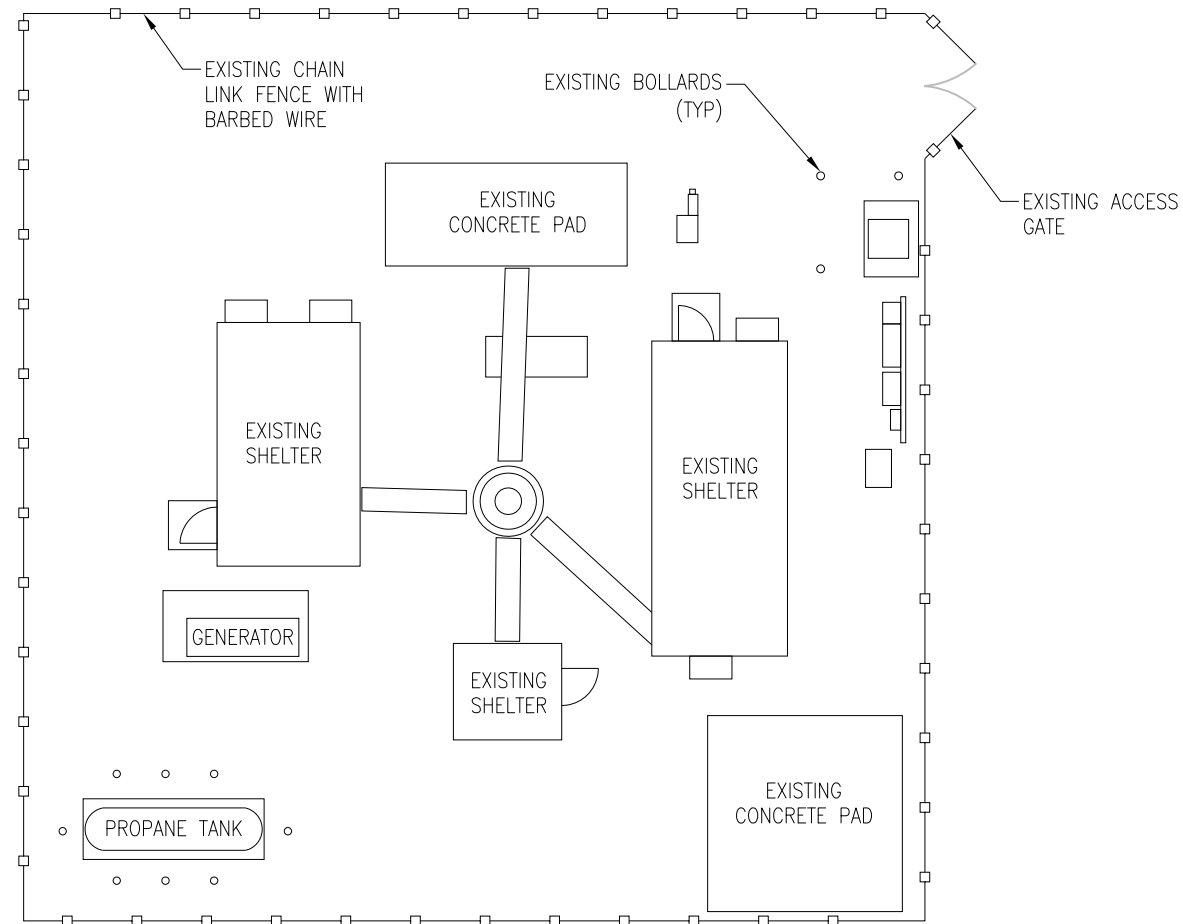
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1	FIRST ISSUE	CB	09/19/17
2	ADDED SITE PLAN	JRL	12/14/17

SHEET TITLE:

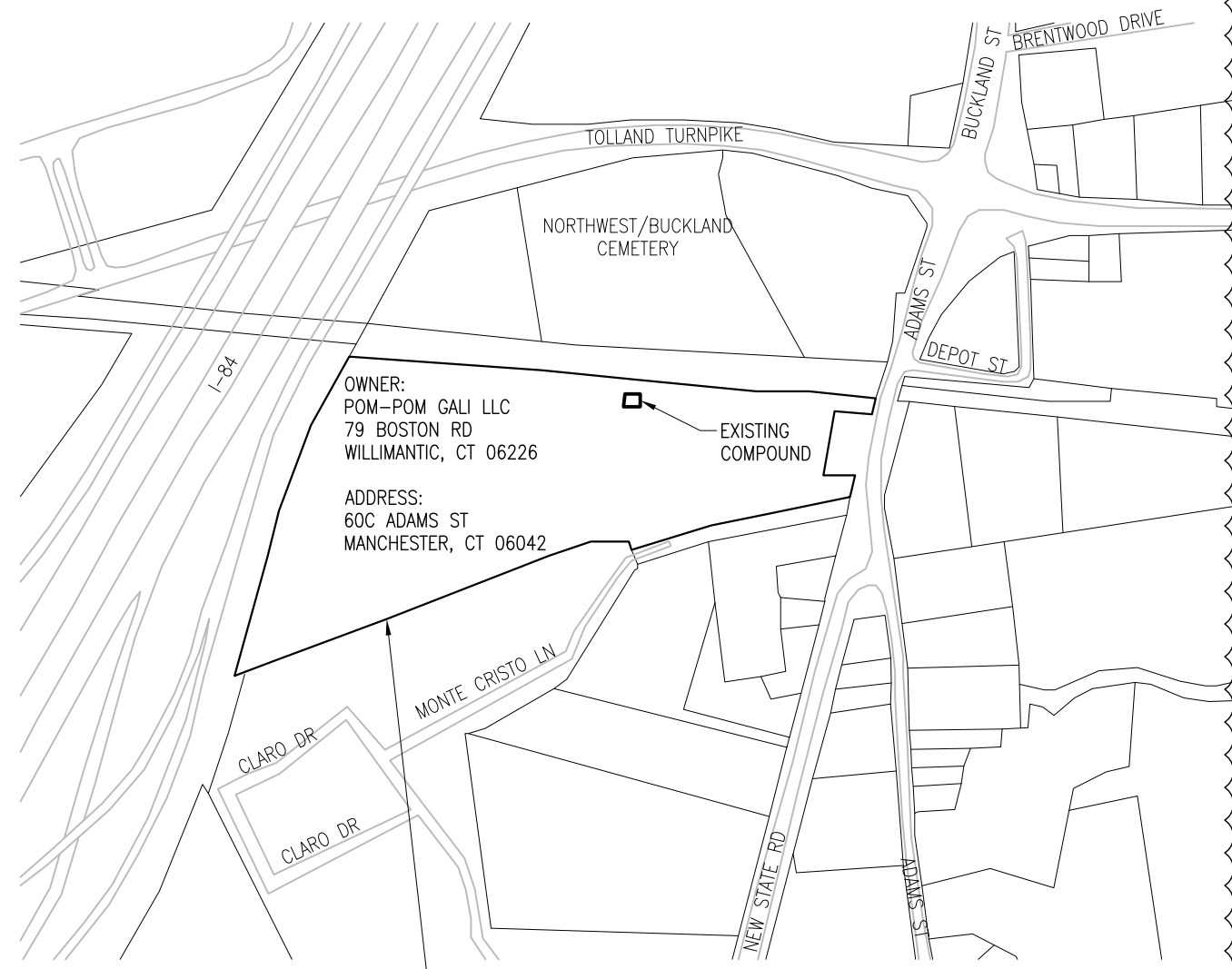
SITE PLAN

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 SP-1 1



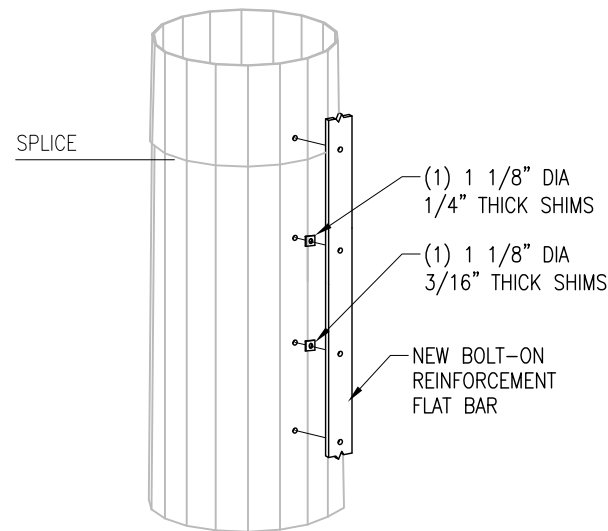
COMPOUND PLAN
 11X17 SCALE
 1/16" = 1'-0"



SITE PLAN

NOTES:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. TEMPORARILY RELOCATE EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

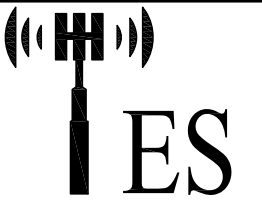
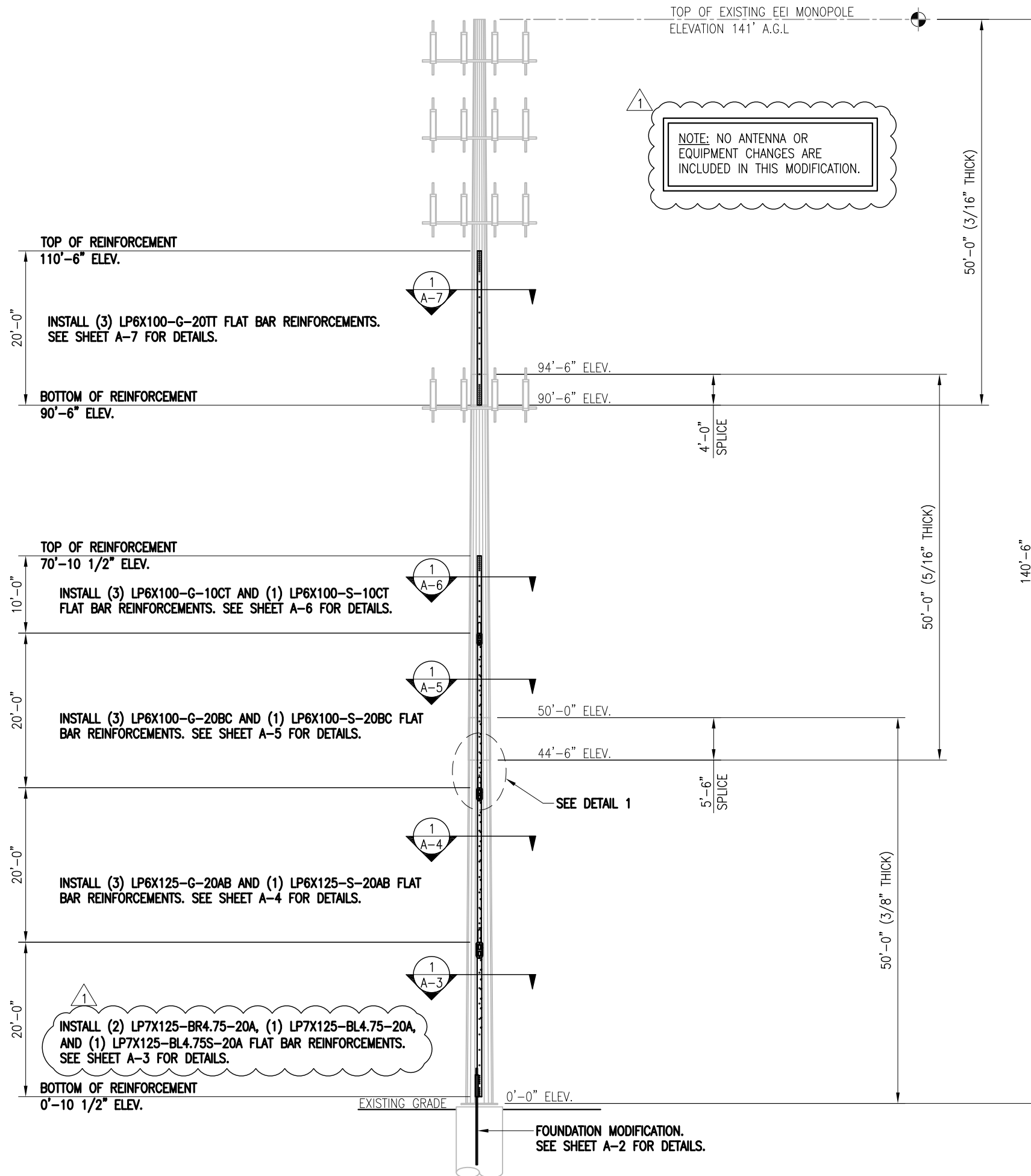


DETAIL 1
SHIMS INSTALLATION DETAIL



FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.
6. APPLY COLD GALVANIZE AT LEAST 2'-3' ABOVE FOUNDATION.



