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

VIA ELECTRONIC MAIL

November 3, 2022

Evan Renwick
Site Acquisition Specialist
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
erenwick@clinellc.com

RE: **EM-AT&T-132-220922** – AT&T notice of intent to modify an existing telecommunications facility located at 151 Sand Hill Road, South Windsor, Connecticut.

Dear Evan Renwick:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 28, 2022 submitted in response to the Council's September 26, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

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

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/RDM/emr

emr

From: Evan Renwick <erenwick@clinellc.com>
Sent: Friday, October 28, 2022 6:00 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Extension Letter for EM-CING-132-220922 (151 Sand Hill Road, South Windsor)

Good afternoon,

Attached is a revised SA, EME report, and Construction Drawings (Site Plans) along with the incomplete exempt modification letter (EM-CING-132-220922), and extension letter for the above referenced address.

Two hard copies of these documents will be mailed via UPS to the Connecticut Siting Council office and should arrive shortly. Please let me know if you have any questions or require any additional information. Thank you.

Best Regards,

Evan Renwick
Centerline Communications, LLC
Site Acquisition Specialist
Cell: (774)428-0194
750 W Center St, #301, West Bridgewater, MA 02379
erenwick@clinellc.com

CENTERLINE COMMUNICATIONS

750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

October 28, 2022

VIA UPS DELIVERY (1Z9Y4 503 03 2736 3849)

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

Regarding: Council Incomplete Letter for EM-CING-132-220922
Site Address: 151 Sand Hill Road, South Windsor, CT 06074
AT&T Site ID CT1139/FA # 10035389
Lessee: New Cingular Wireless, PCS, LLC ("AT&T")

Dear Mrs. Bachman

This letter is in response to the Council's Letter for EM-CING-132-220922 151 Sand Hill Road, South Windsor, CT 06074) dated September 26, 2022.

The Council reviewed the exempt modification request for completeness and identified a deficiency in the Structural Analysis Report, Site Plans and RF Analysis Report provided with the filing. Per the Council's recommendations, along with this letter is a revised Structural Analysis Report, revised Construction Drawings (Site Plans), and a revised RF Analysis Report.

Provided to the Council is an electronic version of the revised Structural Analysis Report, Construction Drawings (Site Plans), and a revised RF Analysis Report, and two hard copies of these documents will be mailed to Council's address listed above via UPS and should arrive shortly.

Please do not hesitate to contact me should you have any questions or concerns. Thank you for your attention to this matter.

Sincerely,

Evan Renwick

Evan Renwick
Site Acquisition Specialist
Direct Line: (774) 428-0194
Email: erenwick@clinellc.com

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 187 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT07824-S

Customer Site Name: South Windsor

Carrier Name: AT&T (App#: 202068-2)

Carrier Site ID / Name: 10035389 / South Windsor Sand Hill Rd

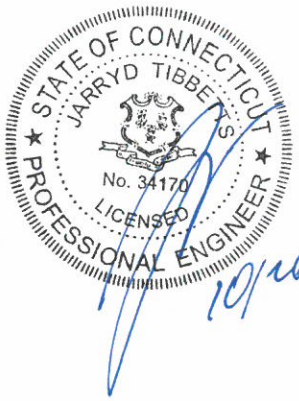
Site Location: 151 Sand Hill Road

South Windsor, Connecticut

Hartford County

Latitude: 41.836000

Longitude: -72.552000



Analysis Result:

Max Structural Usage: 74.3% [Pass]

Max Foundation Usage: 90.0% [Pass]

Additional Usage Caused by New Mount: +3%

Report Prepared By: Tawfeeq Alajaj

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 187 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT07824-S

Customer Site Name: South Windsor

Carrier Name: AT&T (App#: 202068-2)

Carrier Site ID / Name: 10035389 / South Windsor Sand Hill Rd

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Max Foundation Usage: 90.0% [Pass]

Additional Usage Caused by New Mount: +3%

Report Prepared By: Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 187 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Drawing prepared by Sabre, Job #02-10062 dated 11/1/01
Foundation Drawing	Foundation Drawing prepared by Sabre, Job #02-10062 dated 10/11/01
Geotechnical Report	Geotechnical Report prepared by Dr. Clarence Welti, dated 9/29/00
Modification Drawings	N/A
Mount Analysis	HDG, FA #: 10035389, dated 05/03/2022. TEP Project Number: 315910.739349. Dated 09/01/2022.

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H**.** 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:	120.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Service Load Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.183, S_1 = 0.055

This structural analysis is based upon the tower being classified as a Risk Category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

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
1	187.0	1	Telewave - ANT450F6 - Whip	Low Profile Platform	(4) 1/2" (3) 7/8"	Town of South Windsor
2		2	Telewave - ANT900D6-9 - Whip			
3		2	Decibel - DB201 - Whip			
4		2	Scala - MF-900B - Dish			
-	170.0	3	CCI - HPA-65R-BUU-H6 - Panel	Low Profile Platform w/ HRK12	(12) 1 5/8" (2) 1/2" Fiber (2) 3" Conduit (4) 3/4" DC Power	AT&T*
-		3	CCI - DMP65R-BU6DA - Panel			
-		3	CCI - HPA65R-BU6AA-K - Panel			
-		3	CCI DTMABP7819VG12A TMA			
-		6	KAelus DBC0061F1V51-2			
-		3	Ericsson RRUS-32			
-		3	Ericsson RRUS 8843 B2 B66A			
-		3	Ericsson RRUS 4449 B5/B12			
-		3	CSS DBC-750			
-		2	Raycap DC6-48-60-18-8F			
-		3	Commscope ABT-DFDM-ADBH			
18	160.0	3	RFS APXVAARR24_43-U-NA20	Platform w/ Hand Rail + Kicker kit w/ Collar mount	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
19		3	Ericsson Air32 KRD901146-1_B66A_B2A			
20		3	Ericsson AIR6449 B41			
21		3	Ericsson KRY 112 144/1			
22		3	Commscope SDX1926Q-43			
23		3	Ericsson 4449 B71+B85			
24		3	Ericsson 4415 B25			
25	150.0	3	JMA Wireless MX08FRO665-21	Commscope Platform w/HRK [MC-PK8-DSH]	(1) 1.6" Hybrid	Dish Wireless
26		3	Fujitsu TA08025-B605			
27		3	Fujitsu TA08025-B604			
28		1	Raycap RDIDC-9181-PF-48			
29	140.0	3	Commscope NHH-65B-R2B - Panel	Modified Low Profile Platform W/ (1) VZWSMART VZWSMART-PLK1 (Support Rail Kit) & (1) SITE PRO 1 PRK-SFS (Handrail Reinforcement Kit)	(1) 1/2" (11) 1 5/8" (2) 1 5/8" Hybrid	Verizon
30		3	Commscope NHHSS-65B-R2B - Panel			
31		3	Samsung MT6407-77A - Panel			
32		3	Commscope LNX-6514DS-VTM- Panel			
33		3	Samsung RF4440d-13A RRU			
34		3	Samsung RF4439d-25A RRU			
35		3	Samsung LTE CBRS RT4401 48A-RRU			
36		2	RFS DB-T1-6Z-8AB-0Z-OVP			
37		6	Lucent KS-24019- GPS			

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
34	130.0	3	Alcatel Lucent - 1900MHz - RRH	Low Profile Platform	(1) 0.7" Fiber (3) 1-1/4"	Sprint
35		3	Alcatel Lucent - 800 MHz - RRH			
36		3	Alcatel Lucent - 800MHz - Filter			
37		4	RFS - ACU-A20-N - RET			
38		3	RFS - APXVSPP18-C-A20 - Panel			
39		3	RFS - APXVTM14-C-120 - Panel			
40		3	RF Filters			
41		3	Alcatel Lucent - TD-RRH8x20-25 - RRU			
46	92.0	1	Telewave - ANT150D3 - Whip	Low Profile Platform	(6) 1/2"	Town of South Windsor
47		1	Telewave - ANT4506-9 - Whip			
48		1	Telewave - ANT450Y10-WR - Yagi			
49		1	Decibel - DB205 - Whip			
50		2	Scala - MF-900B - Dish			

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
5	171.8	3	Ericsson - AIR 6419 B77G - Panel	SitePro 1 RMQLP-4120-H10	(2) 0.92" DC (12) 1 5/8" (1) 1/2" (2) 3" Conduit Housing ((4) 3/4" DC Power and (2) 1/2" Fiber) (1) 3/8" Fiber	AT&T
6	170.0	3	CCI - DMP65R-BU6DA - Panel			
7		3	Quintel - QD6616-7 - Panel			
8		3	CCI DTMABP7819VG12A TMA			
9		6	Kaelus DBC0061F1V51-2			
10		3	Ericsson RRUS-32			
11		3	Ericsson RRUS 8843 B2 B66A			
12		3	Ericsson RRUS 4449 B5/B12			
13		3	Ericsson 4478 B14			
14		3	CSS DBC-750			
15		3	Raycap DC6-48-60-18-8F			
16		3	Commscope ABT-DFDM-ADBH			
17	168.2	3	Ericsson - Air6449 B77D - Panel			

See the attached coax layout for the line placement considered in the analysis.

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:	**74.3%**	**69.8%**	**66.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	6759.1	51.9	83.4

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

Service Load Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.3903 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

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 structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. 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 and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. 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.

5. 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.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

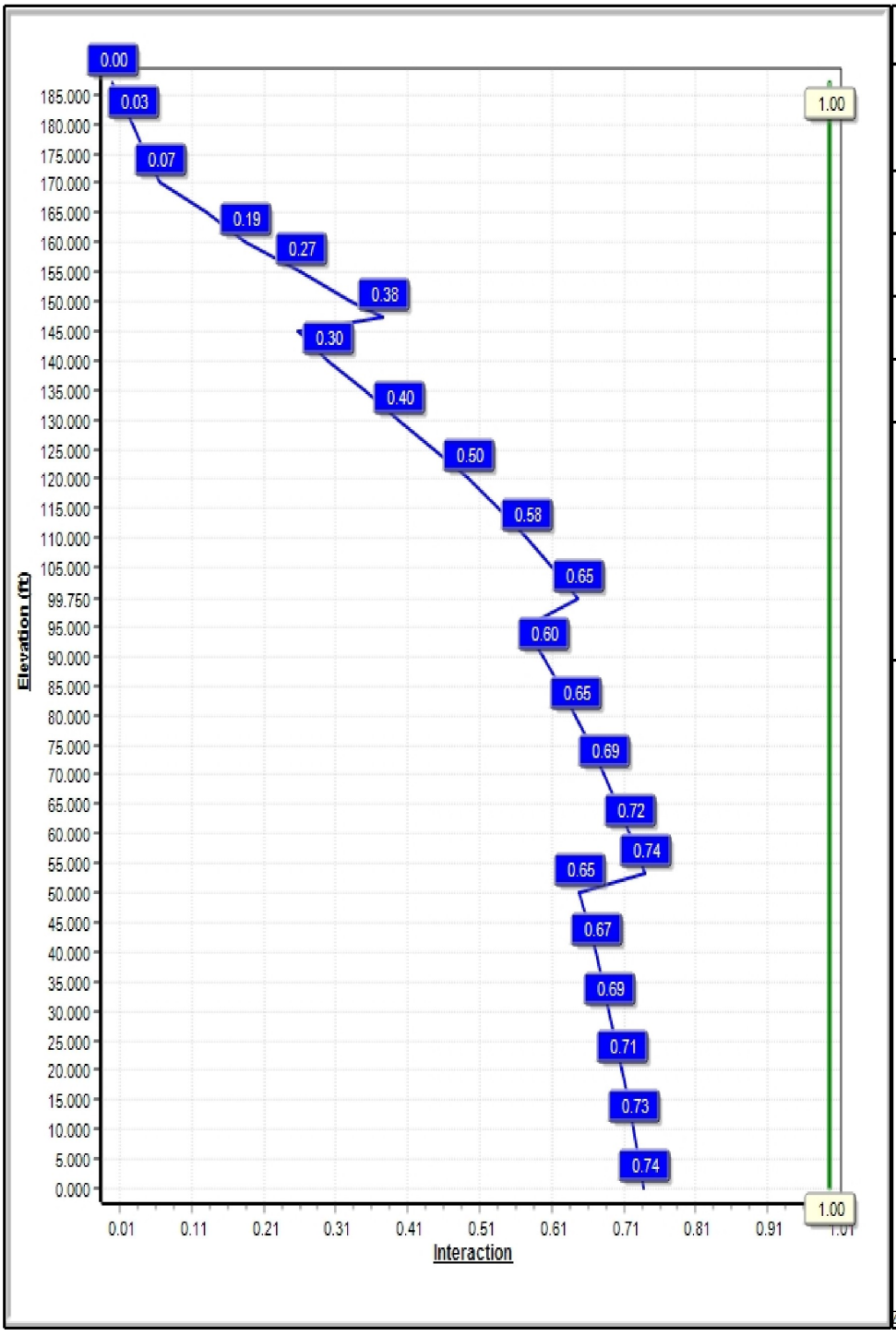
Usage Diagram - Max Ratio 74.33% at 53.3ft

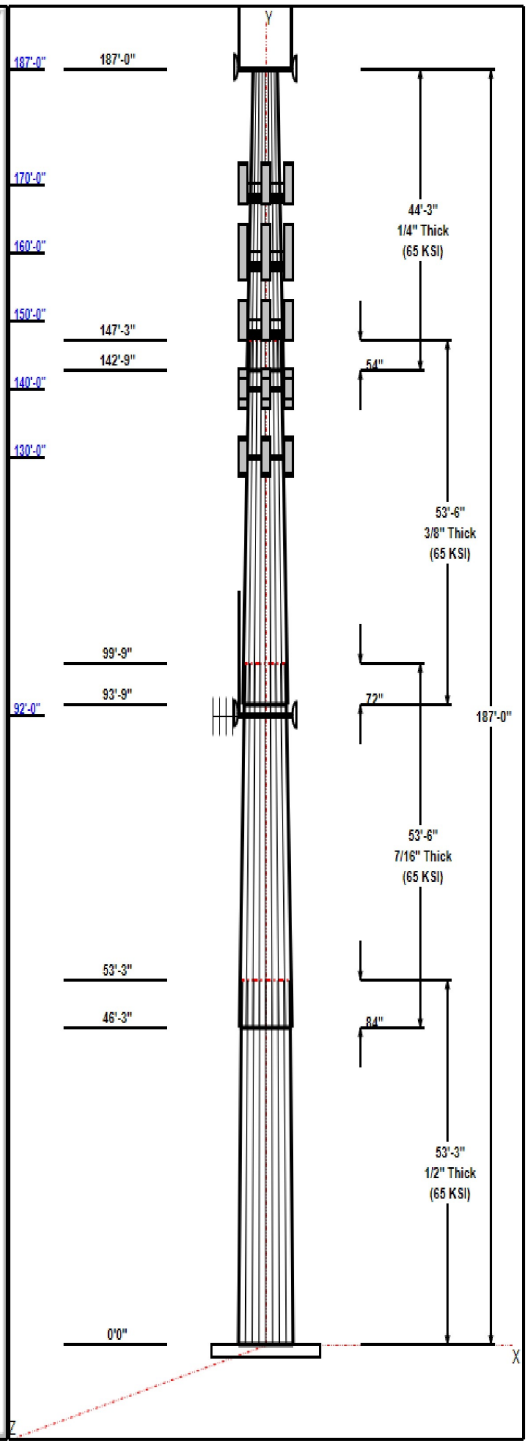
Structure:	CT07824-S-SBA	**Code:**	EIA/TIA-222-H	10/26/2022
Site Name:	South Windsor	**Exposure:**	C	
Height:	187.00 (ft)	**Gh:**	1.1	
Base Elev:	1.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	25
Wind Load Factor:	1.00		

Load Case : 1.2D + 1.0W 120 mph Wind





Structure: CT07824-S-SBA

Type: Tapered
Site Name: South Windsor
Height: 187.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.22997

10/26/2022

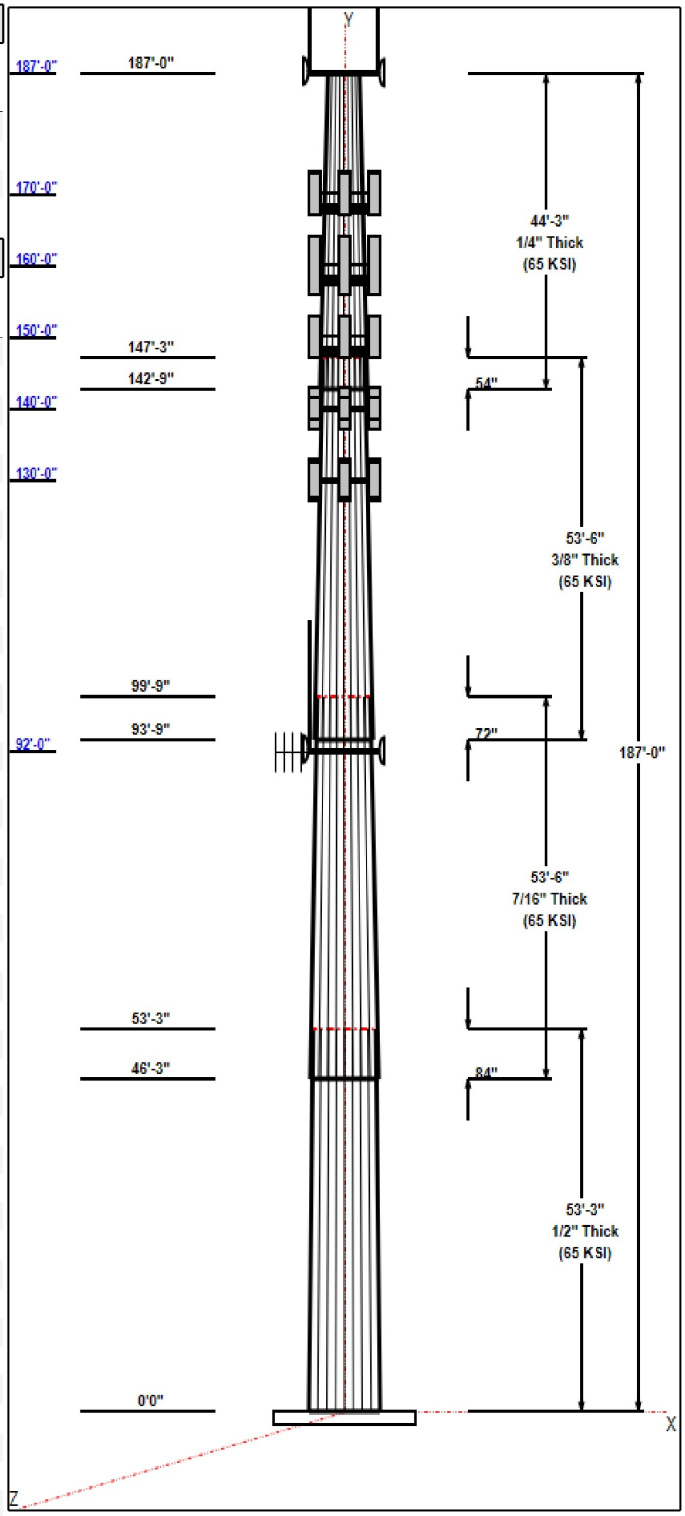
Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	52.63	64.88	0.500		0.22997	65
2	53.50	42.82	55.12	0.438	Slip	0.22997	65
3	53.50	32.64	44.95	0.375	Slip	0.22997	65
4	44.25	24.00	34.18	0.250	Slip	0.22997	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
187.00	187.00	2	MF-900B	Town of South
187.00	189.04	2	ANT900D6-9	Town of South
187.00	190.92	1	ANT450F6	Town of South
187.00	191.75	2	DB201	Town of South
187.00	187.00	1	Low Profile Platform	Town of South
187.00	187.00	1	6' Lightning rod	
170.00	170.00	3	DMP65R-BU6DA	AT&T
170.00	171.80	3	AIR 6419 B77G	AT&T
170.00	171.80	3	Air6449 B77D	AT&T
170.00	170.00	3	QD6616-7	AT&T
170.00	170.00	3	DTMABP7819VG12A TMA	AT&T
170.00	170.00	6	Kaelus DBC0061F1V51-2	AT&T
170.00	170.00	3	Ericsson RRUS-32	AT&T
170.00	170.00	3	Ericsson RRUS 8843 B2	AT&T
170.00	170.00	3	Ericsson RRUS 4449	AT&T
170.00	170.00	3	Ericsson 4478 B14	AT&T
170.00	170.00	3	CSS DBC-750	AT&T
170.00	170.00	3	Raycap DC6-48-60-18-8F	AT&T
170.00	170.00	3	Commscope	AT&T
170.00	170.00	1	RMQLP-4120-H10	AT&T
160.00	160.00	3	RRUS 4415 B25	T-Mobile
160.00	160.00	3	4449 B71+B12	T-Mobile
160.00	160.00	1	MS-KI22-5 (Kickers)	T-Mobile
160.00	160.00	1	MS-1436 (Light Collar	T-Mobile
160.00	160.00	3	AIR6449 B41	T-Mobile
160.00	160.00	3	SDX1926Q-43	T-Mobile
160.00	160.00	1	Platform w/ Hand Rail	T-Mobile
160.00	160.00	3	Air32	T-Mobile
160.00	160.00	3	APXVAARR24_43-U-NA20	T-Mobile
160.00	160.00	3	KRY 112 144/1	T-Mobile
150.00	150.00	3	MX08FRO665-21	Dish Wireless
150.00	150.00	3	TA08025-B605	Dish Wireless
150.00	150.00	3	TA08025-B604	Dish Wireless
150.00	150.00	1	RDIDC-9181-OF-48	Dish Wireless
150.00	150.00	1	MC-PK8-DSH	Dish Wireless
140.00	140.00	3	Commscope	Verizon
140.00	140.00	3	Commscope	Verizon
140.00	140.00	3	Samsung MT6407-77A	Verizon
140.00	140.00	1	VZWSMART-PLK1	Verizon
140.00	140.00	1	PRK-SFS	Verizon
140.00	140.00	3	Samsung RF4440d-13A	Verizon
140.00	140.00	3	Samsung RF4439d-25A	Verizon
140.00	140.00	3	Samsung LTE CBRS	Verizon
140.00	140.00	3	LNX-6514DS-VTM	Verizon
140.00	140.00	2	DB-T1-6Z-8AB-0Z	Verizon



140.00	140.00	6	KS-24019	Verizon
140.00	140.00	1	Low Profile Platform	Verizon
130.00	130.00	3	APXVSPP18-C-A20	Sprint
130.00	130.00	3	APXVTM14-C-120	Sprint
130.00	130.00	3	TD-RRH8x20-25	Sprint
130.00	130.00	3	1900MHz RRH	Sprint
130.00	130.00	3	800 MHz RRH	Sprint
130.00	130.00	3	800MHz Filter	Sprint
130.00	130.00	3	RF Filters	Sprint
130.00	130.00	4	ACU-A20-N	Sprint
130.00	130.00	1	Low Profile Platform	Sprint
92.00	92.00	2	MF-900B	Town of South
92.00	95.00	1	ANT4506-9	Town of South
92.00	97.00	1	ANT150D3	Town of South
92.00	92.00	1	ANT450Y10-WR	Town of South
92.00	101.00	1	DB205	Town of South
92.00	92.00	1	Low Profile Platform	Town of South

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	187.00	Inside	1/2" Coax	Town of South
0.00	187.00	Inside	7/8" Coax	Town of South
0.00	170.00	Inside	0.92" DC	AT&T
0.00	170.00	Inside	1 5/8" Coax	AT&T
0.00	170.00	Inside	1/2" Coax	AT&T
0.00	170.00	Inside	3" Conduit	AT&T
0.00	170.00	Inside	3/8" Fiber	AT&T
0.00	160.00	Inside	1 5/8" Coax	T-Mobile
0.00	160.00	Inside	1 5/8" Fiber	T-Mobile
0.00	150.00	Outside	1.6" Hybrid	Dish Wireless
0.00	140.00	Inside	1 5/8" Coax	Verizon
0.00	140.00	Inside	1 5/8" Hybrid	Verizon
0.00	140.00	Inside	1/2" Coax	Verizon
0.00	130.00	Inside	0.7" Fiber	Sprint
0.00	130.00	Inside	1-1/4" Hybrid	Sprint
0.00	92.00	Inside	1/2" Coax	Town of South

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
26	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	78.0	60.0	Round

Reactions

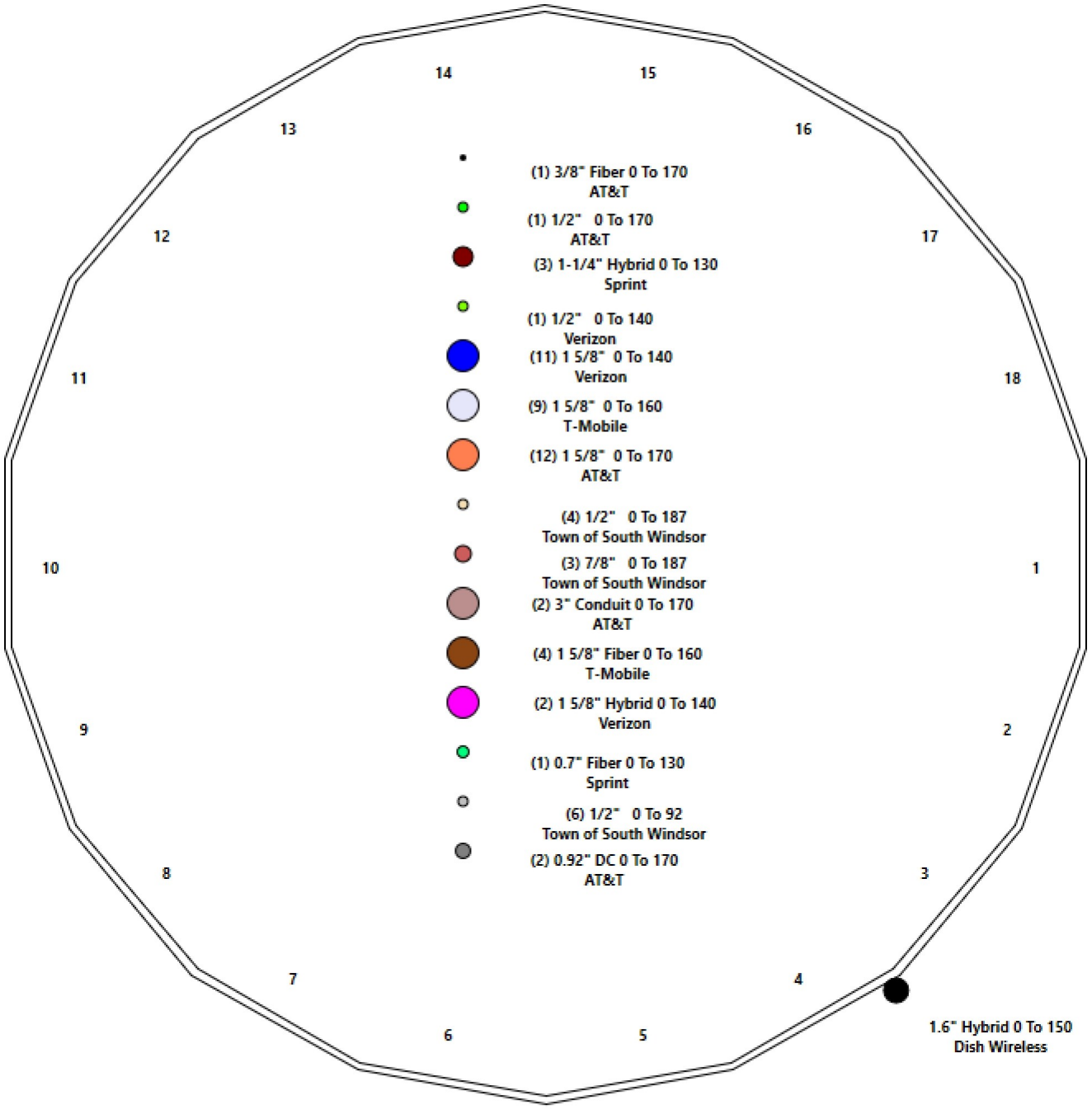
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 120 mph Wind	6759.1	51.9	83.4
0.9D + 1.0W 120 mph Wind	6666.6	51.8	62.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1917.0	14.5	109.4
1.2D + 1.0Ev + 1.0Eh	153.6	1.0	86.2
0.9D + 1.0Ev + 1.0Eh	152.0	1.0	65.3
1.0D + 1.0W 60 mph Wind	1500.5	11.6	69.5

Structure: CT07824-S-SBA - Coax Line Placement

Type: Monopole
Site Name: South Windsor
Height: 187.00 (ft)

10/26/2022

Tower Engineering Solutions



Shaft Properties

Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.5000	65		0.00	16,752
2	18	53.500	0.4375	65	Slip	84.00	12,268
3	18	53.500	0.3750	65	Slip	72.00	8,324
4	18	44.250	0.2500	65	Slip	54.00	3,445
					Total Shaft Weight:		**40,789**

	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	64.88	0.00	102.1	53501.66	21.47	129.76	52.63	53.25	82.73	28410.2	17.15	105.2	0.229973
2	55.12	46.25	75.93	28683.85	20.80	125.99	42.82	99.75	58.84	13351.6	15.85	97.86	0.229973
3	44.95	93.75	53.05	13313.85	19.72	119.85	32.64	147.25	38.40	5051.60	13.94	87.04	0.229973
4	34.18	142.7	26.92	3914.66	22.69	136.71	24.00	187.00	18.84	1343.00	15.52	96.00	0.229973

Load Summary

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	187.00	MF-900B	2	13.00	3.45	1.00	89.60	20.075	1.00	1.00	0.00
2	187.00	ANT900D6-9	2	11.00	0.98	1.00	36.95	2.620	1.00	0.00	2.04
3	187.00	ANT450F6	1	21.00	1.86	1.00	54.44	3.791	1.00	0.00	3.92
4	187.00	DB201	2	25.00	3.54	1.00	99.65	10.965	1.00	0.00	4.75
5	187.00	Low Profile Platform	1	1500.00	22.00	1.00	2392.54	34.043	1.00	0.00	0.00
6	187.00	6' Lightning rod	1	6.50	0.38	1.00	31.25	1.122	1.00	0.00	0.00
7	170.00	DMP65R-BU6DA	3	79.40	12.71	0.72	278.35	13.699	0.72	0.00	0.00
8	170.00	AIR 6419 B77G	3	66.10	3.80	0.76	131.09	4.338	0.76	0.00	1.80
9	170.00	Air6449 B77D	3	88.00	4.13	0.85	175.41	4.697	0.85	0.00	1.80
10	170.00	QD6616-7	3	114.00	13.58	0.75	330.84	17.083	0.76	0.00	0.00
11	170.00	DTMABP7819VG12A TMA	3	19.20	1.14	0.67	36.44	1.660	0.67	0.00	0.00
12	170.00	Kaelus DBC0061F1V51-2	6	25.40	0.43	0.50	35.22	0.623	0.50	0.00	0.00
13	170.00	Ericsson RRUS-32	3	77.00	1.65	0.67	106.33	2.030	0.67	0.00	0.00
14	170.00	Ericsson RRUS 8843 B2 B66A	3	72.00	1.64	0.67	103.64	1.976	0.67	0.00	0.00
15	170.00	Ericsson RRUS 4449 B5/B12	3	73.20	1.97	0.67	112.20	2.355	0.67	0.00	0.00
16	170.00	Ericsson 4478 B14	3	59.40	1.65	0.67	87.41	2.000	0.67	0.00	0.00
17	170.00	CSS DBC-750	3	4.80	0.51	0.67	11.33	0.868	0.67	0.00	0.00
18	170.00	Raycap DC6-48-60-18-8F	3	31.80	0.92	0.80	73.56	1.216	0.80	0.00	0.00
19	170.00	Commscope ABT-DFDM-ADBH	3	1.10	0.05	0.98	2.61	0.180	0.98	0.00	0.00
20	170.00	RMQLP-4120-H10	1	3249.40	51.70	1.00	5547.68	77.541	1.00	0.00	0.00
21	160.00	RRUS 4415 B25	3	46.00	1.64	0.67	73.60	1.986	0.67	0.00	0.00
22	160.00	4449 B71+B12	3	70.00	1.65	0.67	112.05	1.998	0.67	0.00	0.00
23	160.00	MS-KI22-5 (Kickers)	1	146.00	5.33	1.00	282.86	9.077	1.00	0.00	0.00
24	160.00	MS-1436 (Light Collar Mount)	1	65.60	1.50	1.00	127.09	2.555	1.00	0.00	0.00
25	160.00	AIR6449 B41	3	103.00	5.65	0.71	195.06	6.288	0.71	0.00	0.00
26	160.00	SDX1926Q-43	3	4.30	0.52	0.50	11.90	0.877	0.50	0.00	0.00
27	160.00	Platform w/ Hand Rail	1	1600.00	32.00	1.00	3009.84	50.748	1.00	0.00	0.00
28	160.00	Air32 KRD901146-1_B66A_B2A	3	132.20	6.51	0.87	248.63	7.303	0.87	0.00	0.00
29	160.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	396.97	21.500	0.70	0.00	0.00
30	160.00	KRY 112 144/1	3	11.00	0.41	0.50	18.24	0.729	0.50	0.00	0.00
31	150.00	MX08FRO665-21	3	64.50	12.49	0.74	258.54	13.467	0.74	0.00	0.00
32	150.00	TA08025-B605	3	75.00	1.96	0.67	109.89	2.334	0.67	0.00	0.00
33	150.00	TA08025-B604	3	63.90	1.96	0.67	97.68	2.334	0.67	0.00	0.00
34	150.00	RDIDC-9181-OF-48	1	21.90	2.01	1.00	57.42	2.389	1.00	0.00	0.00
35	150.00	MC-PK8-DSH	1	1727.00	37.59	1.00	2852.97	69.100	1.00	0.00	0.00
36	140.00	Commscope NHH-65B-R2B	3	43.70	8.08	0.83	168.73	8.915	0.83	0.00	0.00
37	140.00	Commscope NHHSS-65B-R2B	3	48.10	8.08	0.83	173.13	8.915	0.83	0.00	0.00
38	140.00	Samsung MT6407-77A	3	79.40	4.69	0.70	153.09	5.311	0.70	0.00	0.00
39	140.00	VZWSMART-PLK1	1	504.00	12.25	1.00	900.29	20.182	1.00	0.00	0.00
40	140.00	PRK-SFS	1	588.00	9.50	1.00	859.96	16.091	1.00	0.00	0.00
41	140.00	Samsung RF4440d-13A RRU	3	70.30	1.87	0.67	114.56	2.238	0.67	0.00	0.00
42	140.00	Samsung RF4439d-25A RRU	3	74.70	1.88	0.67	104.76	2.245	0.67	0.00	0.00
43	140.00	Samsung LTE CBRS RT4401 48A	3	18.60	0.99	0.67	36.95	1.269	0.67	0.00	0.00
44	140.00	LNX-6514DS-VTM	3	38.80	8.09	0.80	174.49	9.942	0.82	0.00	0.00
45	140.00	DB-T1-6Z-8AB-0Z	2	44.00	4.10	0.91	205.59	4.631	0.91	0.00	0.00
46	140.00	KS-24019	6	0.50	0.12	1.00	4.91	0.256	1.00	0.00	0.00
47	140.00	Low Profile Platform	1	1500.00	22.00	1.00	2367.22	33.702	1.00	0.00	0.00
48	130.00	APXVSPP18-C-A20	3	57.00	8.02	0.83	170.68	9.857	0.85	0.00	0.00
49	130.00	APXVTM14-C-120	3	56.00	6.34	0.79	154.30	7.056	0.81	0.00	0.00
50	130.00	TD-RRH8x20-25	3	70.00	4.05	0.50	137.57	4.570	0.50	0.00	0.00

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
51	130.00	1900MHz RRH	3	44.00	3.80	0.67	115.80	4.714	0.67	0.00	0.00
52	130.00	800 MHz RRH	3	53.00	2.49	0.67	101.64	3.242	0.67	0.00	0.00
53	130.00	800MHz Filter	3	8.80	0.78	0.67	20.40	1.205	0.67	0.00	0.00
54	130.00	RF Filters	3	15.50	0.93	0.67	33.14	1.198	0.67	0.00	0.00
55	130.00	ACU-A20-N	4	1.00	0.14	0.50	3.83	0.335	0.50	0.00	0.00
56	130.00	Low Profile Platform	1	1500.00	22.00	1.00	2360.87	33.616	1.00	0.00	0.00
57	92.00	MF-900B	2	13.00	3.45	1.00	84.40	18.945	1.00	1.00	0.00
58	92.00	ANT4506-9	1	18.00	2.77	1.00	70.45	4.696	1.00	0.00	3.00
59	92.00	ANT150D3	1	18.00	2.18	1.00	64.49	7.579	1.00	0.00	5.00
60	92.00	ANT450Y10-WR	1	5.00	0.49	1.00	17.88	1.208	1.00	0.00	0.00
61	92.00	DB205	1	38.00	1.80	1.00	74.82	5.830	1.00	0.00	9.00
62	92.00	Low Profile Platform	1	1500.00	22.00	1.00	2331.88	33.225	1.00	0.00	0.00
		Totals:	**152**	**20,565.20**			**38,585.39**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	187.00	(4) 1/2" Coax	0.00	Inside
0.00	187.00	(3) 7/8" Coax	0.00	Inside
0.00	170.00	(2) 0.92" DC	0.00	Inside
0.00	170.00	(12) 1 5/8" Coax	0.00	Inside
0.00	170.00	(1) 1/2" Coax	0.00	Inside
0.00	170.00	(2) 3" Conduit	0.00	Inside
0.00	170.00	(1) 3/8" Fiber	0.00	Inside
0.00	160.00	(9) 1 5/8" Coax	0.00	Inside
0.00	160.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	150.00	(1) 1.6" Hybrid	0.00	Outside
0.00	140.00	(11) 1 5/8" Coax	0.00	Inside
0.00	140.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	140.00	(1) 1/2" Coax	0.00	Inside
0.00	130.00	(1) 0.7" Fiber	0.00	Inside
0.00	130.00	(3) 1-1/4" Hybrid	0.00	Inside
0.00	92.00	(6) 1/2" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.5000	64.880	102.167	53501.7	21.47	129.76	76.1	1624.	0.0
5.00		0.5000	63.730	100.343	50685.8	21.06	127.46	76.6	1566.	1722.7
10.00		0.5000	62.580	98.518	47970.6	20.66	125.16	77.1	1509.	1691.7
15.00		0.5000	61.430	96.693	45354.1	20.25	122.86	77.6	1454.	1660.6
20.00		0.5000	60.281	94.868	42834.5	19.85	120.56	78.1	1399.	1629.6
25.00		0.5000	59.131	93.044	40410.0	19.44	118.26	78.5	1346.	1598.6
30.00		0.5000	57.981	91.219	38078.8	19.04	115.96	79.0	1293.	1567.5
35.00		0.5000	56.831	89.394	35839.0	18.63	113.66	79.5	1242.	1536.5
40.00		0.5000	55.681	87.569	33688.7	18.23	111.36	80.0	1191.	1505.4
45.00		0.5000	54.531	85.744	31626.3	17.82	109.06	80.4	1142.	1474.4
46.25	Bot - Section 2	0.5000	54.244	85.288	31124.2	17.72	108.49	80.6	1130.	363.7
50.00		0.5000	53.381	83.920	29649.8	17.41	106.76	80.9	1094.	2040.8
53.25	Top - Section 1	0.4375	53.509	73.694	26224.3	20.16	122.31	0.0	0.0	1742.2
55.00		0.4375	53.106	73.135	25632.3	19.99	121.39	77.9	950.7	437.2
60.00		0.4375	51.957	71.538	23989.8	19.53	118.76	78.4	909.4	1230.7
65.00		0.4375	50.807	69.941	22419.1	19.07	116.13	79.0	869.1	1203.6
70.00		0.4375	49.657	68.345	20918.5	18.60	113.50	79.5	829.7	1176.4
75.00		0.4375	48.507	66.748	19486.4	18.14	110.87	80.1	791.2	1149.2
80.00		0.4375	47.357	65.151	18121.2	17.68	108.24	80.6	753.7	1122.1
85.00		0.4375	46.207	63.555	16821.3	17.21	105.62	81.2	717.0	1094.9
90.00		0.4375	45.057	61.958	15585.1	16.75	102.99	81.7	681.3	1067.7
92.00		0.4375	44.597	61.319	15108.1	16.56	101.94	81.9	667.2	419.5
93.75	Bot - Section 3	0.4375	44.195	60.761	14698.7	16.40	101.02	82.1	655.1	363.5
95.00		0.4375	43.908	60.361	14410.9	16.29	100.36	82.2	646.4	482.5
99.75	Top - Section 2	0.3750	43.565	51.405	12115.2	19.07	116.17	0.0	0.0	1804.8
100.00		0.3750	43.508	51.337	12066.9	19.05	116.02	79.0	546.3	43.7
105.00		0.3750	42.358	49.968	11127.3	18.51	112.95	79.6	517.4	861.8
110.00		0.3750	41.208	48.600	10237.8	17.97	109.89	80.3	489.3	838.5
115.00		0.3750	40.058	47.231	9397.1	17.42	106.82	80.9	462.0	815.2
120.00		0.3750	38.908	45.862	8603.6	16.88	103.76	81.5	435.5	791.9
125.00		0.3750	37.758	44.494	7856.2	16.34	100.69	82.2	409.8	768.7
130.00		0.3750	36.608	43.125	7153.3	15.80	97.62	82.5	384.9	745.4
135.00		0.3750	35.459	41.757	6493.6	15.26	94.56	82.5	360.7	722.1
140.00		0.3750	34.309	40.388	5875.9	14.72	91.49	82.5	337.3	698.8
142.75	Bot - Section 4	0.3750	33.676	39.635	5553.4	14.42	89.80	82.5	324.8	374.4
145.00		0.3750	33.159	39.020	5298.5	14.18	88.42	82.5	314.7	505.6
147.25	Top - Section 3	0.2500	33.141	26.098	3567.2	21.96	132.57	0.0	0.0	497.8
150.00		0.2500	32.509	25.597	3365.4	21.52	130.04	76.1	203.9	241.9
155.00		0.2500	31.359	24.684	3018.2	20.71	125.44	77.0	189.6	427.7
160.00		0.2500	30.209	23.772	2695.7	19.90	120.84	78.0	175.8	412.2
165.00		0.2500	29.059	22.859	2397.1	19.09	116.24	79.0	162.5	396.7
170.00		0.2500	27.910	21.947	2121.4	18.27	111.64	79.9	149.7	381.2
175.00		0.2500	26.760	21.035	1867.7	17.46	107.04	80.9	137.5	365.6
180.00		0.2500	25.610	20.122	1635.0	16.65	102.44	81.8	125.7	350.1
185.00		0.2500	24.460	19.210	1422.5	15.84	97.84	82.5	114.5	334.6
187.00		0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	129.5
										40789.2