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4			

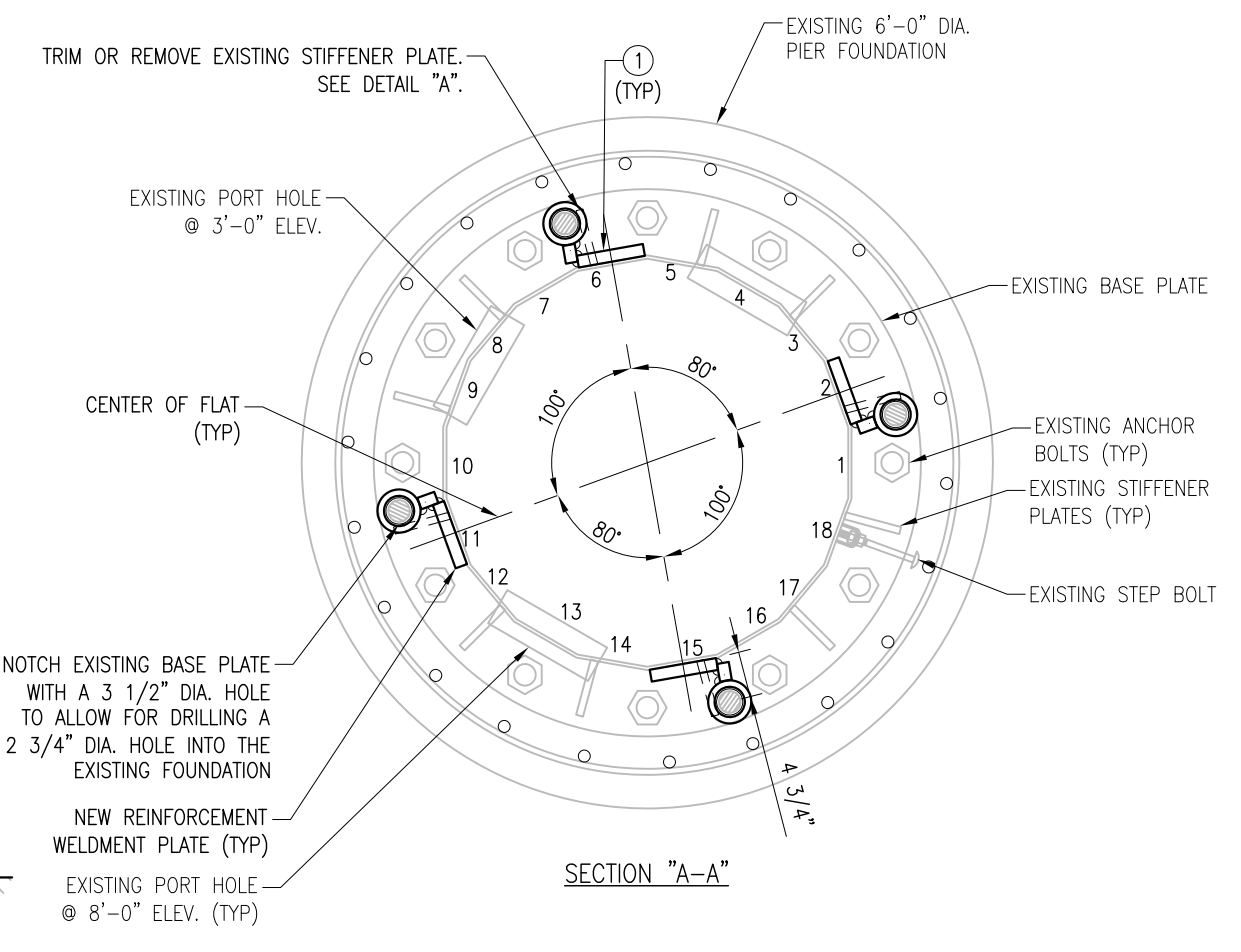
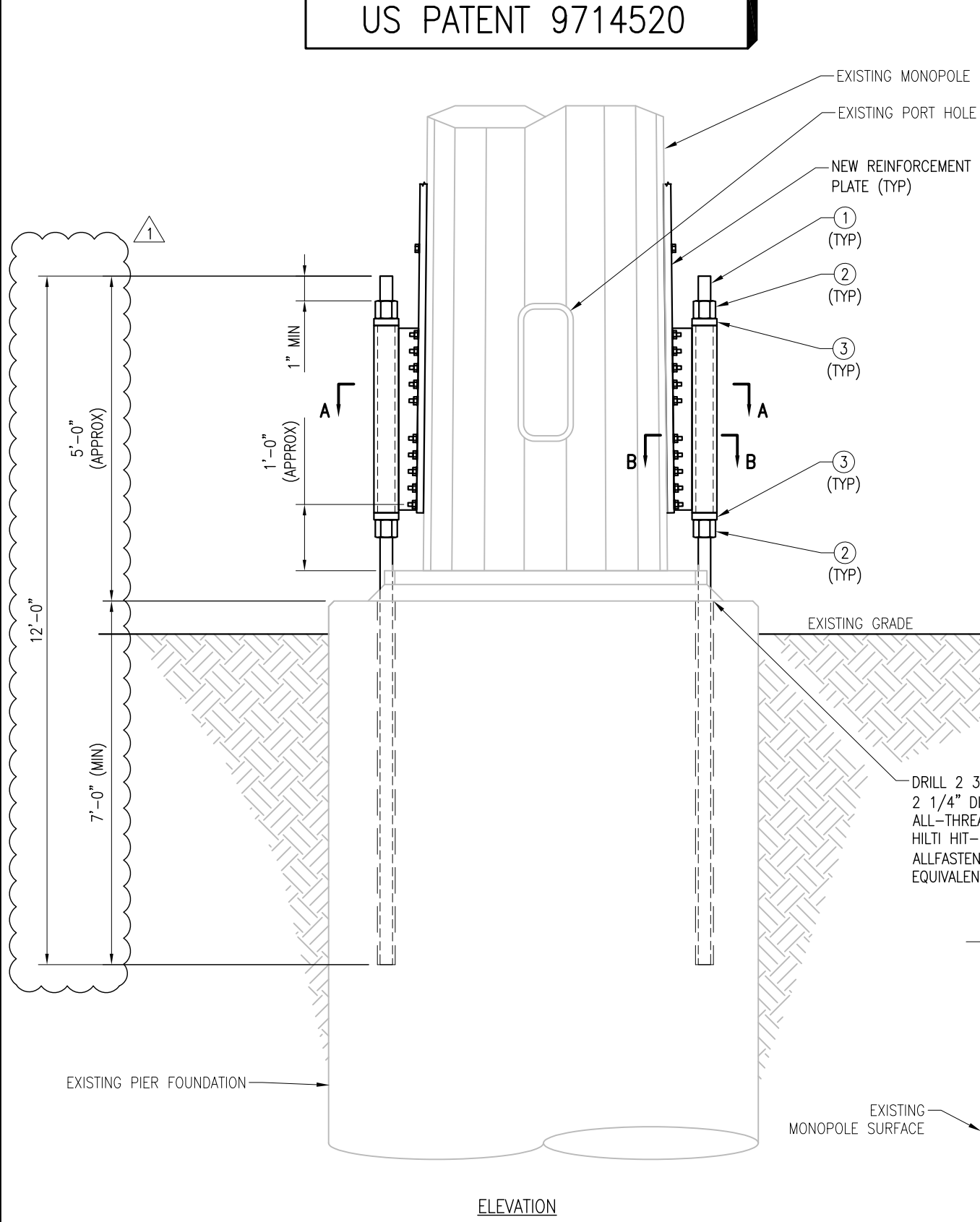
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TOWER PROFILE

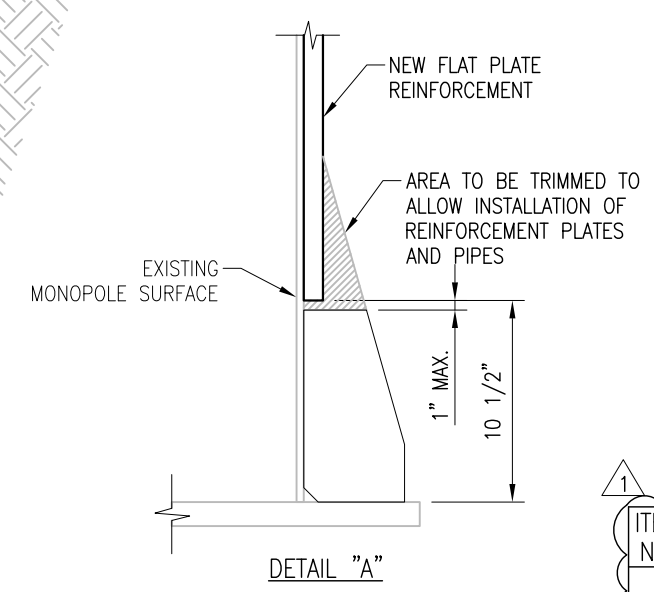
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SHEET NUMBER: A-1	REV #: 1
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US PATENT 9714520



DRILL 2 3/4" DIA. HOLE TO ACCOMMODATE 2 1/4" DIA. ALLFASTENER A193 B7 ALL-THREAD ROD AS SHOWN. GROUT USING HILTI HIT-RE 500 V3 EPOXY OR ALLFASTENERS 12AF35LVE EPOXY (TYP) OR EQUIVALENT MATERIAL APPROVED BY TES.



INSTALLATION NOTES:

1. USE WELDED REINFORCEMENT PLATE TO SET THE POSITION OF THE ALL-THREAD ROD.
2. DRILL NEW 2 3/4" DIA. HOLES INTO EXISTING FOUNDATION FOR ALL-THREAD ROD.
3. INSTALL REINFORCEMENT BRACKET AND CONFIRM FIT WITH MONOPOLE REINFORCEMENT PLATES.
4. TIGHTEN NUTS ON THE ALL-THREAD ROD LOCKING IT INTO POSITION.
5. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND PER MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND EXPOSED AREAS.
6. DRILLING CONTRACTOR TO EXERCISE EXTREME CARE TO AVOID DAMAGING THE EXISTING REINFORCING TIES IN THE CONCRETE PIER. IF REBAR IS ENCOUNTERED IN THE CONCRETE WHILE DRILLING, CONTRACTOR TO STOP DRILLING AND INFORM TES FOR SOLUTION.
7. CONTRACTOR PLEASE NOTE-WHILE DRILLING PREPARE TO DRILL THROUGH ANCHOR BOLT TEMPLATE.