Wind Loading - Shaft

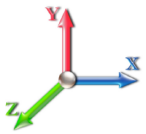
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 120 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		1.00	0.85	29.593	32.55	605.60	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	29.593	32.55	594.87	0.730	0.000	5.00	27.207	19.86	646.5	0.0	2067.3
10.00		1.00	0.85	29.593	32.55	584.14	0.730	0.000	5.00	26.721	19.51	635.0	0.0	2030.0
15.00		1.00	0.86	29.958	32.95	576.93	0.730	0.000	5.00	26.234	19.15	631.1	0.0	1992.8
20.00		1.00	0.91	31.723	34.90	582.57	0.730	0.000	5.00	25.748	18.80	655.9	0.0	1955.5
25.00		1.00	0.95	33.182	36.50	584.45	0.730	0.000	5.00	25.261	18.44	673.1	0.0	1918.3
30.00		1.00	0.99	34.434	37.88	583.80	0.730	0.000	5.00	24.775	18.09	685.0	0.0	1881.0
35.00		1.00	1.02	35.535	39.09	581.30	0.730	0.000	5.00	24.288	17.73	693.1	0.0	1843.8
40.00		1.00	1.05	36.521	40.17	577.39	0.730	0.000	5.00	23.802	17.38	698.0	0.0	1806.5
45.00		1.00	1.07	37.417	41.16	572.35	0.730	0.000	5.00	23.315	17.02	700.5	0.0	1769.2
46.25	Bot - Section 2	1.00	1.08	37.629	41.39	570.95	0.730	0.000	1.25	5.753	4.20	173.8	0.0	436.5
50.00		1.00	1.10	38.239	42.06	566.40	0.730	0.000	3.75	17.353	12.67	532.8	0.0	2449.0
53.25	Top - Section 1	1.00	1.11	38.739	42.61	562.12	0.730	0.000	3.25	14.818	10.82	461.0	0.0	2090.7
55.00		1.00	1.12	38.999	42.90	569.06	0.730	0.000	1.75	7.894	5.76	247.2	0.0	524.6
60.00		1.00	1.14	39.708	43.68	561.78	0.730	0.000	5.00	22.226	16.22	708.7	0.0	1476.9
65.00		1.00	1.16	40.372	44.41	553.92	0.730	0.000	5.00	21.739	15.87	704.8	0.0	1444.3
70.00		1.00	1.18	40.997	45.10	545.56	0.730	0.000	5.00	21.253	15.51	699.7	0.0	1411.7
75.00		1.00	1.19	41.589	45.75	536.76	0.730	0.000	5.00	20.766	15.16	693.5	0.0	1379.1
80.00		1.00	1.21	42.150	46.37	527.56	0.730	0.000	5.00	20.280	14.80	686.4	0.0	1346.5
85.00		1.00	1.23	42.685	46.95	518.01	0.730	0.000	5.00	19.793	14.45	678.4	0.0	1313.9
90.00		1.00	1.24	43.196	47.52	508.13	0.730	0.000	5.00	19.307	14.09	669.7	0.0	1281.3
92.00	Appurtenance(s)	1.00	1.25	43.394	47.73	504.09	0.730	0.000	2.00	7.586	5.54	264.4	0.0	503.4
93.75	Bot - Section 3	1.00	1.25	43.565	47.92	500.53	0.730	0.000	1.75	6.574	4.80	230.0	0.0	436.2
95.00		1.00	1.25	43.685	48.05	497.96	0.730	0.000	1.25	4.739	3.46	166.2	0.0	579.0
99.75	Top - Section 2	1.00	1.27	44.132	48.54	488.04	0.730	0.000	4.75	17.730	12.94	628.3	0.0	2165.7
100.00		1.00	1.27	44.155	48.57	496.07	0.730	0.000	0.25	0.921	0.67	32.7	0.0	52.4
105.00		1.00	1.28	44.606	49.07	485.42	0.730	0.000	5.00	18.165	13.26	650.6	0.0	1034.2
110.00		1.00	1.29	45.041	49.55	474.54	0.730	0.000	5.00	17.678	12.91	639.4	0.0	1006.2
115.00		1.00	1.31	45.461	50.01	463.44	0.730	0.000	5.00	17.192	12.55	627.6	0.0	978.3
120.00		1.00	1.32	45.866	50.45	452.14	0.730	0.000	5.00	16.705	12.19	615.3	0.0	950.3
125.00		1.00	1.33	46.259	50.89	440.65	0.730	0.000	5.00	16.219	11.84	602.5	0.0	922.4
130.00	Appurtenance(s)	1.00	1.34	46.640	51.30	428.99	0.730	0.000	5.00	15.732	11.48	589.2	0.0	894.4
135.00		1.00	1.35	47.009	51.71	417.15	0.730	0.000	5.00	15.246	11.13	575.5	0.0	866.5
140.00	Appurtenance(s)	1.00	1.36	47.368	52.10	405.16	0.730	0.000	5.00	14.759	10.77	561.4	0.0	838.6
142.75	Bot - Section 4	1.00	1.37	47.561	52.32	398.50	0.730	0.000	2.75	7.910	5.77	302.1	0.0	449.3
145.00		1.00	1.37	47.716	52.49	393.02	0.730	0.000	2.25	6.458	4.71	247.4	0.0	606.8
147.25	Top - Section 3	1.00	1.37	47.870	52.66	387.51	0.730	0.000	2.25	6.359	4.64	244.4	0.0	597.3
150.00	Appurtenance(s)	1.00	1.38	48.056	52.86	386.69	0.730	0.000	2.75	7.638	5.58	294.8	0.0	290.2
155.00		1.00	1.39	48.387	53.23	374.29	0.730	0.000	5.00	13.511	9.86	525.0	0.0	513.3
160.00	Appurtenance(s)	1.00	1.40	48.709	53.58	361.77	0.730	0.000	5.00	13.025	9.51	509.4	0.0	494.7
165.00		1.00	1.41	49.024	53.93	349.12	0.730	0.000	5.00	12.538	9.15	493.6	0.0	476.0
170.00	Appurtenance(s)	1.00	1.42	49.331	54.26	336.35	0.730	0.000	5.00	12.052	8.80	477.4	0.0	457.4
175.00		1.00	1.43	49.631	54.59	323.48	0.730	0.000	5.00	11.565	8.44	460.9	0.0	438.8
180.00		1.00	1.43	49.925	54.92	310.49	0.730	0.000	5.00	11.079	8.09	444.1	0.0	420.1
185.00		1.00	1.44	50.212	55.23	297.40	0.730	0.000	5.00	10.592	7.73	427.1	0.0	401.5
187.00	Appurtenance(s)	1.00	1.45	50.325	55.36	292.14	0.730	0.000	2.00	4.101	2.99	165.7	0.0	155.4

Wind Loading - Shaft

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Totals:	**187.00**	**23,049.0**	**48,947.1**

Discrete Appurtenance Forces

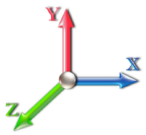
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 120 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor 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	187.00	Low Profile Platform	1	50.325	55.358	1.00	1.00	22.00	1800.00	0.000	0.000	1217.87	0.00	0.00
2	187.00	DB201	2	50.590	55.649	1.00	1.00	7.08	60.00	0.000	4.750	394.00	0.00	1871.48
3	187.00	ANT450F6	1	50.544	55.598	1.00	1.00	1.86	25.20	0.000	3.917	103.41	0.00	405.04
4	187.00	ANT900D6-9	2	50.440	55.484	1.00	1.00	1.96	26.40	0.000	2.042	108.75	0.00	222.03
5	187.00	MF-900B	2	50.325	55.358	1.00	1.00	6.90	31.20	2.015	0.000	381.97	769.83	0.00
6	187.00	6' Lightning rod	1	50.325	55.358	1.00	1.00	0.38	7.80	0.000	0.000	21.04	0.00	0.00
7	170.00	QD6616-7	3	49.331	54.264	0.56	0.75	22.92	410.40	0.000	0.000	1243.53	0.00	0.00
8	170.00	Kaelus DBC0061F1V51-2	6	49.331	54.264	0.38	0.75	0.97	182.88	0.000	0.000	52.50	0.00	0.00
9	170.00	Ericsson RRUS-32	3	49.331	54.264	0.50	0.75	2.49	277.20	0.000	0.000	134.97	0.00	0.00
10	170.00	Air6449 B77D	3	49.440	54.384	0.64	0.75	7.90	316.80	0.000	1.800	429.56	0.00	773.20
11	170.00	AIR 6419 B77G	3	49.440	54.384	0.57	0.75	6.50	237.96	0.000	1.800	353.39	0.00	636.09
12	170.00	DMP65R-BU6DA	3	49.331	54.264	0.54	0.75	20.59	285.84	0.000	0.000	1117.30	0.00	0.00
13	170.00	DTMABP7819VG12A	3	49.331	54.264	0.50	0.75	1.72	69.12	0.000	0.000	93.26	0.00	0.00
14	170.00	Ericsson RRUS 4449	3	49.331	54.264	0.50	0.75	2.97	263.52	0.000	0.000	161.15	0.00	0.00
15	170.00	Ericsson 4478 B14	3	49.331	54.264	0.50	0.75	2.49	213.84	0.000	0.000	134.97	0.00	0.00
16	170.00	CSS DBC-750	3	49.331	54.264	0.50	0.75	0.77	17.28	0.000	0.000	41.72	0.00	0.00
17	170.00	Raycap DC6-48-60-18-8F	3	49.331	54.264	0.60	0.75	1.66	114.48	0.000	0.000	89.86	0.00	0.00
18	170.00	Commscope	3	49.331	54.264	0.73	0.75	0.11	3.96	0.000	0.000	5.98	0.00	0.00
19	170.00	RMQLP-4120-H10	1	49.331	54.264	1.00	1.00	51.70	3899.28	0.000	0.000	2805.44	0.00	0.00
20	170.00	Ericsson RRUS 8843 B2	3	49.331	54.264	0.50	0.75	2.47	259.20	0.000	0.000	134.16	0.00	0.00
21	160.00	Platform w/ Hand Rail	1	48.709	53.580	1.00	1.00	32.00	1920.00	0.000	0.000	1714.56	0.00	0.00
22	160.00	Air32	3	48.709	53.580	0.65	0.75	12.74	475.92	0.000	0.000	682.79	0.00	0.00
23	160.00	APXVAARR24_43-U-NA2	3	48.709	53.580	0.52	0.75	31.88	460.80	0.000	0.000	1708.02	0.00	0.00
24	160.00	SDX1926Q-43	3	48.709	53.580	0.38	0.75	0.58	15.48	0.000	0.000	31.34	0.00	0.00
25	160.00	AIR6449 B41	3	48.709	53.580	0.53	0.75	9.03	370.80	0.000	0.000	483.61	0.00	0.00
26	160.00	MS-KI22-5 (Kickers)	1	48.709	53.580	1.00	1.00	5.33	175.20	0.000	0.000	285.58	0.00	0.00
27	160.00	KRY 112 144/1	3	48.709	53.580	0.38	0.75	0.46	39.60	0.000	0.000	24.71	0.00	0.00
28	160.00	RRUS 4415 B25	3	48.709	53.580	0.50	0.75	2.47	165.60	0.000	0.000	132.47	0.00	0.00
29	160.00	4449 B71+B12	3	48.709	53.580	0.50	0.75	2.49	252.00	0.000	0.000	133.27	0.00	0.00
30	160.00	MS-1436 (Light Collar	1	48.709	53.580	1.00	1.00	1.50	78.72	0.000	0.000	80.37	0.00	0.00
31	150.00	MC-PK8-DSH	1	48.056	52.861	1.00	1.00	37.59	2072.40	0.000	0.000	1987.06	0.00	0.00
32	150.00	RDIDC-9181-OF-48	1	48.056	52.861	0.75	0.75	1.51	26.28	0.000	0.000	79.69	0.00	0.00
33	150.00	TA08025-B605	3	48.056	52.861	0.50	0.75	2.95	270.00	0.000	0.000	156.19	0.00	0.00
34	150.00	MX08FRO665-21	3	48.056	52.861	0.55	0.75	20.80	232.20	0.000	0.000	1099.30	0.00	0.00
35	150.00	TA08025-B604	3	48.056	52.861	0.50	0.75	2.95	230.04	0.000	0.000	156.19	0.00	0.00
36	140.00	Samsung RF4440d-13A	3	47.368	52.104	0.50	0.75	2.82	253.08	0.000	0.000	146.88	0.00	0.00
37	140.00	Commscope	3	47.368	52.104	0.62	0.75	15.09	173.16	0.000	0.000	786.22	0.00	0.00
38	140.00	Samsung MT6407-77A	3	47.368	52.104	0.52	0.75	7.39	285.84	0.000	0.000	384.88	0.00	0.00
39	140.00	VZWSMART-PLK1	1	47.368	52.104	1.00	1.00	12.25	604.80	0.000	0.000	638.28	0.00	0.00
40	140.00	PRK-SFS	1	47.368	52.104	1.00	1.00	9.50	705.60	0.000	0.000	494.99	0.00	0.00
41	140.00	Commscope	3	47.368	52.104	0.62	0.75	15.09	157.32	0.000	0.000	786.22	0.00	0.00
42	140.00	Samsung RF4439d-25A	3	47.368	52.104	0.50	0.75	2.83	268.92	0.000	0.000	147.67	0.00	0.00
43	140.00	Samsung LTE CBRS	3	47.368	52.104	0.50	0.75	1.49	66.96	0.000	0.000	77.76	0.00	0.00
44	140.00	LNX-6514DS-VTM	3	47.368	52.104	0.60	0.75	14.56	139.68	0.000	0.000	758.74	0.00	0.00
45	140.00	DB-T1-6Z-8AB-0Z	2	47.368	52.104	0.68	0.75	5.60	105.60	0.000	0.000	291.60	0.00	0.00
46	140.00	KS-24019	6	47.368	52.104	1.00	1.00	0.72	3.60	0.000	0.000	37.52	0.00	0.00
47	140.00	Low Profile Platform	1	47.368	52.104	1.00	1.00	22.00	1800.00	0.000	0.000	1146.30	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 12

Tower Engineering Solutions

48	130.00	APXVSPP18-C-A20	3	46.640	51.304	0.66	0.80	15.98	205.20	0.000	0.000	819.62	0.00	0.00
49	130.00	APXVTM14-C-120	3	46.640	51.304	0.63	0.80	12.02	201.60	0.000	0.000	616.70	0.00	0.00
50	130.00	TD-RRH8x20-25	3	46.640	51.304	0.40	0.80	4.86	252.00	0.000	0.000	249.34	0.00	0.00
51	130.00	1900MHz RRH	3	46.640	51.304	0.54	0.80	6.11	158.40	0.000	0.000	313.49	0.00	0.00
52	130.00	800 MHz RRH	3	46.640	51.304	0.54	0.80	4.00	190.80	0.000	0.000	205.42	0.00	0.00
53	130.00	800MHz Filter	3	46.640	51.304	0.54	0.80	1.25	31.68	0.000	0.000	64.35	0.00	0.00
54	130.00	RF Filters	3	46.640	51.304	0.54	0.80	1.50	55.80	0.000	0.000	76.72	0.00	0.00
55	130.00	ACU-A20-N	4	46.640	51.304	0.40	0.80	0.22	4.80	0.000	0.000	11.49	0.00	0.00
56	130.00	Low Profile Platform	1	46.640	51.304	1.00	1.00	22.00	1800.00	0.000	0.000	1128.68	0.00	0.00
57	92.00	Low Profile Platform	1	43.394	47.734	1.00	1.00	22.00	1800.00	0.000	0.000	1050.14	0.00	0.00
58	92.00	DB205	1	44.246	48.671	1.00	1.00	1.80	45.60	0.000	9.000	87.61	0.00	788.47
59	92.00	ANT450Y10-WR	1	43.394	47.734	1.00	1.00	0.49	6.00	0.000	0.000	23.39	0.00	0.00
60	92.00	ANT150D3	1	43.875	48.263	1.00	1.00	2.18	21.60	0.000	5.000	105.21	0.00	526.06
61	92.00	ANT4506-9	1	43.685	48.054	1.00	1.00	2.77	21.60	0.000	3.000	133.11	0.00	399.33
62	92.00	MF-900B	2	43.394	47.734	1.00	1.00	6.90	31.20	2.887	0.000	329.36	950.83	0.00
							Totals:		**24,678.24**			**28,691.64**		

Total Applied Force Summary

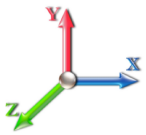
Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 120 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		646.52	2382.78	0.00	0.00
10.00		634.96	2345.53	0.00	0.00
15.00		631.10	2308.27	0.00	0.00
20.00		655.89	2271.01	0.00	0.00
25.00		673.09	2233.76	0.00	0.00
30.00		685.03	2196.50	0.00	0.00
35.00		693.05	2159.25	0.00	0.00
40.00		698.02	2121.99	0.00	0.00
45.00		700.52	2084.74	0.00	0.00
46.25		173.82	515.36	0.00	0.00
50.00		532.85	2685.61	0.00	0.00
53.25		460.96	2295.75	0.00	0.00
55.00		247.21	635.03	0.00	0.00
60.00		708.67	1792.36	0.00	0.00
65.00		704.75	1759.76	0.00	0.00
70.00		699.66	1727.16	0.00	0.00
75.00		693.50	1694.57	0.00	0.00
80.00		686.40	1661.97	0.00	0.00
85.00		678.44	1629.37	0.00	0.00
90.00		669.68	1596.77	0.00	0.00
92.00	(7) attachments	1993.18	2555.58	950.83	1713.86
93.75		229.99	544.59	0.00	0.00
95.00		166.23	656.44	0.00	0.00
99.75		628.31	2459.95	0.00	0.00
100.00		32.66	67.93	0.00	0.00
105.00		650.63	1343.89	0.00	0.00
110.00		639.38	1315.95	0.00	0.00
115.00		627.58	1288.00	0.00	0.00
120.00		615.26	1260.06	0.00	0.00
125.00		602.46	1232.12	0.00	0.00
130.00	(26) attachments	4074.99	4104.46	0.00	0.00
135.00		575.49	1156.66	0.00	0.00
140.00	(32) attachments	6258.45	5693.28	0.00	0.00
142.75		302.10	563.35	0.00	0.00
145.00		247.43	700.07	0.00	0.00
147.25		244.44	690.64	0.00	0.00
150.00	(11) attachments	3773.19	3235.21	0.00	0.00
155.00		524.97	709.36	0.00	0.00
160.00	(24) attachments	5786.15	4644.86	0.00	0.00
165.00		493.58	589.55	0.00	0.00
170.00	(43) attachments	7275.19	7122.68	0.00	1409.29
175.00		460.91	451.97	0.00	0.00
180.00		444.14	433.34	0.00	0.00
185.00		427.08	414.72	0.00	0.00
187.00	(9) attachments	2392.74	2111.27	769.83	2498.55

Total Applied Force Summary

Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Totals:	**51,740.63**	**83,443.46**	**1,720.66**	**5,621.70**

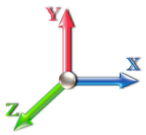
Linear Appurtenance Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 1.2D + 1.0W 120 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)
5.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.593	0.00	11.28
10.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.593	0.00	11.28
15.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	11.28
20.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	11.28
25.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	11.28
30.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.434	0.00	11.28
35.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.535	0.00	11.28
40.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	36.521	0.00	11.28
45.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	37.417	0.00	11.28
46.25	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	37.629	0.00	2.82
50.00	1.6" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.000	0.000	38.239	0.00	8.46
53.25	1.6" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	38.739	0.00	7.33
55.00	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	38.999	0.00	3.95
60.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	39.708	0.00	11.28
65.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	40.372	0.00	11.28
70.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	40.997	0.00	11.28
75.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	41.589	0.00	11.28
80.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	42.150	0.00	11.28
85.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	42.685	0.00	11.28
90.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	43.196	0.00	11.28
92.00	1.6" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	43.394	0.00	4.51
93.75	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	43.565	0.00	3.95
95.00	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	43.685	0.00	2.82
99.75	1.6" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.000	0.000	44.132	0.00	10.72
100.00	1.6" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.000	0.000	44.155	0.00	0.56
105.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	44.606	0.00	11.28
110.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	45.041	0.00	11.28
115.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	45.461	0.00	11.28
120.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	45.866	0.00	11.28
125.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	46.259	0.00	11.28
130.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	46.640	0.00	11.28
135.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	47.009	0.00	11.28
140.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	47.368	0.00	11.28
142.75	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	47.561	0.00	6.20
145.00	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	47.716	0.00	5.08
147.25	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	47.870	0.00	5.08
150.00	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	48.056	0.00	6.20
									Totals:		**0.0**	**338.4**

Calculated Forces

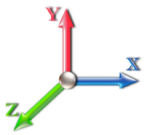
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 120 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

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	-83.36	-51.87	-1.69	-6759.1	-0.03	6759.12	7001.91	1793.04	9577.56	9276.01	0.00	0.000	0.000	0.741
5.00	-80.82	-51.47	-1.69	-6499.7	-0.03	6499.77	6919.93	1761.01	9238.49	9002.40	0.09	-0.176	0.000	0.735
10.00	-78.32	-51.07	-1.69	-6242.4	-0.03	6242.41	6836.37	1728.99	8905.54	8730.69	0.38	-0.355	0.000	0.727
15.00	-75.85	-50.67	-1.69	-5987.0	-0.03	5987.05	6751.25	1696.96	8578.69	8461.01	0.85	-0.536	0.000	0.720
20.00	-73.43	-50.22	-1.69	-5733.7	-0.03	5733.72	6664.57	1664.94	8257.96	8193.47	1.51	-0.720	0.000	0.712
25.00	-71.04	-49.75	-1.69	-5482.6	-0.03	5482.62	6576.31	1632.91	7943.33	7928.16	2.36	-0.906	0.000	0.703
30.00	-68.69	-49.26	-1.69	-5233.8	-0.04	5233.87	6486.49	1600.89	7634.82	7665.22	3.41	-1.095	0.000	0.694
35.00	-66.39	-48.74	-1.69	-4987.6	-0.04	4987.60	6395.11	1568.86	7332.41	7404.75	4.66	-1.286	0.000	0.685
40.00	-64.12	-48.21	-1.69	-4743.9	-0.04	4743.91	6302.15	1536.84	7036.12	7146.85	6.11	-1.479	0.000	0.675
45.00	-61.95	-47.58	-1.69	-4502.8	-0.04	4502.87	6207.63	1504.81	6745.94	6891.65	7.77	-1.674	-0.001	0.664
46.25	-61.36	-47.50	-1.69	-4443.3	-0.04	4443.39	6183.76	1496.81	6674.35	6828.29	8.21	-1.725	-0.001	0.662
50.00	-58.58	-47.03	-1.69	-4265.2	-0.04	4265.26	6111.55	1472.79	6461.86	6639.26	9.63	-1.874	-0.001	0.653
53.25	-56.22	-46.59	-1.70	-4112.4	-0.04	4112.43	5153.03	1293.32	5694.85	5624.85	10.95	-2.005	-0.001	0.743
55.00	-55.47	-46.46	-1.70	-4030.9	-0.05	4030.90	5126.51	1283.52	5608.81	5553.12	11.70	-2.076	-0.001	0.738
60.00	-53.54	-45.89	-1.70	-3798.6	-0.05	3798.61	5049.68	1255.49	5366.58	5349.50	13.99	-2.293	-0.001	0.722
65.00	-51.63	-45.31	-1.70	-3569.1	-0.05	3569.18	4971.29	1227.47	5129.70	5147.92	16.51	-2.512	-0.001	0.705
70.00	-49.77	-44.72	-1.70	-3342.6	-0.05	3342.66	4891.33	1199.45	4898.16	4948.49	19.25	-2.731	-0.001	0.687
75.00	-47.94	-44.13	-1.70	-3119.0	-0.06	3119.07	4809.80	1171.43	4671.97	4751.33	22.23	-2.951	-0.001	0.668
80.00	-46.15	-43.53	-1.70	-2898.4	-0.06	2898.44	4726.70	1143.41	4451.13	4556.54	25.44	-3.170	-0.001	0.647
85.00	-44.40	-42.93	-1.70	-2680.8	-0.06	2680.80	4642.04	1115.39	4235.63	4364.25	28.88	-3.389	-0.001	0.625
90.00	-42.74	-42.28	-1.70	-2466.1	-0.07	2466.16	4555.82	1087.36	4025.49	4174.56	32.54	-3.607	-0.001	0.602
92.00	-40.26	-40.18	-0.75	-2379.8	-0.01	2379.89	4520.89	1076.16	3942.92	4099.44	34.07	-3.695	-0.002	0.591
93.75	-39.68	-39.96	-0.75	-2309.5	-0.01	2309.58	4490.12	1066.35	3871.38	4034.07	35.44	-3.773	-0.002	0.583
95.00	-38.95	-39.84	-0.75	-2259.6	-0.01	2259.63	4468.02	1059.34	3820.68	3987.58	36.43	-3.828	-0.002	0.577
99.75	-36.46	-39.11	-0.75	-2070.3	-0.01	2070.38	3653.35	902.16	3232.84	3243.96	40.34	-4.031	-0.002	0.650
100.00	-36.32	-39.16	-0.75	-2060.6	-0.02	2060.60	3649.96	900.96	3224.24	3236.59	40.56	-4.042	-0.002	0.649
105.00	-34.87	-38.55	-0.75	-1864.8	-0.02	1864.83	3581.25	876.94	3054.62	3090.28	44.91	-4.273	-0.002	0.615
110.00	-33.46	-37.94	-0.76	-1672.0	-0.03	1672.09	3510.98	852.92	2889.59	2945.93	49.50	-4.499	-0.002	0.579
115.00	-32.08	-37.33	-0.76	-1482.3	-0.03	1482.39	3439.14	828.91	2729.13	2803.65	54.33	-4.719	-0.002	0.540
120.00	-30.75	-36.72	-0.76	-1295.7	-0.04	1295.74	3365.73	804.89	2573.27	2663.56	59.38	-4.929	-0.002	0.498
125.00	-29.45	-36.11	-0.76	-1112.1	-0.04	1112.13	3290.76	780.87	2421.98	2525.77	64.65	-5.128	-0.002	0.451
130.00	-25.64	-31.76	-0.76	-931.56	-0.05	931.56	3204.00	756.85	2275.28	2382.78	70.11	-5.313	-0.002	0.401
135.00	-24.46	-31.15	-0.76	-772.76	-0.05	772.76	3102.32	732.83	2133.16	2233.19	75.76	-5.482	-0.002	0.356
140.00	-19.35	-24.41	-0.76	-617.02	-0.06	617.02	3000.64	708.81	1995.62	2088.46	81.58	-5.635	-0.003	0.303
142.75	-18.79	-24.07	-0.76	-549.91	-0.06	549.91	2944.72	695.60	1921.93	2010.92	84.84	-5.712	-0.003	0.281
145.00	-18.09	-23.77	-0.76	-495.75	-0.06	495.75	2898.96	684.79	1862.67	1948.57	87.55	-5.773	-0.003	0.262
147.25	-17.41	-23.48	-0.76	-442.26	-0.06	442.26	1774.96	458.03	1249.94	1201.53	90.28	-5.829	-0.003	0.381
150.00	-14.54	-19.42	-0.76	-377.69	-0.07	377.69	1752.91	449.22	1202.33	1163.62	93.65	-5.893	-0.003	0.335
155.00	-13.85	-18.86	-0.76	-280.59	-0.07	280.59	1711.62	433.21	1118.15	1095.40	99.89	-6.032	-0.003	0.266
160.00	-9.82	-12.63	-0.76	-186.31	-0.07	186.31	1668.76	417.20	1037.02	1028.18	106.26	-6.142	-0.004	0.188
165.00	-9.27	-12.08	-0.76	-123.18	-0.08	123.18	1624.34	401.18	958.94	962.08	112.72	-6.223	-0.004	0.135
170.00	-2.98	-4.08	-0.76	-61.36	-0.08	61.36	1578.35	385.17	883.92	897.21	119.26	-6.279	-0.005	0.070
175.00	-2.58	-3.57	-0.77	-40.98	-0.08	40.98	1530.79	369.16	811.95	833.68	125.84	-6.313	-0.005	0.051
180.00	-2.20	-3.08	-0.77	-23.13	-0.08	23.13	1481.67	353.15	743.04	771.60	132.45	-6.337	-0.006	0.032
185.00	-1.83	-2.61	-0.77	-7.72	-0.08	7.72	1427.20	337.13	677.19	709.20	139.09	-6.351	-0.006	0.012
187.00	0.00	-2.39	-0.77	-2.50	0.00	2.50	1400.09	330.73	651.70	682.38	141.74	-6.353	-0.007	0.004

Wind Loading - Shaft

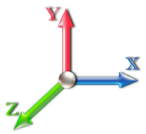
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

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		1.00	0.85	29.593	32.55	605.60	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	29.593	32.55	594.87	0.730	0.000	5.00	27.207	19.86	646.5	0.0	1550.5
10.00		1.00	0.85	29.593	32.55	584.14	0.730	0.000	5.00	26.721	19.51	635.0	0.0	1522.5
15.00		1.00	0.86	29.958	32.95	576.93	0.730	0.000	5.00	26.234	19.15	631.1	0.0	1494.6
20.00		1.00	0.91	31.723	34.90	582.57	0.730	0.000	5.00	25.748	18.80	655.9	0.0	1466.6
25.00		1.00	0.95	33.182	36.50	584.45	0.730	0.000	5.00	25.261	18.44	673.1	0.0	1438.7
30.00		1.00	0.99	34.434	37.88	583.80	0.730	0.000	5.00	24.775	18.09	685.0	0.0	1410.8
35.00		1.00	1.02	35.535	39.09	581.30	0.730	0.000	5.00	24.288	17.73	693.1	0.0	1382.8
40.00		1.00	1.05	36.521	40.17	577.39	0.730	0.000	5.00	23.802	17.38	698.0	0.0	1354.9
45.00		1.00	1.07	37.417	41.16	572.35	0.730	0.000	5.00	23.315	17.02	700.5	0.0	1326.9
46.25	Bot - Section 2	1.00	1.08	37.629	41.39	570.95	0.730	0.000	1.25	5.753	4.20	173.8	0.0	327.4
50.00		1.00	1.10	38.239	42.06	566.40	0.730	0.000	3.75	17.353	12.67	532.8	0.0	1836.7
53.25	Top - Section 1	1.00	1.11	38.739	42.61	562.12	0.730	0.000	3.25	14.818	10.82	461.0	0.0	1568.0
55.00		1.00	1.12	38.999	42.90	569.06	0.730	0.000	1.75	7.894	5.76	247.2	0.0	393.5
60.00		1.00	1.14	39.708	43.68	561.78	0.730	0.000	5.00	22.226	16.22	708.7	0.0	1107.7
65.00		1.00	1.16	40.372	44.41	553.92	0.730	0.000	5.00	21.739	15.87	704.8	0.0	1083.2
70.00		1.00	1.18	40.997	45.10	545.56	0.730	0.000	5.00	21.253	15.51	699.7	0.0	1058.8
75.00		1.00	1.19	41.589	45.75	536.76	0.730	0.000	5.00	20.766	15.16	693.5	0.0	1034.3
80.00		1.00	1.21	42.150	46.37	527.56	0.730	0.000	5.00	20.280	14.80	686.4	0.0	1009.9
85.00		1.00	1.23	42.685	46.95	518.01	0.730	0.000	5.00	19.793	14.45	678.4	0.0	985.4
90.00		1.00	1.24	43.196	47.52	508.13	0.730	0.000	5.00	19.307	14.09	669.7	0.0	961.0
92.00	Appurtenance(s)	1.00	1.25	43.394	47.73	504.09	0.730	0.000	2.00	7.586	5.54	264.4	0.0	377.5
93.75	Bot - Section 3	1.00	1.25	43.565	47.92	500.53	0.730	0.000	1.75	6.574	4.80	230.0	0.0	327.1
95.00		1.00	1.25	43.685	48.05	497.96	0.730	0.000	1.25	4.739	3.46	166.2	0.0	434.3
99.75	Top - Section 2	1.00	1.27	44.132	48.54	488.04	0.730	0.000	4.75	17.730	12.94	628.3	0.0	1624.3
100.00		1.00	1.27	44.155	48.57	496.07	0.730	0.000	0.25	0.921	0.67	32.7	0.0	39.3
105.00		1.00	1.28	44.606	49.07	485.42	0.730	0.000	5.00	18.165	13.26	650.6	0.0	775.6
110.00		1.00	1.29	45.041	49.55	474.54	0.730	0.000	5.00	17.678	12.91	639.4	0.0	754.7
115.00		1.00	1.31	45.461	50.01	463.44	0.730	0.000	5.00	17.192	12.55	627.6	0.0	733.7
120.00		1.00	1.32	45.866	50.45	452.14	0.730	0.000	5.00	16.705	12.19	615.3	0.0	712.7
125.00		1.00	1.33	46.259	50.89	440.65	0.730	0.000	5.00	16.219	11.84	602.5	0.0	691.8
130.00	Appurtenance(s)	1.00	1.34	46.640	51.30	428.99	0.730	0.000	5.00	15.732	11.48	589.2	0.0	670.8
135.00		1.00	1.35	47.009	51.71	417.15	0.730	0.000	5.00	15.246	11.13	575.5	0.0	649.9
140.00	Appurtenance(s)	1.00	1.36	47.368	52.10	405.16	0.730	0.000	5.00	14.759	10.77	561.4	0.0	628.9
142.75	Bot - Section 4	1.00	1.37	47.561	52.32	398.50	0.730	0.000	2.75	7.910	5.77	302.1	0.0	337.0
145.00		1.00	1.37	47.716	52.49	393.02	0.730	0.000	2.25	6.458	4.71	247.4	0.0	455.1
147.25	Top - Section 3	1.00	1.37	47.870	52.66	387.51	0.730	0.000	2.25	6.359	4.64	244.4	0.0	448.0
150.00	Appurtenance(s)	1.00	1.38	48.056	52.86	386.69	0.730	0.000	2.75	7.638	5.58	294.8	0.0	217.7
155.00		1.00	1.39	48.387	53.23	374.29	0.730	0.000	5.00	13.511	9.86	525.0	0.0	385.0
160.00	Appurtenance(s)	1.00	1.40	48.709	53.58	361.77	0.730	0.000	5.00	13.025	9.51	509.4	0.0	371.0
165.00		1.00	1.41	49.024	53.93	349.12	0.730	0.000	5.00	12.538	9.15	493.6	0.0	357.0
170.00	Appurtenance(s)	1.00	1.42	49.331	54.26	336.35	0.730	0.000	5.00	12.052	8.80	477.4	0.0	343.0
175.00		1.00	1.43	49.631	54.59	323.48	0.730	0.000	5.00	11.565	8.44	460.9	0.0	329.1
180.00		1.00	1.43	49.925	54.92	310.49	0.730	0.000	5.00	11.079	8.09	444.1	0.0	315.1
185.00		1.00	1.44	50.212	55.23	297.40	0.730	0.000	5.00	10.592	7.73	427.1	0.0	301.1
187.00	Appurtenance(s)	1.00	1.45	50.325	55.36	292.14	0.730	0.000	2.00	4.101	2.99	165.7	0.0	116.5

Wind Loading - Shaft

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Totals:	**187.00**	**23,049.0**	**36,710.3**