NOTE:
SEE SHEET GN-1 FOR POST-INSTALLED EPOXY INJECTED ANCHOR BOLTS NOTES

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	4	2TRGB721441213	12'-0" ALLFASTENERS 2 1/4" DIA. ALL-THREAD ROD (A193 B7)
2	8	2HHNG21445G2H	2 1/4" NUT (ALLFASTENERS A194 GRADE 2H) (TYP)
3	8	PLW-1	PL 1 1/4" X 4 1/2" FLAT WASHER, A572-65



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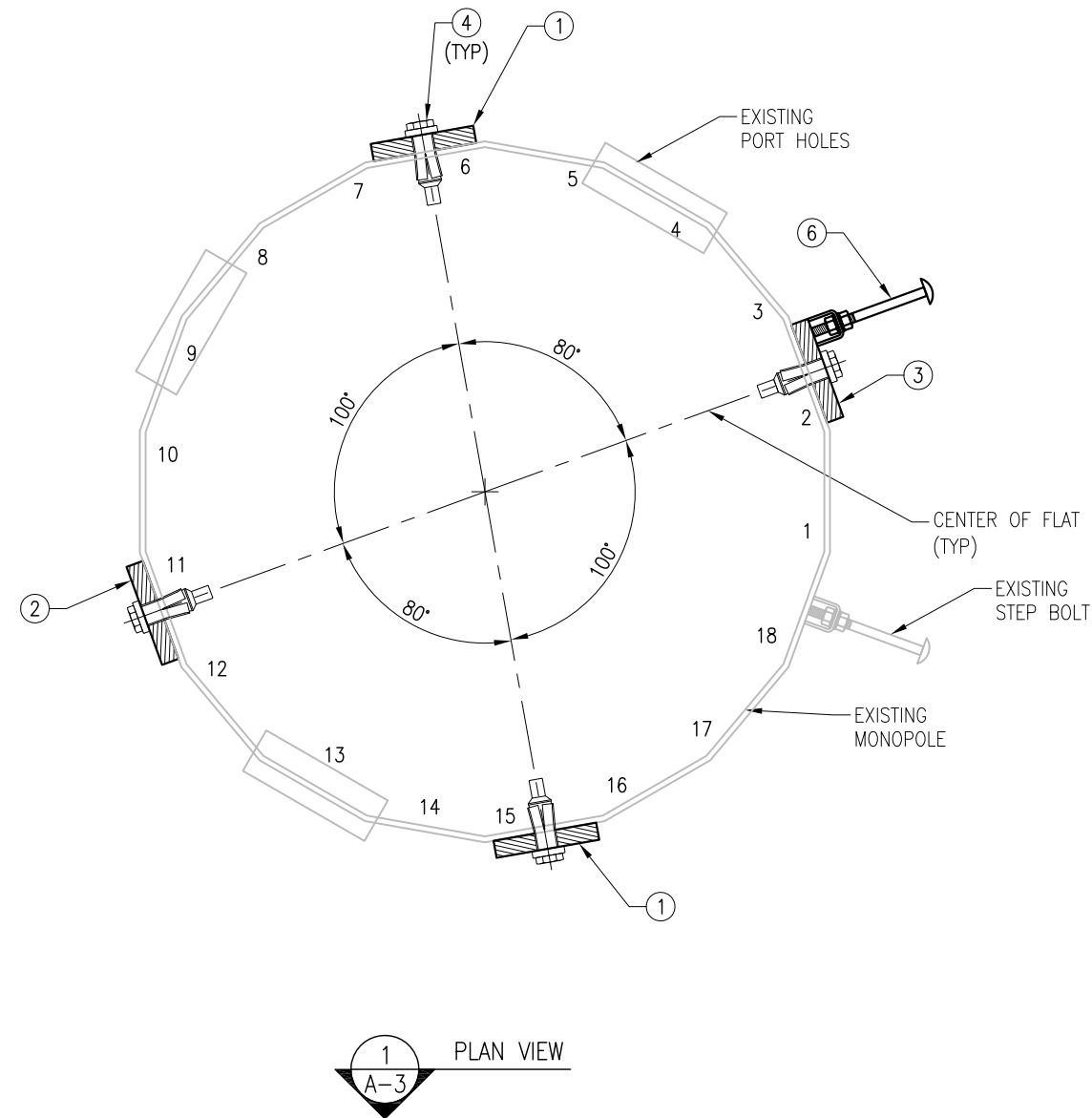
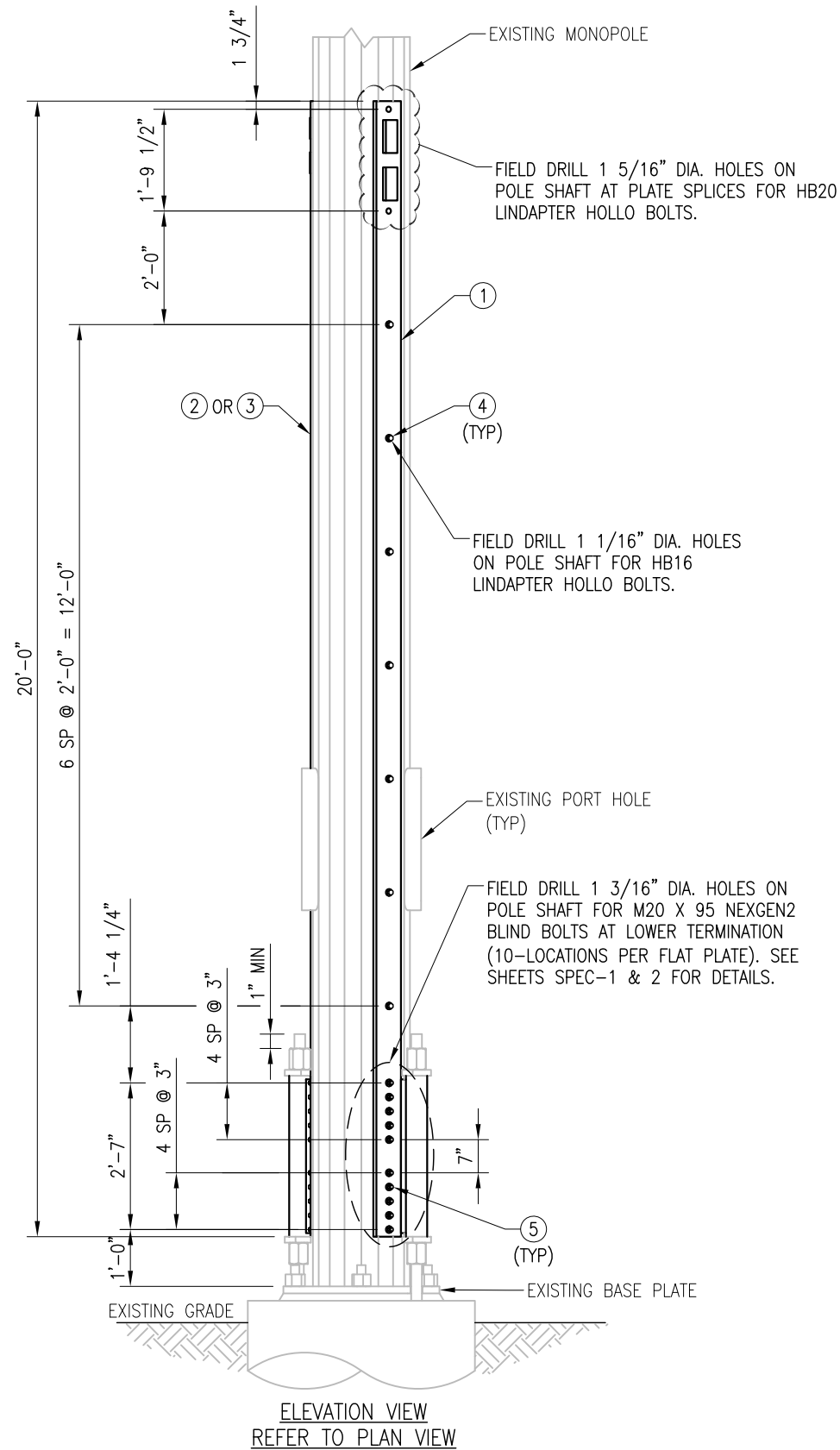
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**REINFORCEMENT
INTERFACE TYPE BW TO
FOUNDATION DETAILS**

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SHEET NUMBER:
A-2 | REV #:
1

US PATENT 9,546,497 B2



NOTES:

- REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
- INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
- INSTALLATION DETAILS FOR NEXGEN2 BOLTS - SEE SHEETS SPEC-1 & 2. IT IS REQUIRED THAT THE CONTRACTOR TAKE PHOTOS OF THE INSTALLED TORQUE FOR VERIFICATION OF PROPER INSTALLATION.
- REMOVE EXISTING STEP BOLTS THAT INTERFERE WITH NEW REINFORCEMENT PLATES PRIOR TO INSTALLATION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	2	LP7X125-BR4.75-20A	PL 1 1/4" X 7" X 20'-0" A572-65 WELDMENT
2	1	LP7X125-BL4.75-20A	PL 1 1/4" X 7" X 20'-0" A572-65 WELDMENT
3	1	LP7X125-BL4.75S-20A	PL 1 1/4" X 7" X 20'-0" A572-65 WELDMENT WITH STEP BOLT
4	28	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
5	40	2NG2048	M20 X 95 NEXGEN2 BLIND BOLT ASSEMBLY
6	8	STEP BOLTS	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA



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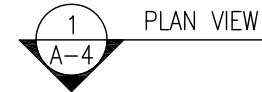
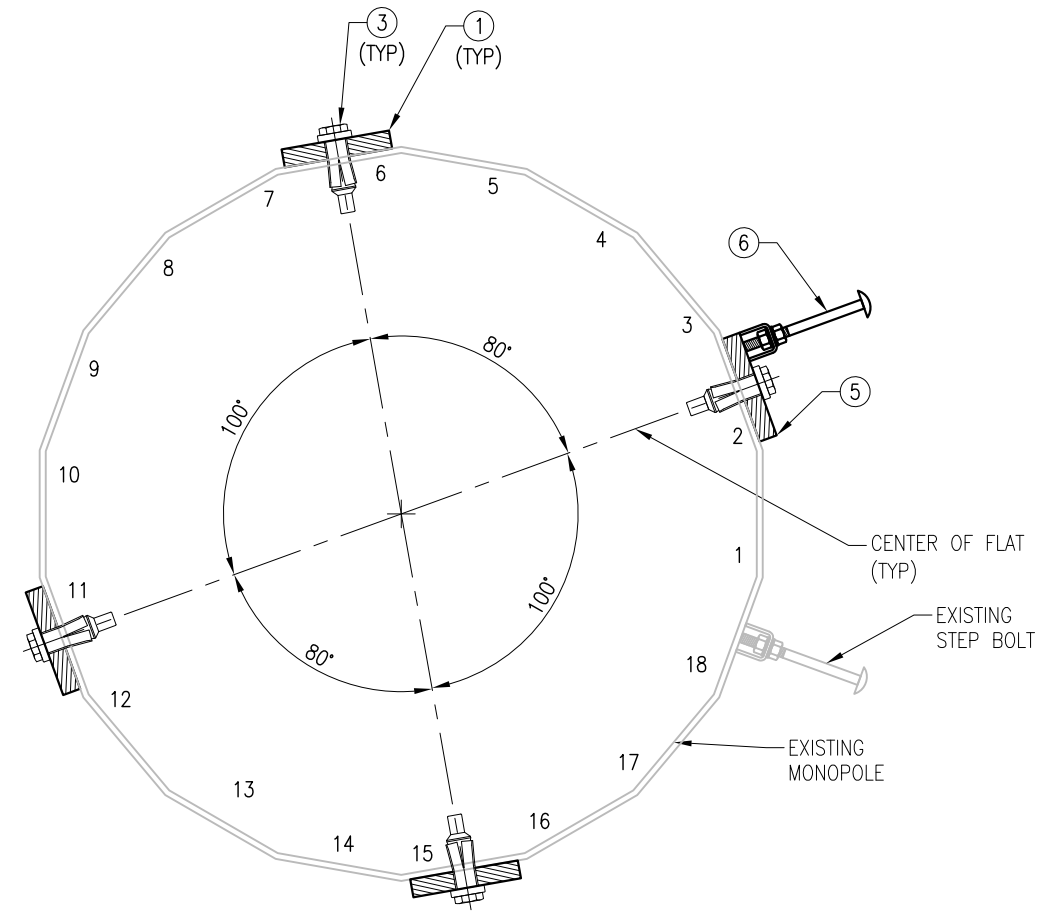
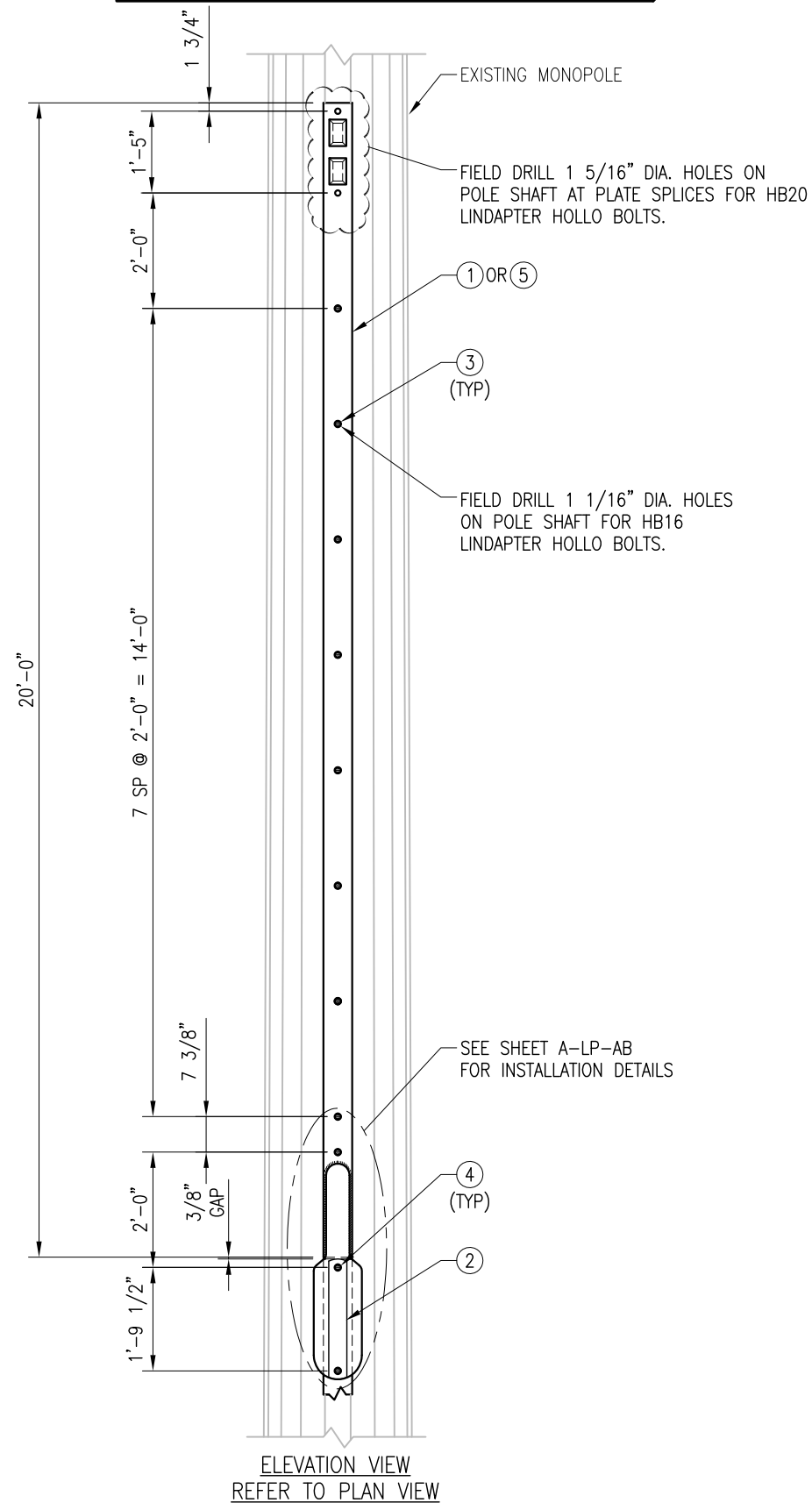
SHEET NUMBER:

A-3

REV #:

1

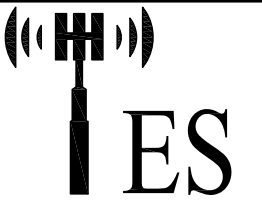
US PATENT 9,546,497 B2



NOTES:

1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
3. REMOVE EXISTING STEP BOLTS THAT INTERFERE WITH NEW REINFORCEMENT PLATES PRIOR TO INSTALLATION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	LP6X125-G-20AB	PL 1 1/4" X 6" X 20'-0" A572-65 WELDMENT
2	4	CPL-A	SPLICE CONNECTION COVER PLATE
3	36	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
4	8	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)
5	1	LP6X125-S-20AB	PL 1 1/4" X 6" X 20'-0" A572-65 WELDMENT WITH STEP BOLT
6	16	STEP BOLTS	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA.



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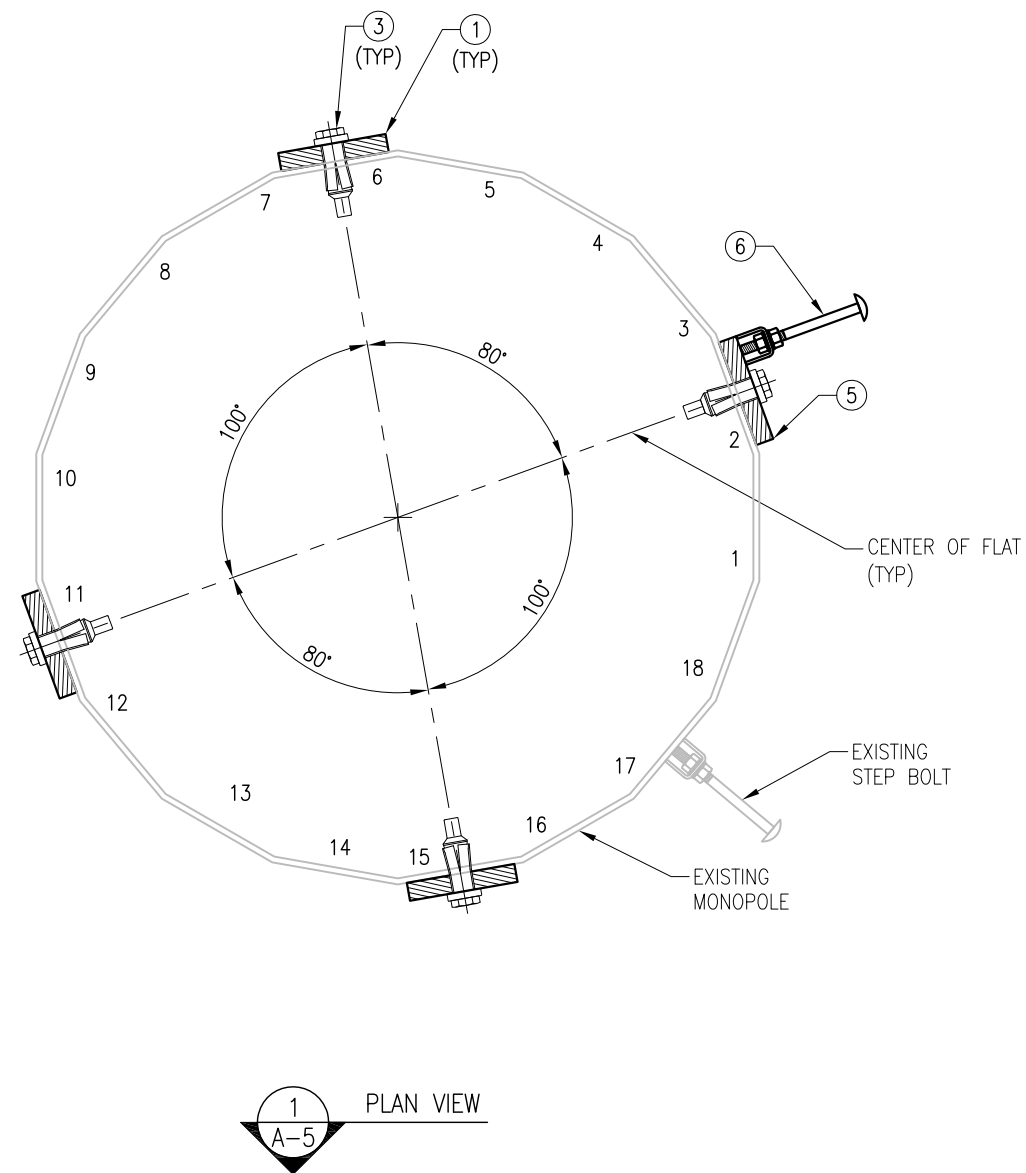
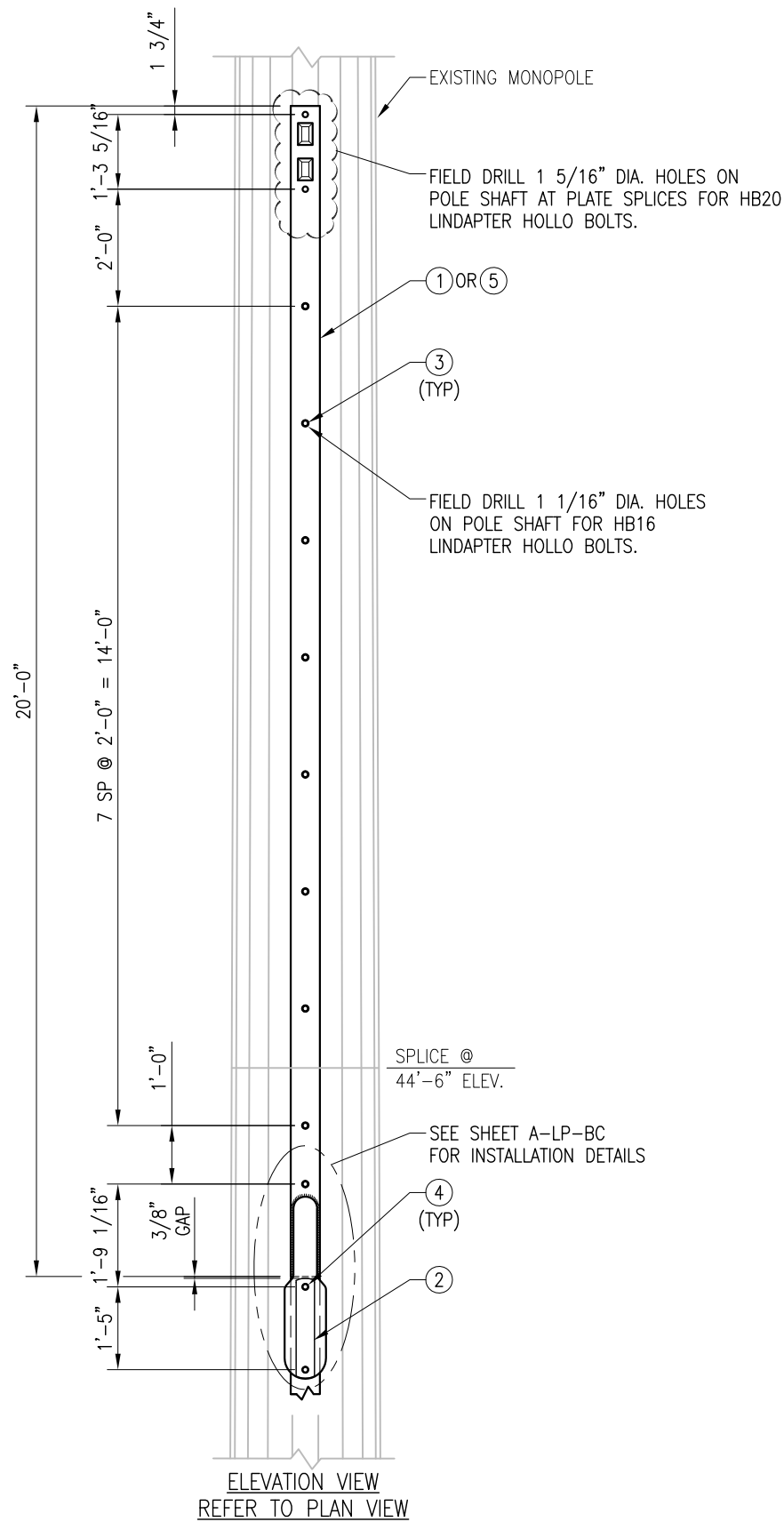
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US PATENT 9,546,497 B2