Discrete Appurtenance Forces

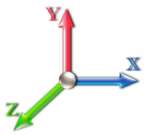
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor 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	187.00	Low Profile Platform	1	50.325	55.358	1.00	1.00	22.00	1350.00	0.000	0.000	1217.87	0.00	0.00
2	187.00	DB201	2	50.590	55.649	1.00	1.00	7.08	45.00	0.000	4.750	394.00	0.00	1871.48
3	187.00	ANT450F6	1	50.544	55.598	1.00	1.00	1.86	18.90	0.000	3.917	103.41	0.00	405.04
4	187.00	ANT900D6-9	2	50.440	55.484	1.00	1.00	1.96	19.80	0.000	2.042	108.75	0.00	222.03
5	187.00	MF-900B	2	50.325	55.358	1.00	1.00	6.90	23.40	2.015	0.000	381.97	769.83	0.00
6	187.00	6' Lightning rod	1	50.325	55.358	1.00	1.00	0.38	5.85	0.000	0.000	21.04	0.00	0.00
7	170.00	QD6616-7	3	49.331	54.264	0.56	0.75	22.92	307.80	0.000	0.000	1243.53	0.00	0.00
8	170.00	Kaelus DBC0061F1V51-2	6	49.331	54.264	0.38	0.75	0.97	137.16	0.000	0.000	52.50	0.00	0.00
9	170.00	Ericsson RRUS-32	3	49.331	54.264	0.50	0.75	2.49	207.90	0.000	0.000	134.97	0.00	0.00
10	170.00	Air6449 B77D	3	49.440	54.384	0.64	0.75	7.90	237.60	0.000	1.800	429.56	0.00	773.20
11	170.00	AIR 6419 B77G	3	49.440	54.384	0.57	0.75	6.50	178.47	0.000	1.800	353.39	0.00	636.09
12	170.00	DMP65R-BU6DA	3	49.331	54.264	0.54	0.75	20.59	214.38	0.000	0.000	1117.30	0.00	0.00
13	170.00	DTMABP7819VG12A	3	49.331	54.264	0.50	0.75	1.72	51.84	0.000	0.000	93.26	0.00	0.00
14	170.00	Ericsson RRUS 4449	3	49.331	54.264	0.50	0.75	2.97	197.64	0.000	0.000	161.15	0.00	0.00
15	170.00	Ericsson 4478 B14	3	49.331	54.264	0.50	0.75	2.49	160.38	0.000	0.000	134.97	0.00	0.00
16	170.00	CSS DBC-750	3	49.331	54.264	0.50	0.75	0.77	12.96	0.000	0.000	41.72	0.00	0.00
17	170.00	Raycap DC6-48-60-18-8F	3	49.331	54.264	0.60	0.75	1.66	85.86	0.000	0.000	89.86	0.00	0.00
18	170.00	Commscope	3	49.331	54.264	0.73	0.75	0.11	2.97	0.000	0.000	5.98	0.00	0.00
19	170.00	RMQLP-4120-H10	1	49.331	54.264	1.00	1.00	51.70	2924.46	0.000	0.000	2805.44	0.00	0.00
20	170.00	Ericsson RRUS 8843 B2	3	49.331	54.264	0.50	0.75	2.47	194.40	0.000	0.000	134.16	0.00	0.00
21	160.00	Platform w/ Hand Rail	1	48.709	53.580	1.00	1.00	32.00	1440.00	0.000	0.000	1714.56	0.00	0.00
22	160.00	Air32	3	48.709	53.580	0.65	0.75	12.74	356.94	0.000	0.000	682.79	0.00	0.00
23	160.00	APXVAARR24_43-U-NA2	3	48.709	53.580	0.52	0.75	31.88	345.60	0.000	0.000	1708.02	0.00	0.00
24	160.00	SDX1926Q-43	3	48.709	53.580	0.38	0.75	0.58	11.61	0.000	0.000	31.34	0.00	0.00
25	160.00	AIR6449 B41	3	48.709	53.580	0.53	0.75	9.03	278.10	0.000	0.000	483.61	0.00	0.00
26	160.00	MS-KI22-5 (Kickers)	1	48.709	53.580	1.00	1.00	5.33	131.40	0.000	0.000	285.58	0.00	0.00
27	160.00	KRY 112 144/1	3	48.709	53.580	0.38	0.75	0.46	29.70	0.000	0.000	24.71	0.00	0.00
28	160.00	RRUS 4415 B25	3	48.709	53.580	0.50	0.75	2.47	124.20	0.000	0.000	132.47	0.00	0.00
29	160.00	4449 B71+B12	3	48.709	53.580	0.50	0.75	2.49	189.00	0.000	0.000	133.27	0.00	0.00
30	160.00	MS-1436 (Light Collar	1	48.709	53.580	1.00	1.00	1.50	59.04	0.000	0.000	80.37	0.00	0.00
31	150.00	MC-PK8-DSH	1	48.056	52.861	1.00	1.00	37.59	1554.30	0.000	0.000	1987.06	0.00	0.00
32	150.00	RDIDC-9181-OF-48	1	48.056	52.861	0.75	0.75	1.51	19.71	0.000	0.000	79.69	0.00	0.00
33	150.00	TA08025-B605	3	48.056	52.861	0.50	0.75	2.95	202.50	0.000	0.000	156.19	0.00	0.00
34	150.00	MX08FRO665-21	3	48.056	52.861	0.55	0.75	20.80	174.15	0.000	0.000	1099.30	0.00	0.00
35	150.00	TA08025-B604	3	48.056	52.861	0.50	0.75	2.95	172.53	0.000	0.000	156.19	0.00	0.00
36	140.00	Samsung RF4440d-13A	3	47.368	52.104	0.50	0.75	2.82	189.81	0.000	0.000	146.88	0.00	0.00
37	140.00	Commscope	3	47.368	52.104	0.62	0.75	15.09	129.87	0.000	0.000	786.22	0.00	0.00
38	140.00	Samsung MT6407-77A	3	47.368	52.104	0.52	0.75	7.39	214.38	0.000	0.000	384.88	0.00	0.00
39	140.00	VZWSMART-PLK1	1	47.368	52.104	1.00	1.00	12.25	453.60	0.000	0.000	638.28	0.00	0.00
40	140.00	PRK-SFS	1	47.368	52.104	1.00	1.00	9.50	529.20	0.000	0.000	494.99	0.00	0.00
41	140.00	Commscope	3	47.368	52.104	0.62	0.75	15.09	117.99	0.000	0.000	786.22	0.00	0.00
42	140.00	Samsung RF4439d-25A	3	47.368	52.104	0.50	0.75	2.83	201.69	0.000	0.000	147.67	0.00	0.00
43	140.00	Samsung LTE CBRS	3	47.368	52.104	0.50	0.75	1.49	50.22	0.000	0.000	77.76	0.00	0.00
44	140.00	LNX-6514DS-VTM	3	47.368	52.104	0.60	0.75	14.56	104.76	0.000	0.000	758.74	0.00	0.00
45	140.00	DB-T1-6Z-8AB-0Z	2	47.368	52.104	0.68	0.75	5.60	79.20	0.000	0.000	291.60	0.00	0.00
46	140.00	KS-24019	6	47.368	52.104	1.00	1.00	0.72	2.70	0.000	0.000	37.52	0.00	0.00
47	140.00	Low Profile Platform	1	47.368	52.104	1.00	1.00	22.00	1350.00	0.000	0.000	1146.30	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 20

Tower Engineering Solutions

48	130.00	APXVSPP18-C-A20	3	46.640	51.304	0.66	0.80	15.98	153.90	0.000	0.000	819.62	0.00	0.00
49	130.00	APXVTM14-C-120	3	46.640	51.304	0.63	0.80	12.02	151.20	0.000	0.000	616.70	0.00	0.00
50	130.00	TD-RRH8x20-25	3	46.640	51.304	0.40	0.80	4.86	189.00	0.000	0.000	249.34	0.00	0.00
51	130.00	1900MHz RRH	3	46.640	51.304	0.54	0.80	6.11	118.80	0.000	0.000	313.49	0.00	0.00
52	130.00	800 MHz RRH	3	46.640	51.304	0.54	0.80	4.00	143.10	0.000	0.000	205.42	0.00	0.00
53	130.00	800MHz Filter	3	46.640	51.304	0.54	0.80	1.25	23.76	0.000	0.000	64.35	0.00	0.00
54	130.00	RF Filters	3	46.640	51.304	0.54	0.80	1.50	41.85	0.000	0.000	76.72	0.00	0.00
55	130.00	ACU-A20-N	4	46.640	51.304	0.40	0.80	0.22	3.60	0.000	0.000	11.49	0.00	0.00
56	130.00	Low Profile Platform	1	46.640	51.304	1.00	1.00	22.00	1350.00	0.000	0.000	1128.68	0.00	0.00
57	92.00	Low Profile Platform	1	43.394	47.734	1.00	1.00	22.00	1350.00	0.000	0.000	1050.14	0.00	0.00
58	92.00	DB205	1	44.246	48.671	1.00	1.00	1.80	34.20	0.000	9.000	87.61	0.00	788.47
59	92.00	ANT450Y10-WR	1	43.394	47.734	1.00	1.00	0.49	4.50	0.000	0.000	23.39	0.00	0.00
60	92.00	ANT150D3	1	43.875	48.263	1.00	1.00	2.18	16.20	0.000	5.000	105.21	0.00	526.06
61	92.00	ANT4506-9	1	43.685	48.054	1.00	1.00	2.77	16.20	0.000	3.000	133.11	0.00	399.33
62	92.00	MF-900B	2	43.394	47.734	1.00	1.00	6.90	23.40	2.887	0.000	329.36	950.83	0.00
							Totals:		**18,508.68**			**28,691.64**		

Total Applied Force Summary

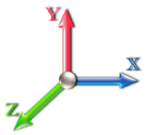
Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

TES Tower Engineering Solutions

Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

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		646.52	1787.09	0.00	0.00
10.00		634.96	1759.14	0.00	0.00
15.00		631.10	1731.20	0.00	0.00
20.00		655.89	1703.26	0.00	0.00
25.00		673.09	1675.32	0.00	0.00
30.00		685.03	1647.38	0.00	0.00
35.00		693.05	1619.44	0.00	0.00
40.00		698.02	1591.49	0.00	0.00
45.00		700.52	1563.55	0.00	0.00
46.25		173.82	386.52	0.00	0.00
50.00		532.85	2014.21	0.00	0.00
53.25		460.96	1721.81	0.00	0.00
55.00		247.21	476.27	0.00	0.00
60.00		708.67	1344.27	0.00	0.00
65.00		704.75	1319.82	0.00	0.00
70.00		699.66	1295.37	0.00	0.00
75.00		693.50	1270.92	0.00	0.00
80.00		686.40	1246.47	0.00	0.00
85.00		678.44	1222.03	0.00	0.00
90.00		669.68	1197.58	0.00	0.00
92.00	(7) attachments	1993.18	1916.68	950.83	1713.86
93.75		229.99	408.44	0.00	0.00
95.00		166.23	492.33	0.00	0.00
99.75		628.31	1844.96	0.00	0.00
100.00		32.66	50.95	0.00	0.00
105.00		650.63	1007.92	0.00	0.00
110.00		639.38	986.96	0.00	0.00
115.00		627.58	966.00	0.00	0.00
120.00		615.26	945.05	0.00	0.00
125.00		602.46	924.09	0.00	0.00
130.00	(26) attachments	4074.99	3078.34	0.00	0.00
135.00		575.49	867.50	0.00	0.00
140.00	(32) attachments	6258.45	4269.96	0.00	0.00
142.75		302.10	422.51	0.00	0.00
145.00		247.43	525.05	0.00	0.00
147.25		244.44	517.98	0.00	0.00
150.00	(11) attachments	3773.19	2426.41	0.00	0.00
155.00		524.97	532.02	0.00	0.00
160.00	(24) attachments	5786.15	3483.64	0.00	0.00
165.00		493.58	442.16	0.00	0.00
170.00	(43) attachments	7275.19	5342.01	0.00	1409.29
175.00		460.91	338.98	0.00	0.00
180.00		444.14	325.01	0.00	0.00
185.00		427.08	311.04	0.00	0.00
187.00	(9) attachments	2392.74	1583.45	769.83	2498.55

Total Applied Force Summary

Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 22

Tower Engineering Solutions

Totals:	**51,740.63**	**62,582.60**	**1,720.66**	**5,621.70**

Linear Appurtenance Segment Forces (Factored)

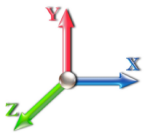
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

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)
5.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.593	0.00	8.46
10.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.593	0.00	8.46
15.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	29.958	0.00	8.46
20.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	31.723	0.00	8.46
25.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	33.182	0.00	8.46
30.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	34.434	0.00	8.46
35.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	35.535	0.00	8.46
40.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	36.521	0.00	8.46
45.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	37.417	0.00	8.46
46.25	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	37.629	0.00	2.11
50.00	1.6" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.000	0.000	38.239	0.00	6.34
53.25	1.6" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	38.739	0.00	5.50
55.00	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	38.999	0.00	2.96
60.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	39.708	0.00	8.46
65.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	40.372	0.00	8.46
70.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	40.997	0.00	8.46
75.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	41.589	0.00	8.46
80.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	42.150	0.00	8.46
85.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	42.685	0.00	8.46
90.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	43.196	0.00	8.46
92.00	1.6" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	43.394	0.00	3.38
93.75	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	43.565	0.00	2.96
95.00	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	43.685	0.00	2.11
99.75	1.6" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.000	0.000	44.132	0.00	8.04
100.00	1.6" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.000	0.000	44.155	0.00	0.42
105.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	44.606	0.00	8.46
110.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	45.041	0.00	8.46
115.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	45.461	0.00	8.46
120.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	45.866	0.00	8.46
125.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	46.259	0.00	8.46
130.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	46.640	0.00	8.46
135.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	47.009	0.00	8.46
140.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	47.368	0.00	8.46
142.75	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	47.561	0.00	4.65
145.00	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	47.716	0.00	3.81
147.25	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	47.870	0.00	3.81
150.00	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	48.056	0.00	4.65
									Totals:		**0.0**	**253.8**

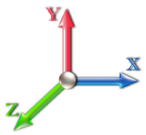
Calculated Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

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	-62.50	-51.84	-1.69	-6666.6	-0.02	6666.62	7001.91	1793.04	9577.56	9276.01	0.00	0.000	0.000	0.728
5.00	-60.56	-51.37	-1.69	-6407.4	-0.02	6407.43	6919.93	1761.01	9238.49	9002.40	0.09	-0.174	0.000	0.721
10.00	-58.65	-50.91	-1.69	-6150.5	-0.02	6150.57	6836.37	1728.99	8905.54	8730.69	0.37	-0.350	0.000	0.714
15.00	-56.76	-50.45	-1.69	-5896.0	-0.02	5896.01	6751.25	1696.96	8578.69	8461.01	0.83	-0.529	0.000	0.706
20.00	-54.91	-49.95	-1.69	-5643.7	-0.03	5643.78	6664.57	1664.94	8257.96	8193.47	1.48	-0.710	0.000	0.698
25.00	-53.08	-49.42	-1.69	-5394.0	-0.03	5394.05	6576.31	1632.91	7943.33	7928.16	2.33	-0.893	0.000	0.689
30.00	-51.29	-48.88	-1.69	-5146.9	-0.03	5146.94	6486.49	1600.89	7634.82	7665.22	3.36	-1.078	0.000	0.680
35.00	-49.52	-48.31	-1.69	-4902.5	-0.03	4902.57	6395.11	1568.86	7332.41	7404.75	4.59	-1.266	0.000	0.671
40.00	-47.79	-47.74	-1.69	-4661.0	-0.03	4661.01	6302.15	1536.84	7036.12	7146.85	6.02	-1.456	0.000	0.661
45.00	-46.15	-47.09	-1.70	-4422.3	-0.03	4422.32	6207.63	1504.81	6745.94	6891.65	7.65	-1.648	-0.001	0.650
46.25	-45.69	-46.98	-1.70	-4363.4	-0.03	4363.46	6183.76	1496.81	6674.35	6828.29	8.09	-1.697	-0.001	0.647
50.00	-43.58	-46.49	-1.70	-4187.2	-0.03	4187.27	6111.55	1472.79	6461.86	6639.26	9.48	-1.844	-0.001	0.639
53.25	-41.79	-46.05	-1.70	-4036.1	-0.03	4036.17	5153.03	1293.32	5694.85	5624.85	10.78	-1.972	-0.001	0.727
55.00	-41.21	-45.89	-1.70	-3955.5	-0.04	3955.59	5126.51	1283.52	5608.81	5553.12	11.52	-2.042	-0.001	0.722
60.00	-39.73	-45.28	-1.70	-3726.1	-0.04	3726.16	5049.68	1255.49	5366.58	5349.50	13.77	-2.255	-0.001	0.706
65.00	-38.27	-44.66	-1.70	-3499.7	-0.04	3499.77	4971.29	1227.47	5129.70	5147.92	16.25	-2.469	-0.001	0.689
70.00	-36.84	-44.04	-1.70	-3276.4	-0.05	3276.47	4891.33	1199.45	4898.16	4948.49	18.95	-2.684	-0.001	0.671
75.00	-35.44	-43.42	-1.70	-3056.2	-0.05	3056.25	4809.80	1171.43	4671.97	4751.33	21.87	-2.900	-0.001	0.652
80.00	-34.07	-42.80	-1.70	-2839.1	-0.05	2839.14	4726.70	1143.41	4451.13	4556.54	25.02	-3.115	-0.001	0.632
85.00	-32.74	-42.18	-1.70	-2625.1	-0.06	2625.15	4642.04	1115.39	4235.63	4364.25	28.40	-3.329	-0.001	0.610
90.00	-31.47	-41.52	-1.70	-2414.2	-0.06	2414.27	4555.82	1087.36	4025.49	4174.56	32.00	-3.542	-0.001	0.587
92.00	-29.63	-39.45	-0.75	-2329.5	0.00	2329.52	4520.89	1076.16	3942.92	4099.44	33.50	-3.629	-0.002	0.576
93.75	-29.19	-39.23	-0.75	-2260.4	0.00	2260.49	4490.12	1066.35	3871.38	4034.07	34.85	-3.705	-0.002	0.568
95.00	-28.62	-39.09	-0.75	-2211.4	0.00	2211.45	4468.02	1059.34	3820.68	3987.58	35.82	-3.759	-0.002	0.562
99.75	-26.76	-38.39	-0.75	-2025.7	-0.01	2025.76	3653.35	902.16	3232.84	3243.96	39.66	-3.957	-0.002	0.634
100.00	-26.63	-38.41	-0.75	-2016.1	-0.01	2016.16	3649.96	900.96	3224.24	3236.59	39.87	-3.968	-0.002	0.632
105.00	-25.52	-37.79	-0.76	-1824.1	-0.01	1824.11	3581.25	876.94	3054.62	3090.28	44.15	-4.195	-0.002	0.599
110.00	-24.44	-37.17	-0.76	-1635.1	-0.02	1635.17	3510.98	852.92	2889.59	2945.93	48.66	-4.416	-0.002	0.564
115.00	-23.40	-36.56	-0.76	-1449.3	-0.03	1449.31	3439.14	828.91	2729.13	2803.65	53.39	-4.630	-0.002	0.526
120.00	-22.38	-35.94	-0.76	-1266.5	-0.03	1266.53	3365.73	804.89	2573.27	2663.56	58.35	-4.835	-0.002	0.484
125.00	-21.39	-35.33	-0.76	-1086.8	-0.04	1086.82	3290.76	780.87	2421.98	2525.77	63.51	-5.030	-0.002	0.439
130.00	-18.60	-31.06	-0.76	-910.16	-0.04	910.16	3204.00	756.85	2275.28	2382.78	68.87	-5.211	-0.002	0.389
135.00	-17.70	-30.45	-0.76	-754.88	-0.05	754.88	3102.32	732.83	2133.16	2233.19	74.41	-5.376	-0.002	0.345
140.00	-14.00	-23.84	-0.76	-602.62	-0.05	602.62	3000.64	708.81	1995.62	2088.46	80.12	-5.525	-0.003	0.294
142.75	-13.58	-23.52	-0.76	-537.06	-0.06	537.06	2944.72	695.60	1921.93	2010.92	83.32	-5.601	-0.003	0.273
145.00	-13.06	-23.23	-0.76	-484.15	-0.06	484.15	2898.96	684.79	1862.67	1948.57	85.97	-5.660	-0.003	0.254
147.25	-12.55	-22.95	-0.76	-431.87	-0.06	431.87	1774.96	458.03	1249.94	1201.53	88.65	-5.715	-0.003	0.369
150.00	-10.48	-18.97	-0.76	-368.76	-0.06	368.76	1752.91	449.22	1202.33	1163.62	91.95	-5.777	-0.003	0.325
155.00	-9.96	-18.42	-0.76	-273.90	-0.07	273.90	1711.62	433.21	1118.15	1095.40	98.07	-5.913	-0.003	0.258
160.00	-7.08	-12.31	-0.76	-181.82	-0.07	181.82	1668.76	417.20	1037.02	1028.18	104.31	-6.020	-0.004	0.182
165.00	-6.68	-11.78	-0.76	-120.27	-0.08	120.27	1624.34	401.18	958.94	962.08	110.65	-6.100	-0.004	0.130
170.00	-2.14	-3.98	-0.77	-59.96	-0.08	59.96	1578.35	385.17	883.92	897.21	117.06	-6.154	-0.005	0.068
175.00	-1.85	-3.48	-0.77	-40.06	-0.08	40.06	1530.79	369.16	811.95	833.68	123.51	-6.187	-0.005	0.049
180.00	-1.58	-3.01	-0.77	-22.64	-0.08	22.64	1481.67	353.15	743.04	771.60	130.00	-6.211	-0.006	0.030
185.00	-1.31	-2.55	-0.77	-7.60	-0.08	7.60	1427.20	337.13	677.19	709.20	136.50	-6.225	-0.006	0.012
187.00	0.00	-2.39	-0.77	-2.50	0.00	2.50	1400.09	330.73	651.70	682.38	139.10	-6.227	-0.007	0.004

Wind Loading - Shaft

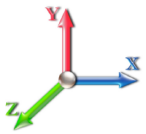
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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		1.00	0.85	5.138	5.65	0.00	1.200	0.705	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.138	5.65	0.00	1.200	0.843	5.00	27.910	33.49	189.3	341.2	2408.5
10.00		1.00	0.85	5.138	5.65	0.00	1.200	0.896	5.00	27.467	32.96	186.3	356.3	2386.4
15.00		1.00	0.86	5.201	5.72	0.00	1.200	0.930	5.00	27.009	32.41	185.4	363.4	2356.2
20.00		1.00	0.91	5.507	6.06	0.00	1.200	0.956	5.00	26.544	31.85	193.0	366.7	2322.2
25.00		1.00	0.95	5.761	6.34	0.00	1.200	0.976	5.00	26.075	31.29	198.3	367.7	2286.0
30.00		1.00	0.99	5.978	6.58	0.00	1.200	0.994	5.00	25.603	30.72	202.0	367.2	2248.2
35.00		1.00	1.02	6.169	6.79	0.00	1.200	1.009	5.00	25.129	30.15	204.6	365.5	2209.3
40.00		1.00	1.05	6.341	6.97	0.00	1.200	1.022	5.00	24.653	29.58	206.3	363.0	2169.5
45.00		1.00	1.07	6.496	7.15	0.00	1.200	1.034	5.00	24.177	29.01	207.3	359.9	2129.1
46.25	Bot - Section 2	1.00	1.08	6.533	7.19	0.00	1.200	1.037	1.25	5.969	7.16	51.5	89.7	526.2
50.00		1.00	1.10	6.639	7.30	0.00	1.200	1.044	3.75	18.006	21.61	157.8	271.4	2720.4
53.25	Top - Section 1	1.00	1.11	6.726	7.40	0.00	1.200	1.051	3.25	15.388	18.47	136.6	233.5	2324.2
55.00		1.00	1.12	6.771	7.45	0.00	1.200	1.054	1.75	8.201	9.84	73.3	125.2	649.8
60.00		1.00	1.14	6.894	7.58	0.00	1.200	1.063	5.00	23.112	27.73	210.3	353.2	1830.1
65.00		1.00	1.16	7.009	7.71	0.00	1.200	1.072	5.00	22.632	27.16	209.4	348.3	1792.6
70.00		1.00	1.18	7.118	7.83	0.00	1.200	1.080	5.00	22.152	26.58	208.1	343.2	1754.8
75.00		1.00	1.19	7.220	7.94	0.00	1.200	1.087	5.00	21.672	26.01	206.6	337.7	1716.8
80.00		1.00	1.21	7.318	8.05	0.00	1.200	1.094	5.00	21.191	25.43	204.7	332.0	1678.5
85.00		1.00	1.23	7.411	8.15	0.00	1.200	1.101	5.00	20.710	24.85	202.6	326.1	1640.0
90.00		1.00	1.24	7.499	8.25	0.00	1.200	1.107	5.00	20.229	24.27	200.2	320.1	1601.3
92.00	Appurtenance(s)	1.00	1.25	7.534	8.29	0.00	1.200	1.109	2.00	7.956	9.55	79.1	127.0	630.4
93.75	Bot - Section 3	1.00	1.25	7.563	8.32	0.00	1.200	1.111	1.75	6.898	8.28	68.9	110.4	546.6
95.00		1.00	1.25	7.584	8.34	0.00	1.200	1.113	1.25	4.971	5.96	49.8	79.8	658.8
99.75	Top - Section 2	1.00	1.27	7.662	8.43	0.00	1.200	1.118	4.75	18.615	22.34	188.3	297.3	2463.0
100.00		1.00	1.27	7.666	8.43	0.00	1.200	1.118	0.25	0.968	1.16	9.8	15.6	68.1
105.00		1.00	1.28	7.744	8.52	0.00	1.200	1.124	5.00	19.101	22.92	195.3	306.1	1340.2
110.00		1.00	1.29	7.820	8.60	0.00	1.200	1.129	5.00	18.619	22.34	192.2	299.4	1305.6
115.00		1.00	1.31	7.892	8.68	0.00	1.200	1.134	5.00	18.137	21.76	188.9	292.6	1270.9
120.00		1.00	1.32	7.963	8.76	0.00	1.200	1.139	5.00	17.654	21.18	185.6	285.7	1236.0
125.00		1.00	1.33	8.031	8.83	0.00	1.200	1.143	5.00	17.171	20.61	182.0	278.6	1201.0
130.00	Appurtenance(s)	1.00	1.34	8.097	8.91	0.00	1.200	1.148	5.00	16.689	20.03	178.4	271.5	1165.9
135.00		1.00	1.35	8.161	8.98	0.00	1.200	1.152	5.00	16.206	19.45	174.6	264.2	1130.7
140.00	Appurtenance(s)	1.00	1.36	8.224	9.05	0.00	1.200	1.156	5.00	15.723	18.87	170.7	256.9	1095.4
142.75	Bot - Section 4	1.00	1.37	8.257	9.08	0.00	1.200	1.159	2.75	8.441	10.13	92.0	139.0	588.3
145.00		1.00	1.37	8.284	9.11	0.00	1.200	1.160	2.25	6.893	8.27	75.4	113.9	720.6
147.25	Top - Section 3	1.00	1.37	8.311	9.14	0.00	1.200	1.162	2.25	6.795	8.15	74.5	112.4	709.7
150.00	Appurtenance(s)	1.00	1.38	8.343	9.18	0.00	1.200	1.164	2.75	8.172	9.81	90.0	135.1	425.3
155.00		1.00	1.39	8.400	9.24	0.00	1.200	1.168	5.00	14.485	17.38	160.6	238.0	751.2
160.00	Appurtenance(s)	1.00	1.40	8.456	9.30	0.00	1.200	1.172	5.00	14.001	16.80	156.3	230.3	725.0
165.00		1.00	1.41	8.511	9.36	0.00	1.200	1.175	5.00	13.518	16.22	151.9	222.6	698.6
170.00	Appurtenance(s)	1.00	1.42	8.564	9.42	0.00	1.200	1.179	5.00	13.034	15.64	147.3	214.8	672.2
175.00		1.00	1.43	8.617	9.48	0.00	1.200	1.182	5.00	12.550	15.06	142.7	206.9	645.6
180.00		1.00	1.43	8.667	9.53	0.00	1.200	1.186	5.00	12.067	14.48	138.1	198.9	619.1
185.00		1.00	1.44	8.717	9.59	0.00	1.200	1.189	5.00	11.583	13.90	133.3	190.9	592.5
187.00	Appurtenance(s)	1.00	1.45	8.737	9.61	0.00	1.200	1.190	2.00	4.497	5.40	51.9	75.1	230.5

Wind Loading - Shaft

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Totals:	**187.00**	**6,911.0**	**60,241.2**

Discrete Appurtenance Forces

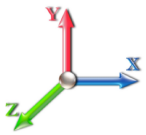
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor 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	187.00	Low Profile Platform	1	8.737	9.611	1.00	1.00	34.04	2392.54	0.000	0.000	327.18	0.00	0.00
2	187.00	DB201	2	8.783	9.661	1.00	1.00	21.93	146.50	0.000	4.750	211.86	0.00	1006.36
3	187.00	ANT450F6	1	8.775	9.652	1.00	1.00	3.79	44.64	0.000	3.917	36.59	0.00	143.32
4	187.00	ANT900D6-9	2	8.757	9.633	1.00	1.00	5.24	56.49	0.000	2.042	50.47	0.00	103.04
5	187.00	MF-900B	2	8.737	9.611	1.00	1.00	40.15	120.01	2.015	0.000	385.86	777.68	0.00
6	187.00	6' Lightning rod	1	8.737	9.611	1.00	1.00	1.12	27.25	0.000	0.000	10.78	0.00	0.00
7	170.00	QD6616-7	3	8.564	9.421	0.57	0.75	29.21	1088.53	0.000	0.000	275.19	0.00	0.00
8	170.00	Kaelus DBC0061F1V51-2	6	8.564	9.421	0.38	0.75	1.40	220.81	0.000	0.000	13.20	0.00	0.00
9	170.00	Ericsson RRUS-32	3	8.564	9.421	0.50	0.75	3.06	365.19	0.000	0.000	28.83	0.00	0.00
10	170.00	Air6449 B77D	3	8.583	9.442	0.64	0.75	8.98	579.02	0.000	1.800	84.81	0.00	152.66
11	170.00	AIR 6419 B77G	3	8.583	9.442	0.57	0.75	7.42	364.82	0.000	1.800	70.03	0.00	126.05
12	170.00	DMP65R-BU6DA	3	8.564	9.421	0.54	0.75	22.19	680.80	0.000	0.000	209.07	0.00	0.00
13	170.00	DTMABP7819VG12A	3	8.564	9.421	0.50	0.75	2.50	98.93	0.000	0.000	23.57	0.00	0.00
14	170.00	Ericsson RRUS 4449	3	8.564	9.421	0.50	0.75	3.55	205.33	0.000	0.000	33.44	0.00	0.00
15	170.00	Ericsson 4478 B14	3	8.564	9.421	0.50	0.75	3.02	269.67	0.000	0.000	28.41	0.00	0.00
16	170.00	CSS DBC-750	3	8.564	9.421	0.50	0.75	1.31	28.17	0.000	0.000	12.32	0.00	0.00
17	170.00	Raycap DC6-48-60-18-8F	3	8.564	9.421	0.60	0.75	2.19	186.66	0.000	0.000	20.62	0.00	0.00
18	170.00	Commscope	3	8.564	9.421	0.73	0.75	0.40	6.38	0.000	0.000	3.74	0.00	0.00
19	170.00	RMQLP-4120-H10	1	8.564	9.421	1.00	1.00	77.54	6046.96	0.000	0.000	730.50	0.00	0.00
20	170.00	Ericsson RRUS 8843 B2	3	8.564	9.421	0.50	0.75	2.98	318.12	0.000	0.000	28.06	0.00	0.00
21	160.00	Platform w/ Hand Rail	1	8.456	9.302	1.00	1.00	50.75	2729.84	0.000	0.000	472.06	0.00	0.00
22	160.00	Air32	3	8.456	9.302	0.65	0.75	14.30	825.22	0.000	0.000	132.98	0.00	0.00
23	160.00	APXVAARR24_43-U-NA2	3	8.456	9.302	0.52	0.75	33.86	1267.71	0.000	0.000	314.99	0.00	0.00
24	160.00	SDX1926Q-43	3	8.456	9.302	0.38	0.75	0.99	28.69	0.000	0.000	9.18	0.00	0.00
25	160.00	AIR6449 B41	3	8.456	9.302	0.53	0.75	10.05	551.89	0.000	0.000	93.44	0.00	0.00
26	160.00	MS-KI22-5 (Kickers)	1	8.456	9.302	1.00	1.00	9.08	248.06	0.000	0.000	84.44	0.00	0.00
27	160.00	KRY 112 144/1	3	8.456	9.302	0.38	0.75	0.82	52.02	0.000	0.000	7.63	0.00	0.00
28	160.00	RRUS 4415 B25	3	8.456	9.302	0.50	0.75	2.99	220.19	0.000	0.000	27.85	0.00	0.00
29	160.00	4449 B71+B12	3	8.456	9.302	0.50	0.75	3.01	378.14	0.000	0.000	28.02	0.00	0.00
30	160.00	MS-1436 (Light Collar	1	8.456	9.302	1.00	1.00	2.55	111.31	0.000	0.000	23.76	0.00	0.00
31	150.00	MC-PK8-DSH	1	8.343	9.177	1.00	1.00	69.10	2825.37	0.000	0.000	634.16	0.00	0.00
32	150.00	RDIDC-9181-OF-48	1	8.343	9.177	0.75	0.75	1.79	49.10	0.000	0.000	16.44	0.00	0.00
33	150.00	TA08025-B605	3	8.343	9.177	0.50	0.75	3.52	336.88	0.000	0.000	32.29	0.00	0.00
34	150.00	MX08FRO665-21	3	8.343	9.177	0.55	0.75	22.42	612.73	0.000	0.000	205.78	0.00	0.00
35	150.00	TA08025-B604	3	8.343	9.177	0.50	0.75	3.52	295.07	0.000	0.000	32.29	0.00	0.00
36	140.00	Samsung RF4440d-13A	3	8.224	9.046	0.50	0.75	3.37	385.85	0.000	0.000	30.52	0.00	0.00
37	140.00	Commscope	3	8.224	9.046	0.62	0.75	16.65	548.25	0.000	0.000	150.60	0.00	0.00
38	140.00	Samsung MT6407-77A	3	8.224	9.046	0.52	0.75	8.36	506.89	0.000	0.000	75.66	0.00	0.00
39	140.00	VZWSMART-PLK1	1	8.224	9.046	1.00	1.00	20.18	1505.09	0.000	0.000	182.57	0.00	0.00
40	140.00	PRK-SFS	1	8.224	9.046	1.00	1.00	16.09	1005.56	0.000	0.000	145.56	0.00	0.00
41	140.00	Commscope	3	8.224	9.046	0.62	0.75	16.65	532.41	0.000	0.000	150.60	0.00	0.00
42	140.00	Samsung RF4439d-25A	3	8.224	9.046	0.50	0.75	3.38	224.40	0.000	0.000	30.62	0.00	0.00
43	140.00	Samsung LTE CBRS	3	8.224	9.046	0.50	0.75	1.91	103.41	0.000	0.000	17.31	0.00	0.00
44	140.00	LNX-6514DS-VTM	3	8.224	9.046	0.61	0.75	18.34	413.84	0.000	0.000	165.93	0.00	0.00
45	140.00	DB-T1-6Z-8AB-0Z	2	8.224	9.046	0.68	0.75	6.32	414.57	0.000	0.000	57.18	0.00	0.00
46	140.00	KS-24019	6	8.224	9.046	1.00	1.00	1.54	19.24	0.000	0.000	13.91	0.00	0.00
47	140.00	Low Profile Platform	1	8.224	9.046	1.00	1.00	33.70	2367.22	0.000	0.000	304.86	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

48	130.00	APXVSPP18-C-A20	3	8.097	8.907	0.68	0.80	20.11	397.75	0.000	0.000	179.11	0.00	0.00
49	130.00	APXVTM14-C-120	3	8.097	8.907	0.65	0.80	13.72	496.51	0.000	0.000	122.18	0.00	0.00
50	130.00	TD-RRH8x20-25	3	8.097	8.907	0.40	0.80	5.48	454.70	0.000	0.000	48.84	0.00	0.00
51	130.00	1900MHz RRH	3	8.097	8.907	0.54	0.80	7.58	280.19	0.000	0.000	67.52	0.00	0.00
52	130.00	800 MHz RRH	3	8.097	8.907	0.54	0.80	5.21	273.43	0.000	0.000	46.44	0.00	0.00
53	130.00	800MHz Filter	3	8.097	8.907	0.54	0.80	1.94	51.49	0.000	0.000	17.26	0.00	0.00
54	130.00	RF Filters	3	8.097	8.907	0.54	0.80	1.93	108.71	0.000	0.000	17.15	0.00	0.00
55	130.00	ACU-A20-N	4	8.097	8.907	0.40	0.80	0.54	10.90	0.000	0.000	4.78	0.00	0.00
56	130.00	Low Profile Platform	1	8.097	8.907	1.00	1.00	33.62	2360.87	0.000	0.000	299.41	0.00	0.00
57	92.00	Low Profile Platform	1	7.534	8.287	1.00	1.00	33.22	2331.88	0.000	0.000	275.34	0.00	0.00
58	92.00	DB205	1	7.682	8.450	1.00	1.00	5.83	65.82	0.000	9.000	49.26	0.00	443.34
59	92.00	ANT450Y10-WR	1	7.534	8.287	1.00	1.00	1.21	13.08	0.000	0.000	10.01	0.00	0.00
60	92.00	ANT150D3	1	7.617	8.379	1.00	1.00	7.58	47.19	0.000	5.000	63.50	0.00	317.52
61	92.00	ANT4506-9	1	7.584	8.343	1.00	1.00	4.70	50.45	0.000	3.000	39.18	0.00	117.53
62	92.00	MF-900B	2	7.534	8.287	1.00	1.00	37.89	109.60	2.887	0.000	313.99	906.47	0.00
							Totals:		**38,858.33**			**7,579.13**		

Total Applied Force Summary

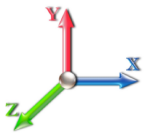
Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

TES Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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		189.27	2734.61	0.00	0.00
10.00		186.27	2713.39	0.00	0.00
15.00		185.43	2683.83	0.00	0.00
20.00		192.97	2650.31	0.00	0.00
25.00		198.28	2614.43	0.00	0.00
30.00		202.03	2576.96	0.00	0.00
35.00		204.63	2538.34	0.00	0.00
40.00		206.33	2498.83	0.00	0.00
45.00		207.31	2458.63	0.00	0.00
46.25		51.47	608.63	0.00	0.00
50.00		157.79	2967.68	0.00	0.00
53.25		136.61	2538.57	0.00	0.00
55.00		73.30	765.28	0.00	0.00
60.00		210.31	2160.16	0.00	0.00
65.00		209.39	2122.85	0.00	0.00
70.00		208.13	2085.22	0.00	0.00
75.00		206.55	2047.33	0.00	0.00
80.00		204.70	2009.19	0.00	0.00
85.00		202.59	1970.83	0.00	0.00
90.00		200.25	1932.27	0.00	0.00
92.00	(7) attachments	830.40	3380.82	906.47	878.38
93.75		68.87	660.41	0.00	0.00
95.00		49.76	740.08	0.00	0.00
99.75		188.27	2772.14	0.00	0.00
100.00		9.79	84.34	0.00	0.00
105.00		195.26	1665.75	0.00	0.00
110.00		192.18	1631.23	0.00	0.00
115.00		188.95	1596.57	0.00	0.00
120.00		185.56	1561.79	0.00	0.00
125.00		182.03	1526.90	0.00	0.00
130.00	(26) attachments	981.06	5926.45	0.00	0.00
135.00		174.58	1437.21	0.00	0.00
140.00	(32) attachments	1495.98	9428.75	0.00	0.00
142.75		92.00	711.44	0.00	0.00
145.00		75.37	821.38	0.00	0.00
147.25		74.54	810.45	0.00	0.00
150.00	(11) attachments	1010.97	4667.62	0.00	0.00
155.00		160.61	947.32	0.00	0.00
160.00	(24) attachments	1350.63	7334.09	0.00	0.00
165.00		151.86	812.11	0.00	0.00
170.00	(43) attachments	1709.13	11245.06	0.00	278.72
175.00		142.74	658.85	0.00	0.00
180.00		138.05	632.28	0.00	0.00
185.00		133.28	605.66	0.00	0.00
187.00	(9) attachments	1074.61	3023.19	777.68	1252.72