NOTES:

1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
2. REFER TO SHEET A-1 FOR SHIM IF REQUIRED.
3. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
4. REMOVE EXISTING STEP BOLTS THAT INTERFERE WITH NEW REINFORCEMENT PLATES PRIOR TO INSTALLATION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	LP6X100-G-20BC	PL 1" X 6" X 20'-0" A572-65 WELDMENT
2	4	CPL-B	SPLICE CONNECTION COVER PLATE
3	36	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
4	8	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)
5	1	LP6X100-S-20BC	PL 1" X 6" X 20'-0" A572-65 WELDMENT WITH STEP BOLT
6	16	STEP BOLTS	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA.



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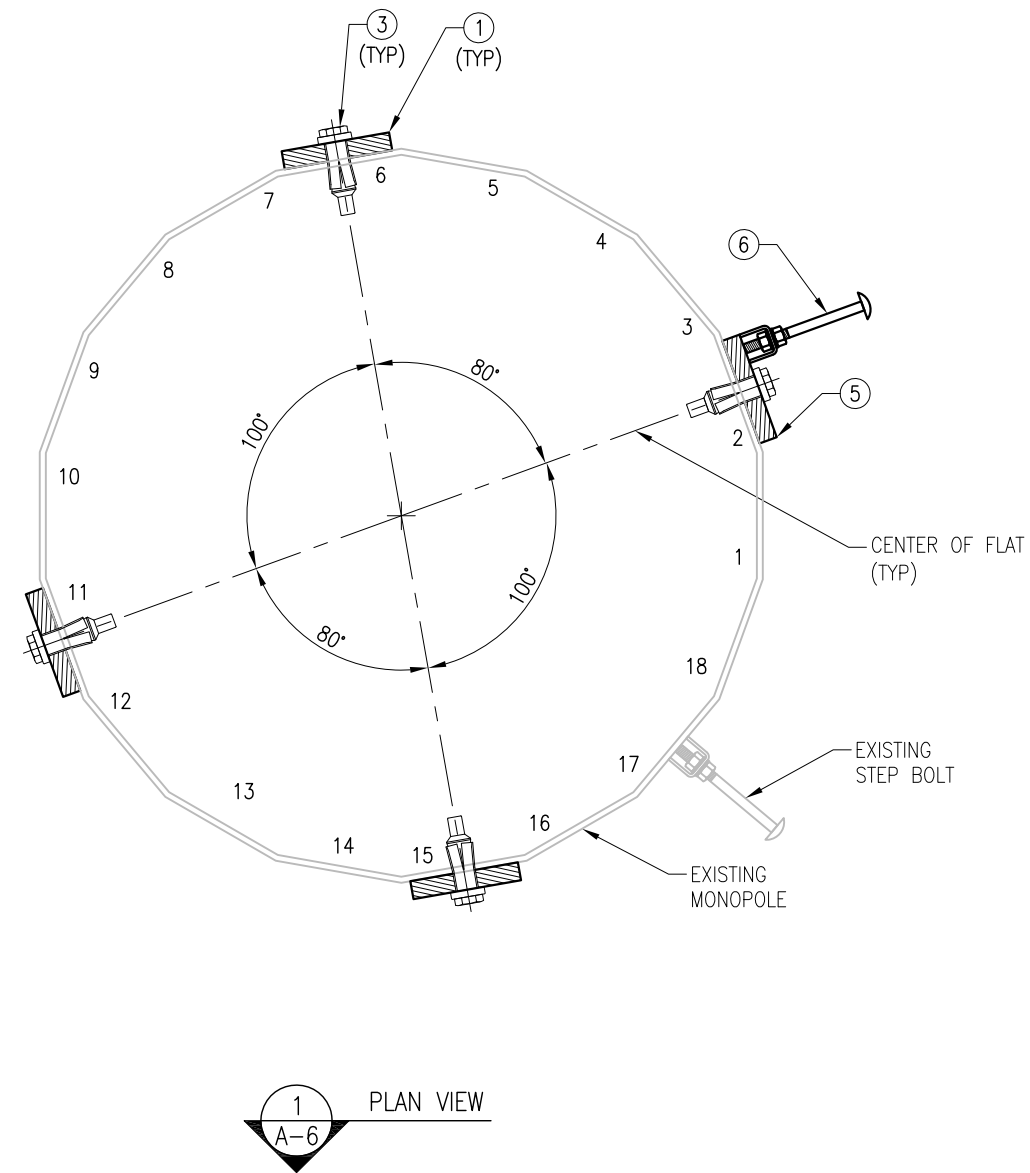
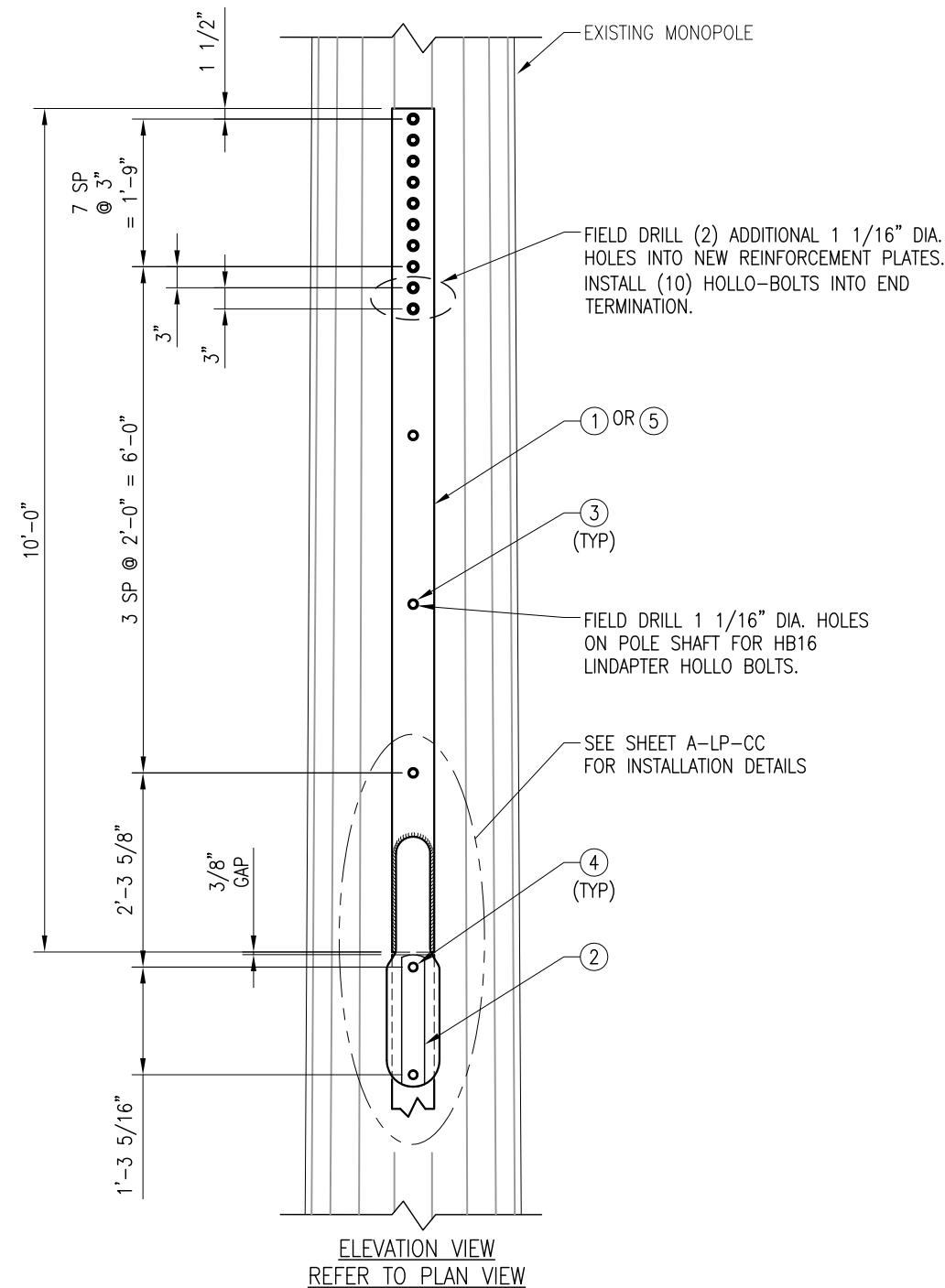
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SHEET NUMBER:

A-5

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NOTES:

1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
3. REMOVE EXISTING STEP BOLTS THAT INTERFERE WITH NEW REINFORCEMENT PLATES PRIOR TO INSTALLATION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	LP6X100-G-10CT	PL 1" X 6" X 10'-0" A572-65 WELDMENT
2	4	CPL-C	SPLICE CONNECTION COVER PLATE
3	52	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
4	8	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)
5	1	LP6X100-S-10CT	PL 1" X 6" X 10'-0" A572-65 WELDMENT WITH STEP BOLT
6	8	STEP BOLTS	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA.



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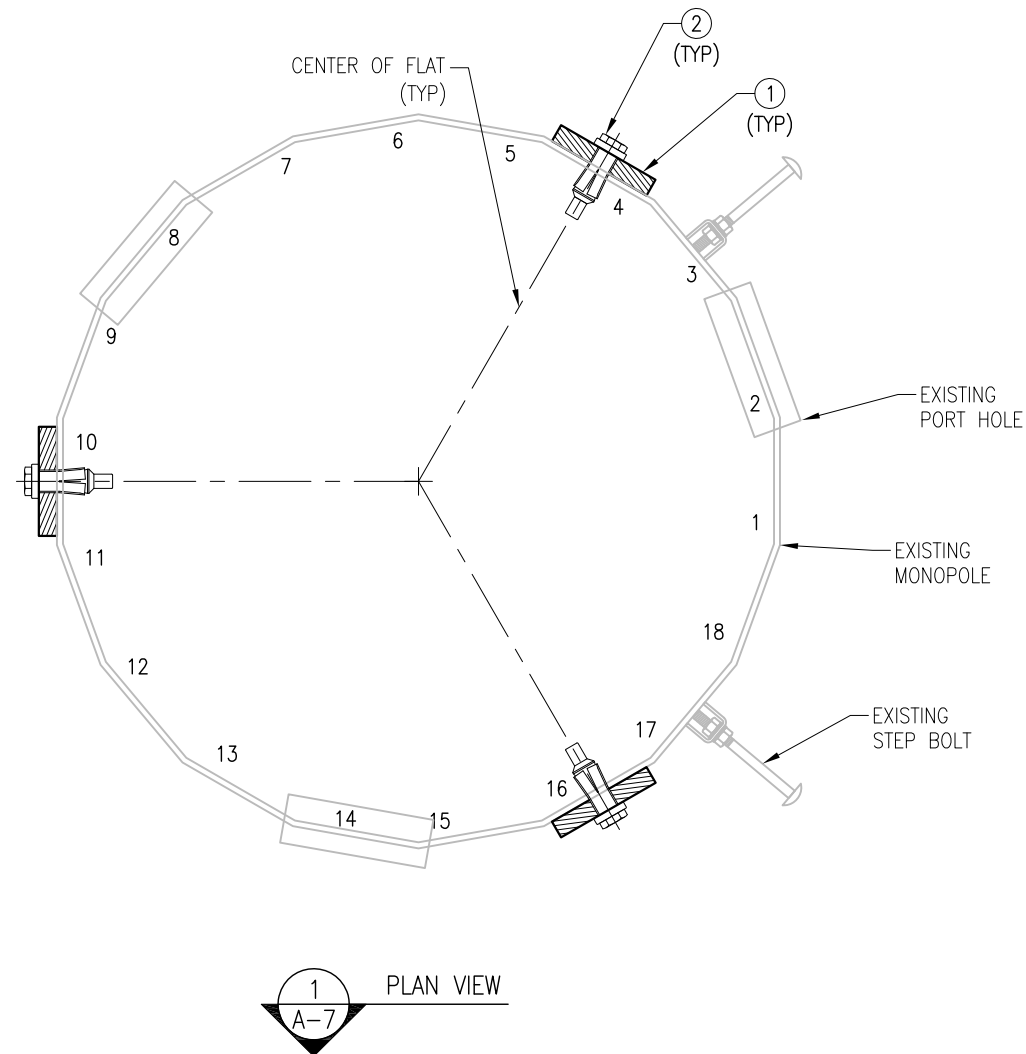
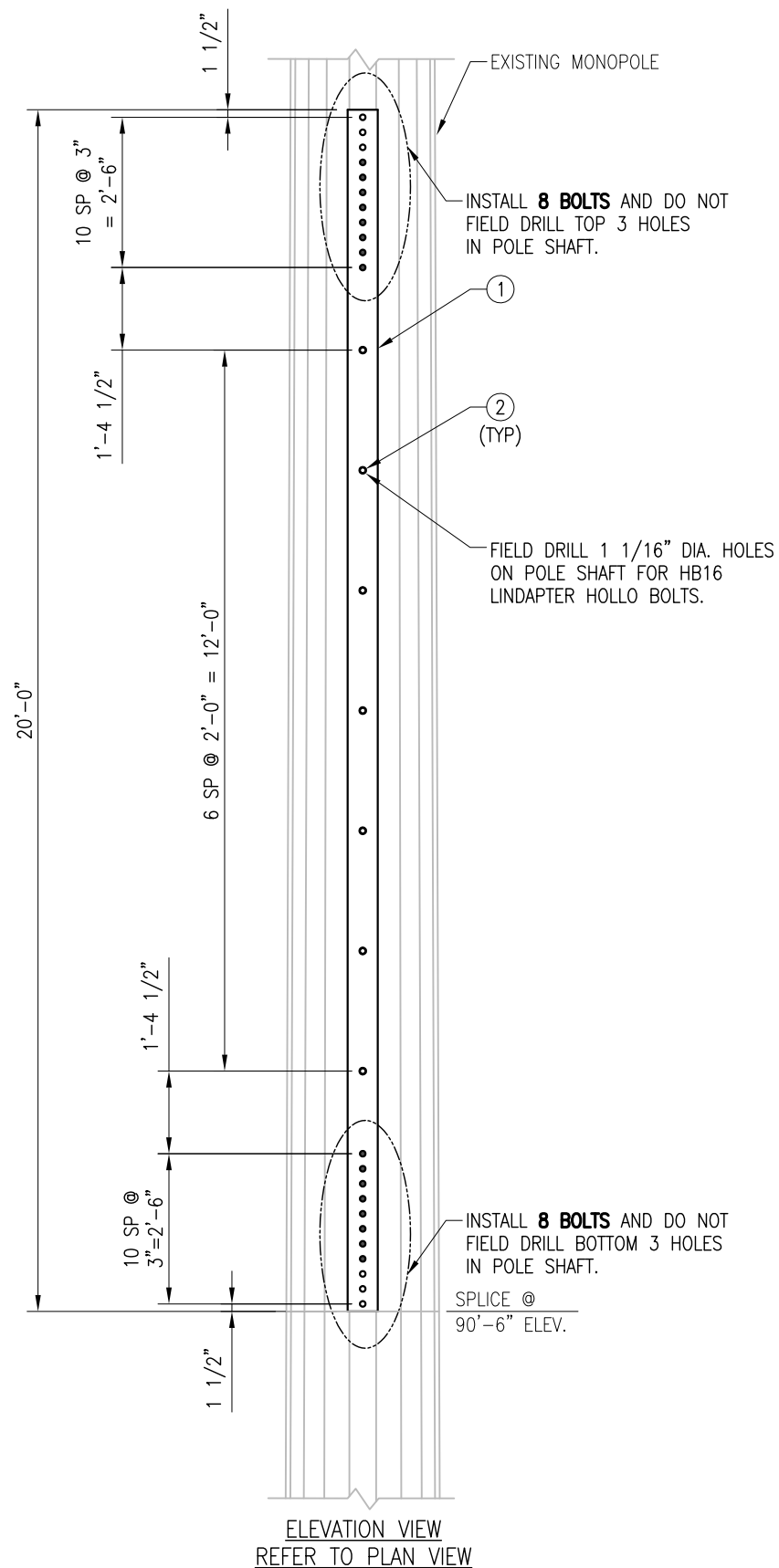
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A-6

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NOTES:

1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	3	LP6X100-G-20TT	PL 1" X 6" X 20'-0" A572-65
2	69	HB16-2	LINDAPTER TYPE HB HOLLO-BOLT (HDG)



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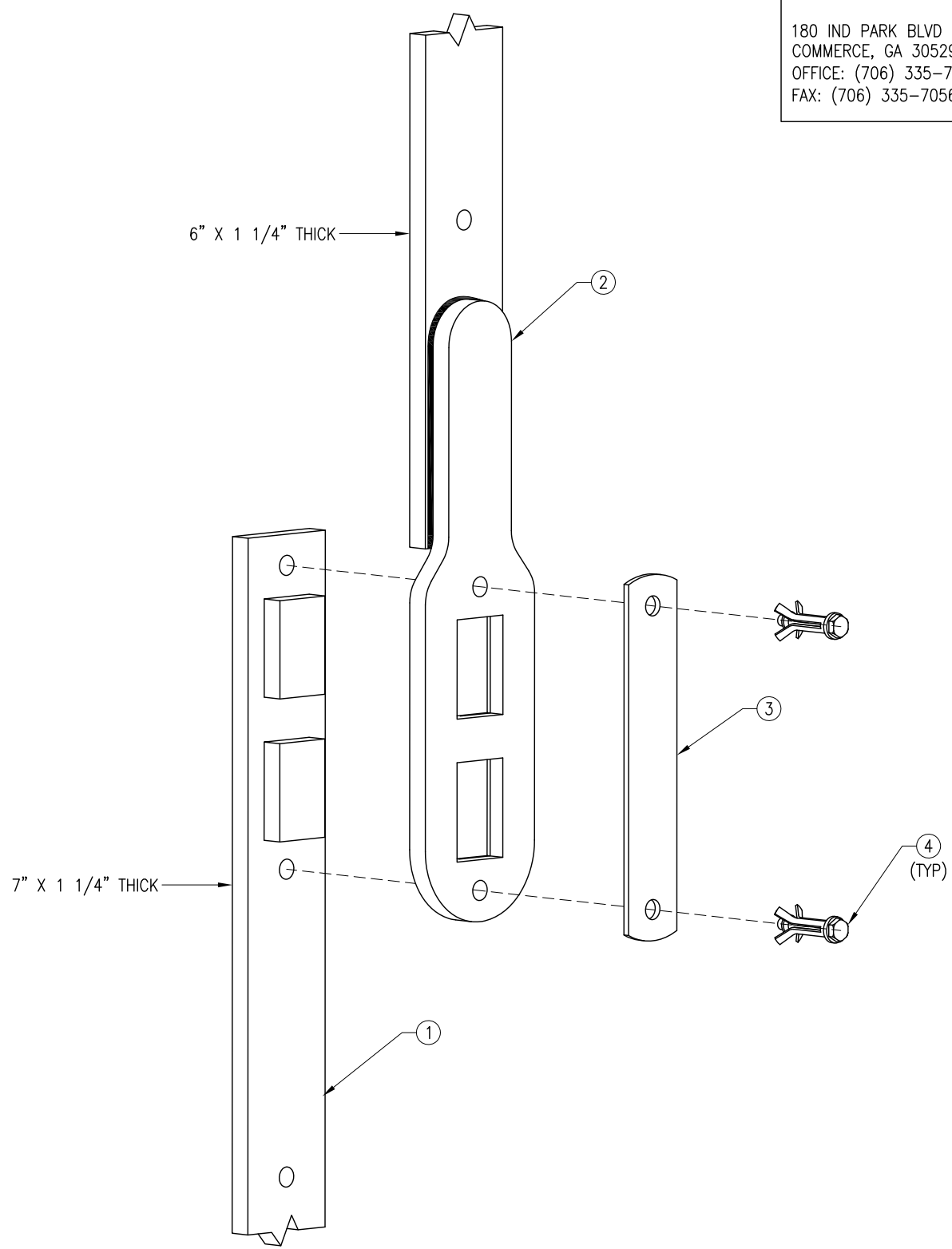
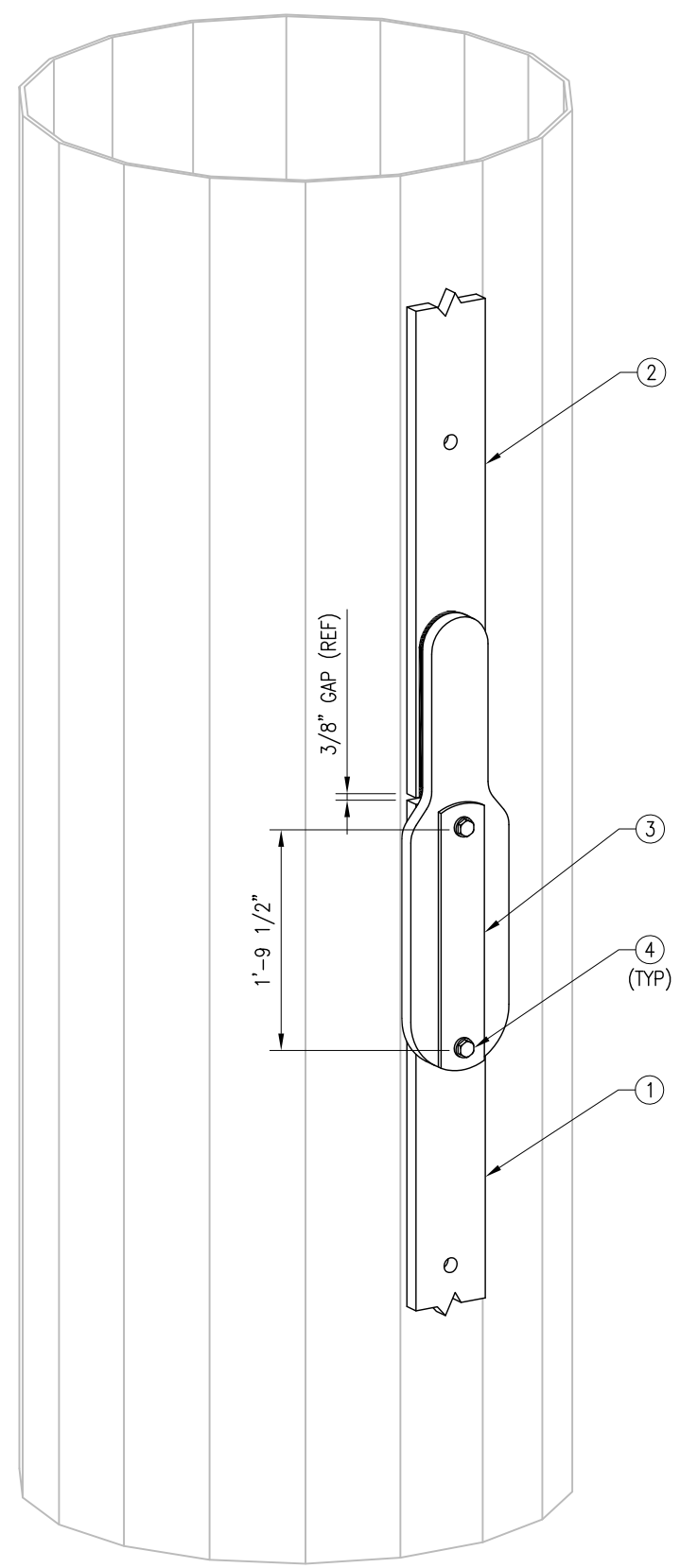
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SHEET NUMBER: A-7	REV #: 0
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US PATENT 9,546,497 B2