Total Applied Force Summary

Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Tower Engineering Solutions

Totals:	**14,490.14**	**109,359.24**	**1,684.14**	**2,409.82**

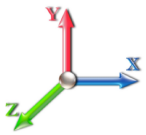
Linear Appurtenance Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.138	0.00	21.94
10.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.138	0.00	22.83
15.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.201	0.00	23.42
20.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.507	0.00	23.88
25.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.761	0.00	24.25
30.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	5.978	0.00	24.56
35.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.169	0.00	24.84
40.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.341	0.00	25.09
45.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.496	0.00	25.31
46.25	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	6.533	0.00	6.34
50.00	1.6" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.000	0.000	6.639	0.00	19.13
53.25	1.6" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	6.726	0.00	16.66
55.00	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	6.771	0.00	8.99
60.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.894	0.00	25.87
65.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.009	0.00	26.03
70.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.118	0.00	26.19
75.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.220	0.00	26.33
80.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.318	0.00	26.47
85.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.411	0.00	26.59
90.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.499	0.00	26.72
92.00	1.6" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	7.534	0.00	10.71
93.75	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	7.563	0.00	9.38
95.00	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	7.584	0.00	6.71
99.75	1.6" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.000	0.000	7.662	0.00	25.59
100.00	1.6" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.000	0.000	7.666	0.00	1.35
105.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.744	0.00	27.06
110.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.820	0.00	27.16
115.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.892	0.00	27.26
120.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.963	0.00	27.36
125.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.031	0.00	27.45
130.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.097	0.00	27.54
135.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.161	0.00	27.63
140.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.224	0.00	27.71
142.75	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	8.257	0.00	15.27
145.00	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	8.284	0.00	12.51
147.25	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	8.311	0.00	12.52
150.00	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	8.343	0.00	15.33
										Totals:	**0.0**	**780.0**

Calculated Forces

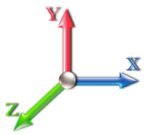
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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	-109.3	-14.54	-1.68	-1916.9	-0.01	1916.98	7001.91	1793.04	9577.56	9276.01	0.00	0.000	0.000	0.222
5.00	-106.6	-14.44	-1.68	-1844.2	-0.01	1844.28	6919.93	1761.01	9238.49	9002.40	0.03	-0.050	0.000	0.220
10.00	-103.8	-14.34	-1.68	-1772.0	-0.01	1772.08	6836.37	1728.99	8905.54	8730.69	0.11	-0.101	0.000	0.218
15.00	-101.1	-14.25	-1.68	-1700.3	-0.01	1700.35	6751.25	1696.96	8578.69	8461.01	0.24	-0.152	0.000	0.216
20.00	-98.52	-14.13	-1.68	-1629.1	-0.01	1629.13	6664.57	1664.94	8257.96	8193.47	0.43	-0.204	0.000	0.214
25.00	-95.89	-14.01	-1.68	-1558.4	-0.01	1558.46	6576.31	1632.91	7943.33	7928.16	0.67	-0.257	0.000	0.211
30.00	-93.31	-13.89	-1.68	-1488.3	-0.01	1488.39	6486.49	1600.89	7634.82	7665.22	0.97	-0.311	0.000	0.209
35.00	-90.75	-13.75	-1.68	-1418.9	-0.02	1418.96	6395.11	1568.86	7332.41	7404.75	1.32	-0.365	0.000	0.206
40.00	-88.24	-13.62	-1.68	-1350.1	-0.02	1350.18	6302.15	1536.84	7036.12	7146.85	1.74	-0.420	0.000	0.203
45.00	-85.78	-13.44	-1.68	-1282.1	-0.02	1282.11	6207.63	1504.81	6745.94	6891.65	2.21	-0.476	-0.001	0.200
46.25	-85.16	-13.43	-1.68	-1265.3	-0.02	1265.30	6183.76	1496.81	6674.35	6828.29	2.33	-0.490	-0.001	0.199
50.00	-82.19	-13.30	-1.68	-1214.9	-0.02	1214.95	6111.55	1472.79	6461.86	6639.26	2.73	-0.533	-0.001	0.197
53.25	-79.65	-13.18	-1.68	-1171.7	-0.02	1171.73	5153.03	1293.32	5694.85	5624.85	3.11	-0.570	-0.001	0.224
55.00	-78.87	-13.16	-1.68	-1148.6	-0.02	1148.66	5126.51	1283.52	5608.81	5553.12	3.32	-0.590	-0.001	0.222
60.00	-76.70	-13.00	-1.68	-1082.8	-0.02	1082.89	5049.68	1255.49	5366.58	5349.50	3.97	-0.652	-0.001	0.218
65.00	-74.57	-12.85	-1.68	-1017.8	-0.02	1017.87	4971.29	1227.47	5129.70	5147.92	4.69	-0.714	-0.001	0.213
70.00	-72.47	-12.70	-1.68	-953.62	-0.02	953.62	4891.33	1199.45	4898.16	4948.49	5.47	-0.777	-0.001	0.208
75.00	-70.41	-12.54	-1.68	-890.14	-0.02	890.14	4809.80	1171.43	4671.97	4751.33	6.32	-0.840	-0.001	0.202
80.00	-68.39	-12.38	-1.68	-827.46	-0.02	827.46	4726.70	1143.41	4451.13	4556.54	7.23	-0.902	-0.001	0.196
85.00	-66.41	-12.21	-1.68	-765.58	-0.02	765.58	4642.04	1115.39	4235.63	4364.25	8.21	-0.965	-0.001	0.190
90.00	-64.47	-12.03	-1.68	-704.51	-0.02	704.51	4555.82	1087.36	4025.49	4174.56	9.26	-1.027	-0.001	0.183
92.00	-61.10	-11.16	-0.78	-679.58	-0.01	679.58	4520.89	1076.16	3942.92	4099.44	9.69	-1.052	-0.002	0.179
93.75	-60.44	-11.10	-0.78	-660.04	-0.01	660.04	4490.12	1066.35	3871.38	4034.07	10.08	-1.074	-0.002	0.177
95.00	-59.70	-11.08	-0.78	-646.17	-0.01	646.17	4468.02	1059.34	3820.68	3987.58	10.37	-1.090	-0.002	0.176
99.75	-56.92	-10.86	-0.78	-593.56	-0.01	593.56	3653.35	902.16	3232.84	3243.96	11.48	-1.148	-0.002	0.199
100.00	-56.83	-10.89	-0.78	-590.84	-0.01	590.84	3649.96	900.96	3224.24	3236.59	11.54	-1.151	-0.002	0.198
105.00	-55.16	-10.72	-0.78	-536.40	-0.01	536.40	3581.25	876.94	3054.62	3090.28	12.78	-1.218	-0.002	0.189
110.00	-53.52	-10.55	-0.78	-482.80	-0.01	482.80	3510.98	852.92	2889.59	2945.93	14.09	-1.283	-0.002	0.179
115.00	-51.92	-10.38	-0.78	-430.03	-0.01	430.03	3439.14	828.91	2729.13	2803.65	15.47	-1.346	-0.002	0.169
120.00	-50.35	-10.21	-0.78	-378.11	-0.01	378.11	3365.73	804.89	2573.27	2663.56	16.92	-1.408	-0.002	0.157
125.00	-48.82	-10.04	-0.78	-327.04	-0.01	327.04	3290.76	780.87	2421.98	2525.77	18.42	-1.466	-0.002	0.144
130.00	-42.91	-8.95	-0.78	-276.83	-0.02	276.83	3204.00	756.85	2275.28	2382.78	19.99	-1.521	-0.002	0.130
135.00	-41.47	-8.77	-0.78	-232.10	-0.02	232.10	3102.32	732.83	2133.16	2233.19	21.61	-1.571	-0.003	0.117
140.00	-32.08	-7.03	-0.78	-188.26	-0.02	188.26	3000.64	708.81	1995.62	2088.46	23.28	-1.617	-0.003	0.101
142.75	-31.37	-6.93	-0.78	-168.93	-0.02	168.93	2944.72	695.60	1921.93	2010.92	24.22	-1.641	-0.003	0.095
145.00	-30.55	-6.84	-0.78	-153.35	-0.02	153.35	2898.96	684.79	1862.67	1948.57	24.99	-1.660	-0.003	0.089
147.25	-29.74	-6.75	-0.78	-137.96	-0.02	137.96	1774.96	458.03	1249.94	1201.53	25.78	-1.677	-0.003	0.132
150.00	-25.10	-5.62	-0.78	-119.39	-0.02	119.39	1752.91	449.22	1202.33	1163.62	26.75	-1.697	-0.003	0.117
155.00	-24.16	-5.45	-0.78	-91.31	-0.02	91.31	1711.62	433.21	1118.15	1095.40	28.56	-1.742	-0.003	0.098
160.00	-16.86	-3.88	-0.78	-64.08	-0.02	64.08	1668.76	417.20	1037.02	1028.18	30.40	-1.778	-0.004	0.073
165.00	-16.06	-3.71	-0.78	-44.69	-0.02	44.69	1624.34	401.18	958.94	962.08	32.28	-1.807	-0.004	0.056
170.00	-4.87	-1.65	-0.78	-25.86	-0.02	25.86	1578.35	385.17	883.92	897.21	34.18	-1.828	-0.005	0.032
175.00	-4.22	-1.48	-0.78	-17.63	-0.02	17.63	1530.79	369.16	811.95	833.68	36.11	-1.843	-0.005	0.024
180.00	-3.59	-1.32	-0.78	-10.22	-0.02	10.22	1481.67	353.15	743.04	771.60	38.04	-1.853	-0.006	0.016
185.00	-2.99	-1.17	-0.78	-3.60	-0.02	3.60	1427.20	337.13	677.19	709.20	39.99	-1.859	-0.006	0.007
187.00	0.00	-1.07	-0.78	-1.25	0.00	1.25	1400.09	330.73	651.70	682.38	40.76	-1.860	-0.007	0.002

Seismic Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

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Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.20	**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.27	**SA**	0.02	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		2038.2	2.50	79.57	0.01	
10.00		2007.1	7.50	78.36	0.08	
15.00		1976.1	12.50	77.15	0.22	
20.00		1945.0	17.50	75.94	0.42	
25.00		1914.0	22.50	74.72	0.68	
30.00		1883.0	27.50	73.51	0.98	
35.00		1851.9	32.50	72.30	1.33	
40.00		1820.9	37.50	71.09	1.71	
45.00		1789.8	42.50	69.88	2.12	
46.25	Bot - Section 2	442.61	45.63	17.28	0.15	
50.00		2277.4	48.13	88.91	4.40	
53.25	Top - Section 1	1947.3	51.63	76.02	3.70	
55.00		547.59	54.13	21.38	0.32	
60.00		1546.2	57.50	60.36	2.89	
65.00		1519.0	62.50	59.30	3.30	
70.00		1491.8	67.50	58.24	3.71	
75.00		1464.7	72.50	57.18	4.13	
80.00		1437.5	77.50	56.12	4.54	
85.00		1410.3	82.50	55.06	4.95	
90.00		1383.2	87.50	54.00	5.36	
92.00	Appurtenance(s)	2150.6	91.00	83.96	14.01	
93.75	Bot - Section 3	471.89	92.88	18.42	0.70	
95.00		559.94	94.38	21.86	1.02	
99.75	Top - Section 2	2099.0	97.38	81.94	15.28	
100.00		59.19	99.88	2.31	0.01	
105.00		1171.5	102.50	45.74	5.28	
110.00		1148.2	107.50	44.83	5.57	
115.00		1124.9	112.50	43.92	5.86	
120.00		1101.6	117.50	43.01	6.13	
125.00		1078.3	122.50	42.10	6.38	
130.00	Appurtenance(s)	3472.0	127.50	135.55	71.70	
135.00		1012.2	132.50	39.52	6.58	
140.00	Appurtenance(s)	4792.7	137.50	187.11	158.89	
142.75	Bot - Section 4	488.46	141.38	19.07	1.74	
145.00		598.94	143.88	23.38	2.72	
147.25	Top - Section 3	591.09	146.13	23.08	2.73	
150.00	Appurtenance(s)	2715.0	148.63	105.99	59.57	
155.00		623.82	152.50	24.35	3.31	
160.00	Appurtenance(s)	3903.3	157.50	152.39	138.28	
165.00		510.21	162.50	19.92	2.51	
170.00	Appurtenance(s)	5954.4	167.50	232.46	363.95	
175.00		378.84	172.50	14.79	1.56	
180.00		363.32	177.50	14.18	1.52	
185.00		347.80	182.50	13.58	1.47	
187.00	Appurtenance(s)	1760.2	186.00	68.72	39.22	

Seismic Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 34

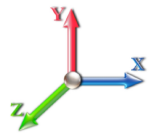
Tower Engineering Solutions

Totals:	**71,172.6**	**2,778.6**	**961.0**	**Total Wind:**	**51,740.6**

Calculated Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Load Case: 1.2D + 1.0Ev + 1.0Eh



Gust Response Factor	1.10			**Sds**	0.20			**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.27	**SA**	0.02			**S1**	0.06
								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	-86.22	-0.96	0.00	-153.60	0.00	153.60	7001.91	1793.04	9577.56	9276.01		0.00	0.00	0.029
5.00	-83.76	-0.97	0.00	-148.78	0.00	148.78	6919.93	1761.01	9238.49	9002.40		0.00	0.00	0.029
10.00	-81.34	-0.97	0.00	-143.94	0.00	143.94	6836.37	1728.99	8905.54	8730.69		0.01	-0.01	0.028
15.00	-78.95	-0.98	0.00	-139.07	0.00	139.07	6751.25	1696.96	8578.69	8461.01		0.02	-0.01	0.028
20.00	-76.60	-0.98	0.00	-134.17	0.00	134.17	6664.57	1664.94	8257.96	8193.47		0.03	-0.02	0.028
25.00	-74.29	-0.99	0.00	-129.25	0.00	129.25	6576.31	1632.91	7943.33	7928.16		0.05	-0.02	0.028
30.00	-72.02	-0.99	0.00	-124.30	0.00	124.30	6486.49	1600.89	7634.82	7665.22		0.08	-0.03	0.027
35.00	-69.79	-1.00	0.00	-119.34	0.00	119.34	6395.11	1568.86	7332.41	7404.75		0.11	-0.03	0.027
40.00	-67.60	-1.00	0.00	-114.36	0.00	114.36	6302.15	1536.84	7036.12	7146.85		0.14	-0.03	0.027
45.00	-65.44	-1.00	0.00	-109.37	0.00	109.37	6207.63	1504.81	6745.94	6891.65		0.18	-0.04	0.026
46.25	-64.91	-1.00	0.00	-108.12	0.00	108.12	6183.76	1496.81	6674.35	6828.29		0.19	-0.04	0.026
50.00	-62.14	-1.00	0.00	-104.37	0.00	104.37	6111.55	1472.79	6461.86	6639.26		0.22	-0.04	0.026
53.25	-59.77	-0.99	0.00	-101.13	0.00	101.13	5153.03	1293.32	5694.85	5624.85		0.26	-0.05	0.030
55.00	-59.11	-1.00	0.00	-99.39	0.00	99.39	5126.51	1283.52	5608.81	5553.12		0.27	-0.05	0.029
60.00	-57.26	-1.00	0.00	-94.40	0.00	94.40	5049.68	1255.49	5366.58	5349.50		0.33	-0.05	0.029
65.00	-55.44	-1.00	0.00	-89.41	0.00	89.41	4971.29	1227.47	5129.70	5147.92		0.39	-0.06	0.029
70.00	-53.65	-1.00	0.00	-84.42	0.00	84.42	4891.33	1199.45	4898.16	4948.49		0.45	-0.07	0.028
75.00	-51.90	-1.00	0.00	-79.43	0.00	79.43	4809.80	1171.43	4671.97	4751.33		0.53	-0.07	0.028
80.00	-50.18	-1.00	0.00	-74.44	0.00	74.44	4726.70	1143.41	4451.13	4556.54		0.60	-0.08	0.027
85.00	-48.50	-0.99	0.00	-69.47	0.00	69.47	4642.04	1115.39	4235.63	4364.25		0.69	-0.08	0.026
90.00	-46.85	-0.99	0.00	-64.51	0.00	64.51	4555.82	1087.36	4025.49	4174.56		0.78	-0.09	0.026
92.00	-44.21	-0.97	0.00	-62.53	0.00	62.53	4520.89	1076.16	3942.92	4099.44		0.81	-0.09	0.025
93.75	-43.64	-0.97	0.00	-60.83	0.00	60.83	4490.12	1066.35	3871.38	4034.07		0.85	-0.09	0.025
95.00	-42.97	-0.97	0.00	-59.62	0.00	59.62	4468.02	1059.34	3820.68	3987.58		0.87	-0.09	0.025
99.75	-40.42	-0.95	0.00	-55.00	0.00	55.00	3653.35	902.16	3232.84	3243.96		0.97	-0.10	0.028
100.00	-40.35	-0.96	0.00	-54.76	0.00	54.76	3649.96	900.96	3224.24	3236.59		0.97	-0.10	0.028
105.00	-38.96	-0.95	0.00	-49.98	0.00	49.98	3581.25	876.94	3054.62	3090.28		1.08	-0.11	0.027
110.00	-37.60	-0.95	0.00	-45.21	0.00	45.21	3510.98	852.92	2889.59	2945.93		1.19	-0.11	0.026
115.00	-36.27	-0.94	0.00	-40.47	0.00	40.47	3439.14	828.91	2729.13	2803.65		1.31	-0.12	0.025
120.00	-34.97	-0.94	0.00	-35.75	0.00	35.75	3365.73	804.89	2573.27	2663.56		1.44	-0.12	0.024
125.00	-33.69	-0.93	0.00	-31.06	0.00	31.06	3290.76	780.87	2421.98	2525.77		1.57	-0.13	0.023
130.00	-29.45	-0.85	0.00	-26.40	0.00	26.40	3204.00	756.85	2275.28	2382.78		1.71	-0.13	0.020
135.00	-28.26	-0.85	0.00	-22.13	0.00	22.13	3102.32	732.83	2133.16	2233.19		1.85	-0.14	0.019
140.00	-22.38	-0.67	0.00	-17.89	0.00	17.89	3000.64	708.81	1995.62	2088.46		2.00	-0.14	0.016
142.75	-21.79	-0.67	0.00	-16.04	0.00	16.04	2944.72	695.60	1921.93	2010.92		2.09	-0.15	0.015
145.00	-21.07	-0.67	0.00	-14.53	0.00	14.53	2898.96	684.79	1862.67	1948.57		2.15	-0.15	0.015
147.25	-20.36	-0.66	0.00	-13.02	0.00	13.02	1774.96	458.03	1249.94	1201.53		2.22	-0.15	0.022
150.00	-17.02	-0.60	0.00	-11.20	0.00	11.20	1752.91	449.22	1202.33	1163.62		2.31	-0.15	0.019
155.00	-16.28	-0.59	0.00	-8.21	0.00	8.21	1711.62	433.21	1118.15	1095.40		2.47	-0.16	0.017
160.00	-11.49	-0.44	0.00	-5.25	0.00	5.25	1668.76	417.20	1037.02	1028.18		2.64	-0.16	0.012
165.00	-10.88	-0.44	0.00	-3.04	0.00	3.04	1624.34	401.18	958.94	962.08		2.80	-0.16	0.010
170.00	-3.52	-0.05	0.00	-0.85	0.00	0.85	1578.35	385.17	883.92	897.21		2.97	-0.16	0.003
175.00	-3.06	-0.05	0.00	-0.58	0.00	0.58	1530.79	369.16	811.95	833.68		3.14	-0.16	0.003
180.00	-2.61	-0.05	0.00	-0.33	0.00	0.33	1481.67	353.15	743.04	771.60		3.31	-0.16	0.002
185.00	-2.18	-0.05	0.00	-0.09	0.00	0.09	1427.20	337.13	677.19	709.20		3.48	-0.16	0.002
187.00	0.00	-0.04	0.00	0.00	0.00	0.00	1400.09	330.73	651.70	682.38		3.55	-0.16	0.000

Calculated Forces

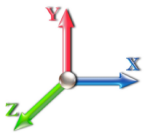
Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 36