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TES JOB NO:
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 CUSTOMER SITE NAME:
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SHEET TITLE:
 SPLICE CONNECTION
 PLATE INSTALLATION
 DETAILS (TYPE AB)

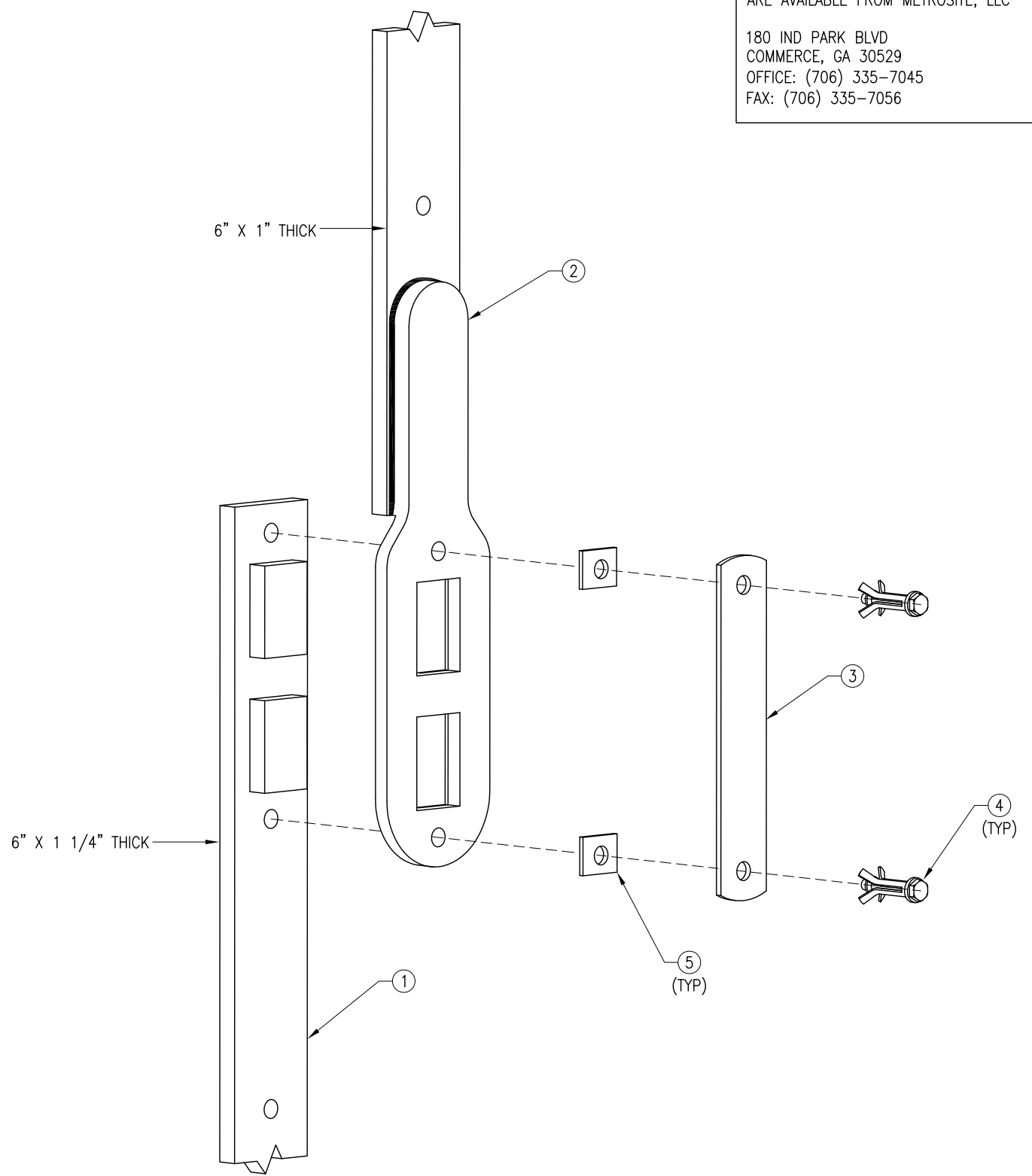
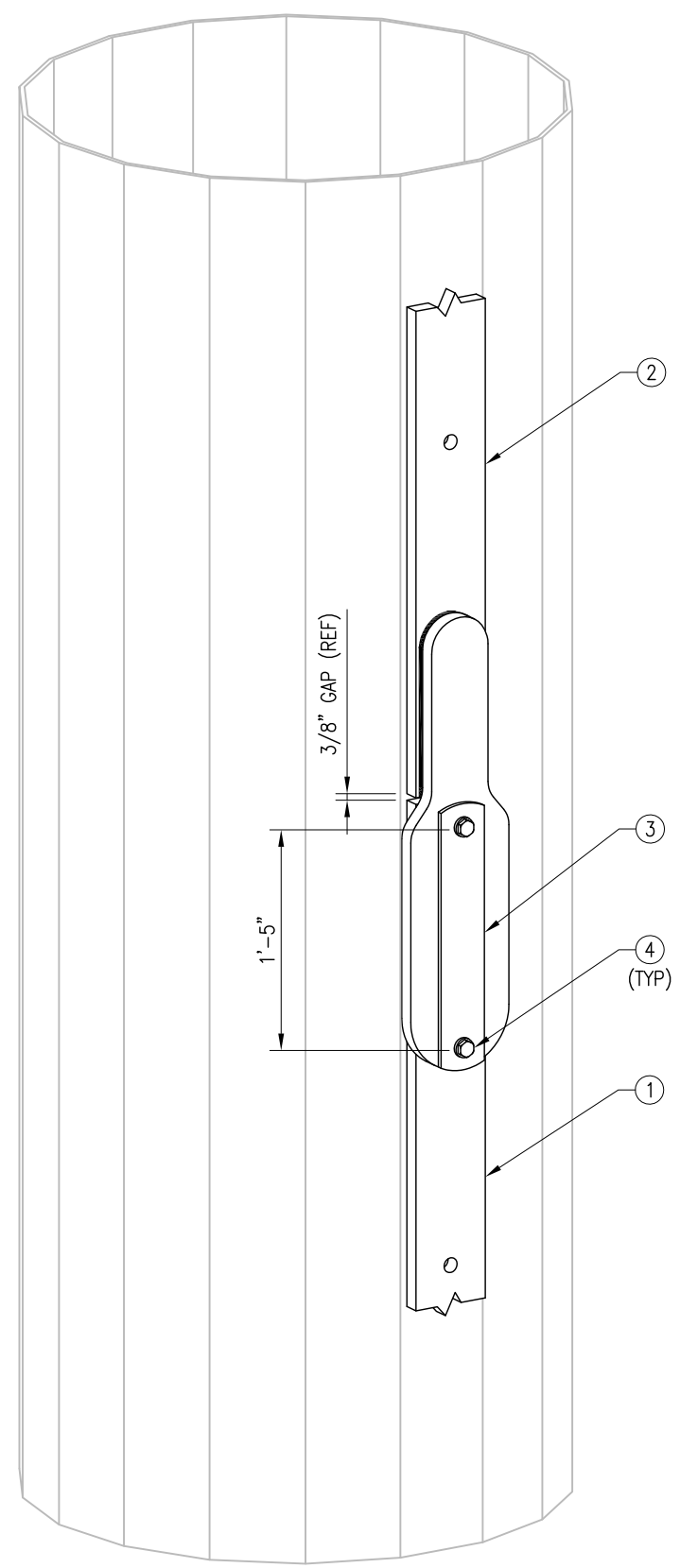
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SHEET NUMBER: A-LP-AB REV #: 0

FIELD NOTE:
 INSTALLATION TORQUE FOR THE (2) HB20-3 BOLTS AT SPLICE: 221 FT-LBS.

ITEM NO.	QTY.	MATERIAL PART NO.	DESCRIPTION
1	-	LP7X125-X-XXX	PL 1 1/4" X 7" PLATE WELDMENT
2	-	LP6X125-X-XXX	PL 1 1/4" X 6" PLATE WELDMENT
3	1	CPL-A	KEY PLATE COVER PLATE
4	2	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)

US PATENT 9,546,497 B2



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SHEET TITLE:
 SPLICE CONNECTION
 PLATE INSTALLATION
 DETAILS (TYPE BC)

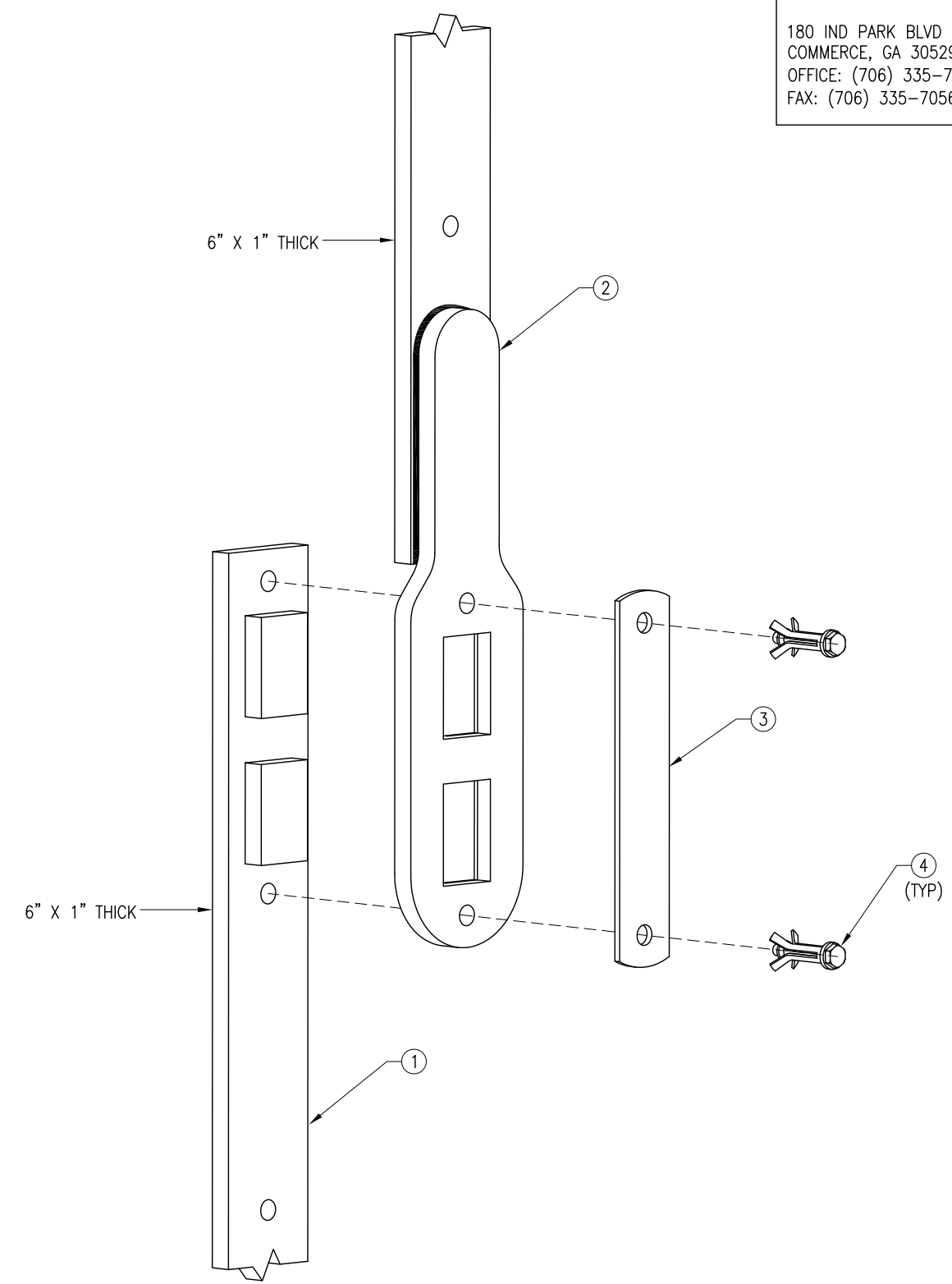
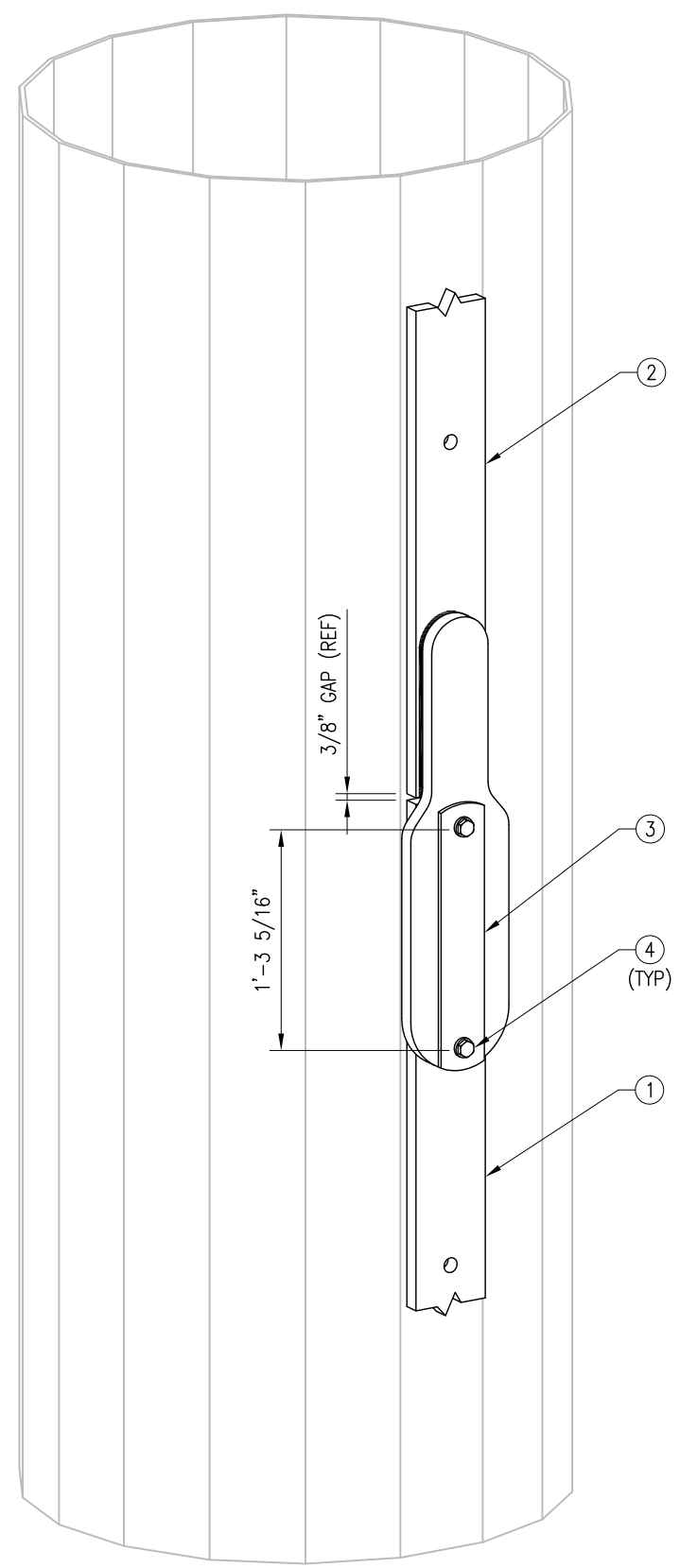
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FIELD NOTE:
 INSTALLATION TORQUE FOR THE (2) HB20-3 BOLTS AT SPLICE: 221 FT-LBS.

ITEM NO.	QTY.	MATERIAL PART NO.	DESCRIPTION
1	-	LP6X125-X-XXX	PL 1 1/4" X 6" PLATE WELDMENT
2	-	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
3	1	CPL-B	KEY PLATE COVER PLATE
4	2	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)
5	2	SHIM-M20-1	PL 1/4" X 3" X 3" A36

US PATENT 9,546,497 B2



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SHEET TITLE:
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 DETAILS (TYPE CC)

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FIELD NOTE:
 INSTALLATION TORQUE FOR THE (2) HB20-3 BOLTS AT SPLICE: 221 FT-LBS.

ITEM NO.	QTY.	MATERIAL PART NO.	DESCRIPTION
1	-	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
2	-	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
3	1	CPL-C	KEY PLATE COVER PLATE
4	2	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)



NEXGEN2

BLIND BOLT ASSEMBLY



INSTALLATION GUIDE

PRE-INSTALL BOLT ON INSTALL TOOL:



1

Thread the installation tool tip into the splined end of the bolt.



2

Remove the nut, the face washer and the spring shear sleeve and slide along the handle of the tool.



3

Move the collapsible washer to the correct location on the tool and fold in place.

INSTALLATION:



1

Install the bolt into the hole followed by the collapsible washer.



2

Rotate the tool 180°.



3

Pulling back, rock the tool side-to-side to engage the collapsible washer.



4

Engage the spring shear sleeve into the shear plane.



5

Slide the face washer forward and move the nut up to fasten to the bolt. Tighten the nut snug tight at this point.



6

Remove the tool by unscrewing it from bolt (counterclockwise).



7

Using the shear wrench engage the outer socket with the splined end of the bolt. Press the trigger until correct tension has been achieved (the bolt spline separates from the bolt).



8

Press the small trigger on the shear wrench to eject the bolt spline. The application is now complete.



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SHEET TITLE:
NEXGEN2 BLIND BOLT
ASSEMBLY INSTALLATION
GUIDE

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SHEET NUMBER: SPEC-1 REV #: 0



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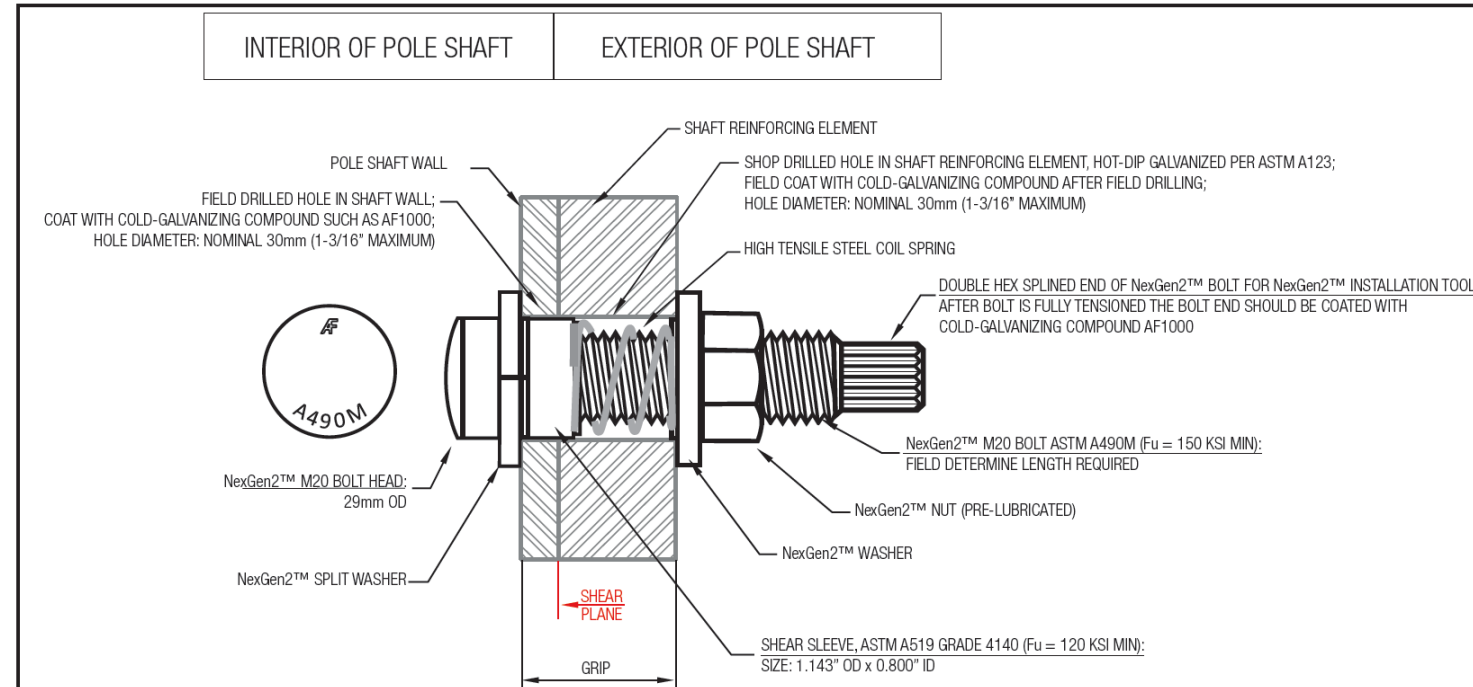
Pre-Tension



Post-Tension



TYPICAL NG2™ BOLT DETAIL: **PRE-TENSION**



TYPICAL NG2™ BOLT DETAIL: **POST-TENSION**