Seismic Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

IES Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh



Gust Response Factor	1.10			**Sds**	0.20	**Iterations**	21
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.27	**SA**	0.02	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1959.3	2.50	76.49	0.01	
10.00		1928.3	7.50	75.28	0.08	
15.00		1897.2	12.50	74.07	0.21	
20.00		1866.2	17.50	72.86	0.40	
25.00		1835.1	22.50	71.65	0.64	
30.00		1804.1	27.50	70.43	0.93	
35.00		1773.0	32.50	69.22	1.25	
40.00		1742.0	37.50	68.01	1.61	
45.00		1710.9	42.50	66.80	1.99	
46.25	Bot - Section 2	422.90	45.63	16.51	0.14	
50.00		2218.2	48.13	86.60	4.30	
53.25	Top - Section 1	1896.0	51.63	74.02	3.61	
55.00		519.99	54.13	20.30	0.30	
60.00		1467.3	57.50	57.29	2.68	
65.00		1440.1	62.50	56.22	3.05	
70.00		1413.0	67.50	55.16	3.43	
75.00		1385.8	72.50	54.10	3.81	
80.00		1358.6	77.50	53.04	4.18	
85.00		1331.5	82.50	51.98	4.55	
90.00		1304.3	87.50	50.92	4.91	
92.00	Appurtenance(s)	2119.1	91.00	82.73	14.02	
93.75	Bot - Section 3	444.79	92.88	17.36	0.64	
95.00		540.58	94.38	21.10	0.98	
99.75	Top - Section 2	2025.4	97.38	79.07	14.66	
100.00		55.32	99.88	2.16	0.01	
105.00		1094.1	102.50	42.71	4.74	
110.00		1070.8	107.50	41.80	4.99	
115.00		1047.5	112.50	40.90	5.23	
120.00		1024.2	117.50	39.99	5.46	
125.00		1000.9	122.50	39.08	5.67	
130.00	Appurtenance(s)	3394.5	127.50	132.52	70.61	
135.00		939.71	132.50	36.69	5.84	
140.00	Appurtenance(s)	4720.2	137.50	184.28	158.78	
142.75	Bot - Section 4	459.95	141.38	17.96	1.59	
145.00		575.62	143.88	22.47	2.59	
147.25	Top - Section 3	567.76	146.13	22.17	2.59	
150.00	Appurtenance(s)	2686.5	148.63	104.88	60.09	
155.00		574.80	152.50	22.44	2.90	
160.00	Appurtenance(s)	3854.3	157.50	150.47	138.91	
165.00		481.83	162.50	18.81	2.31	
170.00	Appurtenance(s)	5926.1	167.50	231.36	371.38	
175.00		375.54	172.50	14.66	1.58	
180.00		360.02	177.50	14.06	1.54	
185.00		344.50	182.50	13.45	1.49	
187.00	Appurtenance(s)	1758.9	186.00	68.67	40.34	

Seismic Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 38

Totals:	**68,718.0**	**2,682.8**	**961.0**	**Total Wind:**	**51,740.6**

Calculated Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 39	

TES Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh

Iterations 21

Gust Response Factor	1.10			**Sds**	0.20			**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.27	**SA**	0.02			**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	-65.27	-0.96	0.00	-151.97	0.00	151.97	7001.91	1793.04	9577.56	9276.01		0.00	0.00	0.026
5.00	-63.40	-0.97	0.00	-147.16	0.00	147.16	6919.93	1761.01	9238.49	9002.40		0.00	0.00	0.026
10.00	-61.57	-0.97	0.00	-142.33	0.00	142.33	6836.37	1728.99	8905.54	8730.69		0.01	-0.01	0.025
15.00	-59.76	-0.97	0.00	-137.47	0.00	137.47	6751.25	1696.96	8578.69	8461.01		0.02	-0.01	0.025
20.00	-57.99	-0.98	0.00	-132.60	0.00	132.60	6664.57	1664.94	8257.96	8193.47		0.03	-0.02	0.025
25.00	-56.24	-0.98	0.00	-127.71	0.00	127.71	6576.31	1632.91	7943.33	7928.16		0.05	-0.02	0.025
30.00	-54.52	-0.98	0.00	-122.80	0.00	122.80	6486.49	1600.89	7634.82	7665.22		0.08	-0.03	0.024
35.00	-52.83	-0.99	0.00	-117.88	0.00	117.88	6395.11	1568.86	7332.41	7404.75		0.11	-0.03	0.024
40.00	-51.17	-0.99	0.00	-112.95	0.00	112.95	6302.15	1536.84	7036.12	7146.85		0.14	-0.03	0.024
45.00	-49.54	-0.99	0.00	-108.01	0.00	108.01	6207.63	1504.81	6745.94	6891.65		0.18	-0.04	0.024
46.25	-49.14	-0.99	0.00	-106.78	0.00	106.78	6183.76	1496.81	6674.35	6828.29		0.19	-0.04	0.024
50.00	-47.04	-0.99	0.00	-103.07	0.00	103.07	6111.55	1472.79	6461.86	6639.26		0.22	-0.04	0.023
53.25	-45.24	-0.98	0.00	-99.87	0.00	99.87	5153.03	1293.32	5694.85	5624.85		0.25	-0.05	0.027
55.00	-44.75	-0.98	0.00	-98.15	0.00	98.15	5126.51	1283.52	5608.81	5553.12		0.27	-0.05	0.026
60.00	-43.34	-0.98	0.00	-93.23	0.00	93.23	5049.68	1255.49	5366.58	5349.50		0.32	-0.05	0.026
65.00	-41.97	-0.98	0.00	-88.30	0.00	88.30	4971.29	1227.47	5129.70	5147.92		0.38	-0.06	0.026
70.00	-40.62	-0.98	0.00	-83.38	0.00	83.38	4891.33	1199.45	4898.16	4948.49		0.45	-0.06	0.025
75.00	-39.29	-0.98	0.00	-78.46	0.00	78.46	4809.80	1171.43	4671.97	4751.33		0.52	-0.07	0.025
80.00	-37.99	-0.98	0.00	-73.55	0.00	73.55	4726.70	1143.41	4451.13	4556.54		0.60	-0.08	0.024
85.00	-36.72	-0.98	0.00	-68.65	0.00	68.65	4642.04	1115.39	4235.63	4364.25		0.68	-0.08	0.024
90.00	-35.47	-0.97	0.00	-63.77	0.00	63.77	4555.82	1087.36	4025.49	4174.56		0.77	-0.09	0.023
92.00	-33.47	-0.96	0.00	-61.82	0.00	61.82	4520.89	1076.16	3942.92	4099.44		0.80	-0.09	0.022
93.75	-33.04	-0.96	0.00	-60.15	0.00	60.15	4490.12	1066.35	3871.38	4034.07		0.84	-0.09	0.022
95.00	-32.53	-0.96	0.00	-58.95	0.00	58.95	4468.02	1059.34	3820.68	3987.58		0.86	-0.09	0.022
99.75	-30.61	-0.94	0.00	-54.41	0.00	54.41	3653.35	902.16	3232.84	3243.96		0.96	-0.10	0.025
100.00	-30.55	-0.94	0.00	-54.17	0.00	54.17	3649.96	900.96	3224.24	3236.59		0.96	-0.10	0.025
105.00	-29.50	-0.94	0.00	-49.47	0.00	49.47	3581.25	876.94	3054.62	3090.28		1.07	-0.10	0.024
110.00	-28.47	-0.93	0.00	-44.77	0.00	44.77	3510.98	852.92	2889.59	2945.93		1.18	-0.11	0.023
115.00	-27.47	-0.93	0.00	-40.10	0.00	40.10	3439.14	828.91	2729.13	2803.65		1.30	-0.12	0.022
120.00	-26.48	-0.93	0.00	-35.45	0.00	35.45	3365.73	804.89	2573.27	2663.56		1.42	-0.12	0.021
125.00	-25.52	-0.92	0.00	-30.82	0.00	30.82	3290.76	780.87	2421.98	2525.77		1.55	-0.13	0.020
130.00	-22.31	-0.84	0.00	-26.22	0.00	26.22	3204.00	756.85	2275.28	2382.78		1.69	-0.13	0.018
135.00	-21.40	-0.84	0.00	-22.00	0.00	22.00	3102.32	732.83	2133.16	2233.19		1.83	-0.14	0.017
140.00	-16.95	-0.67	0.00	-17.81	0.00	17.81	3000.64	708.81	1995.62	2088.46		1.98	-0.14	0.014
142.75	-16.51	-0.67	0.00	-15.97	0.00	15.97	2944.72	695.60	1921.93	2010.92		2.06	-0.14	0.014
145.00	-15.96	-0.66	0.00	-14.47	0.00	14.47	2898.96	684.79	1862.67	1948.57		2.13	-0.15	0.013
147.25	-15.42	-0.66	0.00	-12.98	0.00	12.98	1774.96	458.03	1249.94	1201.53		2.20	-0.15	0.019
150.00	-12.89	-0.59	0.00	-11.17	0.00	11.17	1752.91	449.22	1202.33	1163.62		2.28	-0.15	0.017
155.00	-12.34	-0.59	0.00	-8.20	0.00	8.20	1711.62	433.21	1118.15	1095.40		2.44	-0.15	0.015
160.00	-8.70	-0.44	0.00	-5.24	0.00	5.24	1668.76	417.20	1037.02	1028.18		2.61	-0.16	0.010
165.00	-8.24	-0.44	0.00	-3.03	0.00	3.03	1624.34	401.18	958.94	962.08		2.77	-0.16	0.008
170.00	-2.67	-0.05	0.00	-0.84	0.00	0.84	1578.35	385.17	883.92	897.21		2.94	-0.16	0.003
175.00	-2.32	-0.05	0.00	-0.57	0.00	0.57	1530.79	369.16	811.95	833.68		3.11	-0.16	0.002
180.00	-1.98	-0.05	0.00	-0.33	0.00	0.33	1481.67	353.15	743.04	771.60		3.27	-0.16	0.002
185.00	-1.65	-0.04	0.00	-0.09	0.00	0.09	1427.20	337.13	677.19	709.20		3.44	-0.16	0.001
187.00	0.00	-0.04	0.00	0.00	0.00	0.00	1400.09	330.73	651.70	682.38		3.51	-0.16	0.000

Calculated Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 40	

Wind Loading - Shaft

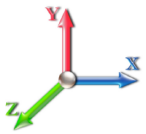
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 41	

Tower Engineering Solutions

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		1.00	0.85	6.619	7.28	302.80	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.619	7.28	297.43	0.730	0.000	5.00	27.207	19.86	144.6	0.0	1722.7
10.00		1.00	0.85	6.619	7.28	292.07	0.730	0.000	5.00	26.721	19.51	142.0	0.0	1691.7
15.00		1.00	0.86	6.701	7.37	288.47	0.730	0.000	5.00	26.234	19.15	141.2	0.0	1660.6
20.00		1.00	0.91	7.096	7.81	291.29	0.730	0.000	5.00	25.748	18.80	146.7	0.0	1629.6
25.00		1.00	0.95	7.422	8.16	292.23	0.730	0.000	5.00	25.261	18.44	150.6	0.0	1598.6
30.00		1.00	0.99	7.702	8.47	291.90	0.730	0.000	5.00	24.775	18.09	153.2	0.0	1567.5
35.00		1.00	1.02	7.949	8.74	290.65	0.730	0.000	5.00	24.288	17.73	155.0	0.0	1536.5
40.00		1.00	1.05	8.169	8.99	288.69	0.730	0.000	5.00	23.802	17.38	156.1	0.0	1505.4
45.00		1.00	1.07	8.370	9.21	286.18	0.730	0.000	5.00	23.315	17.02	156.7	0.0	1474.4
46.25	Bot - Section 2	1.00	1.08	8.417	9.26	285.47	0.730	0.000	1.25	5.753	4.20	38.9	0.0	363.7
50.00		1.00	1.10	8.553	9.41	283.20	0.730	0.000	3.75	17.353	12.67	119.2	0.0	2040.8
53.25	Top - Section 1	1.00	1.11	8.665	9.53	281.06	0.730	0.000	3.25	14.818	10.82	103.1	0.0	1742.2
55.00		1.00	1.12	8.723	9.60	284.53	0.730	0.000	1.75	7.894	5.76	55.3	0.0	437.2
60.00		1.00	1.14	8.882	9.77	280.89	0.730	0.000	5.00	22.226	16.22	158.5	0.0	1230.7
65.00		1.00	1.16	9.030	9.93	276.96	0.730	0.000	5.00	21.739	15.87	157.6	0.0	1203.6
70.00		1.00	1.18	9.170	10.09	272.78	0.730	0.000	5.00	21.253	15.51	156.5	0.0	1176.4
75.00		1.00	1.19	9.303	10.23	268.38	0.730	0.000	5.00	20.766	15.16	155.1	0.0	1149.2
80.00		1.00	1.21	9.428	10.37	263.78	0.730	0.000	5.00	20.280	14.80	153.5	0.0	1122.1
85.00		1.00	1.23	9.548	10.50	259.00	0.730	0.000	5.00	19.793	14.45	151.8	0.0	1094.9
90.00		1.00	1.24	9.662	10.63	254.06	0.730	0.000	5.00	19.307	14.09	149.8	0.0	1067.7
92.00	Appurtenance(s)	1.00	1.25	9.707	10.68	252.05	0.730	0.000	2.00	7.586	5.54	59.1	0.0	419.5
93.75	Bot - Section 3	1.00	1.25	9.745	10.72	250.26	0.730	0.000	1.75	6.574	4.80	51.4	0.0	363.5
95.00		1.00	1.25	9.772	10.75	248.98	0.730	0.000	1.25	4.739	3.46	37.2	0.0	482.5
99.75	Top - Section 2	1.00	1.27	9.872	10.86	244.02	0.730	0.000	4.75	17.730	12.94	140.5	0.0	1804.8
100.00		1.00	1.27	9.877	10.86	248.03	0.730	0.000	0.25	0.921	0.67	7.3	0.0	43.7
105.00		1.00	1.28	9.978	10.98	242.71	0.730	0.000	5.00	18.165	13.26	145.5	0.0	861.8
110.00		1.00	1.29	10.075	11.08	237.27	0.730	0.000	5.00	17.678	12.91	143.0	0.0	838.5
115.00		1.00	1.31	10.169	11.19	231.72	0.730	0.000	5.00	17.192	12.55	140.4	0.0	815.2
120.00		1.00	1.32	10.260	11.29	226.07	0.730	0.000	5.00	16.705	12.19	137.6	0.0	791.9
125.00		1.00	1.33	10.347	11.38	220.33	0.730	0.000	5.00	16.219	11.84	134.8	0.0	768.7
130.00	Appurtenance(s)	1.00	1.34	10.433	11.48	214.49	0.730	0.000	5.00	15.732	11.48	131.8	0.0	745.4
135.00		1.00	1.35	10.515	11.57	208.58	0.730	0.000	5.00	15.246	11.13	128.7	0.0	722.1
140.00	Appurtenance(s)	1.00	1.36	10.595	11.65	202.58	0.730	0.000	5.00	14.759	10.77	125.6	0.0	698.8
142.75	Bot - Section 4	1.00	1.37	10.639	11.70	199.25	0.730	0.000	2.75	7.910	5.77	67.6	0.0	374.4
145.00		1.00	1.37	10.673	11.74	196.51	0.730	0.000	2.25	6.458	4.71	55.3	0.0	505.6
147.25	Top - Section 3	1.00	1.37	10.708	11.78	193.76	0.730	0.000	2.25	6.359	4.64	54.7	0.0	497.8
150.00	Appurtenance(s)	1.00	1.38	10.749	11.82	193.34	0.730	0.000	2.75	7.638	5.58	65.9	0.0	241.9
155.00		1.00	1.39	10.823	11.91	187.15	0.730	0.000	5.00	13.511	9.86	117.4	0.0	427.7
160.00	Appurtenance(s)	1.00	1.40	10.895	11.98	180.88	0.730	0.000	5.00	13.025	9.51	114.0	0.0	412.2
165.00		1.00	1.41	10.966	12.06	174.56	0.730	0.000	5.00	12.538	9.15	110.4	0.0	396.7
170.00	Appurtenance(s)	1.00	1.42	11.035	12.14	168.18	0.730	0.000	5.00	12.052	8.80	106.8	0.0	381.2
175.00		1.00	1.43	11.102	12.21	161.74	0.730	0.000	5.00	11.565	8.44	103.1	0.0	365.6
180.00		1.00	1.43	11.167	12.28	155.25	0.730	0.000	5.00	11.079	8.09	99.3	0.0	350.1
185.00		1.00	1.44	11.232	12.35	148.70	0.730	0.000	5.00	10.592	7.73	95.5	0.0	334.6
187.00	Appurtenance(s)	1.00	1.45	11.257	12.38	146.07	0.730	0.000	2.00	4.101	2.99	37.1	0.0	129.5

Wind Loading - Shaft

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 42	

Totals:	**187.00**	**5,155.7**	**40,789.2**

Discrete Appurtenance Forces

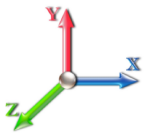
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 43	

Tower Engineering Solutions

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)	Orient Factor 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	187.00	Low Profile Platform	1	11.257	12.383	1.00	1.00	22.00	1500.00	0.000	0.000	272.42	0.00	0.00
2	187.00	DB201	2	11.316	12.448	1.00	1.00	7.08	50.00	0.000	4.750	88.13	0.00	418.62
3	187.00	ANT450F6	1	11.306	12.436	1.00	1.00	1.86	21.00	0.000	3.917	23.13	0.00	90.60
4	187.00	ANT900D6-9	2	11.283	12.411	1.00	1.00	1.96	22.00	0.000	2.042	24.33	0.00	49.66
5	187.00	MF-900B	2	11.257	12.383	1.00	1.00	6.90	26.00	2.015	0.000	85.44	172.20	0.00
6	187.00	6' Lightning rod	1	11.257	12.383	1.00	1.00	0.38	6.50	0.000	0.000	4.71	0.00	0.00
7	170.00	QD6616-7	3	11.035	12.138	0.56	0.75	22.92	342.00	0.000	0.000	278.16	0.00	0.00
8	170.00	Kaelus DBC0061F1V51-2	6	11.035	12.138	0.38	0.75	0.97	152.40	0.000	0.000	11.74	0.00	0.00
9	170.00	Ericsson RRUS-32	3	11.035	12.138	0.50	0.75	2.49	231.00	0.000	0.000	30.19	0.00	0.00
10	170.00	Air6449 B77D	3	11.059	12.165	0.64	0.75	7.90	264.00	0.000	1.800	96.08	0.00	172.95
11	170.00	AIR 6419 B77G	3	11.059	12.165	0.57	0.75	6.50	198.30	0.000	1.800	79.05	0.00	142.28
12	170.00	DMP65R-BU6DA	3	11.035	12.138	0.54	0.75	20.59	238.20	0.000	0.000	249.92	0.00	0.00
13	170.00	DTMABP7819VG12A	3	11.035	12.138	0.50	0.75	1.72	57.60	0.000	0.000	20.86	0.00	0.00
14	170.00	Ericsson RRUS 4449	3	11.035	12.138	0.50	0.75	2.97	219.60	0.000	0.000	36.05	0.00	0.00
15	170.00	Ericsson 4478 B14	3	11.035	12.138	0.50	0.75	2.49	178.20	0.000	0.000	30.19	0.00	0.00
16	170.00	CSS DBC-750	3	11.035	12.138	0.50	0.75	0.77	14.40	0.000	0.000	9.33	0.00	0.00
17	170.00	Raycap DC6-48-60-18-8F	3	11.035	12.138	0.60	0.75	1.66	95.40	0.000	0.000	20.10	0.00	0.00
18	170.00	Commscope	3	11.035	12.138	0.73	0.75	0.11	3.30	0.000	0.000	1.34	0.00	0.00
19	170.00	RMQLP-4120-H10	1	11.035	12.138	1.00	1.00	51.70	3249.40	0.000	0.000	627.53	0.00	0.00
20	170.00	Ericsson RRUS 8843 B2	3	11.035	12.138	0.50	0.75	2.47	216.00	0.000	0.000	30.01	0.00	0.00
21	160.00	Platform w/ Hand Rail	1	10.895	11.985	1.00	1.00	32.00	1600.00	0.000	0.000	383.52	0.00	0.00
22	160.00	Air32	3	10.895	11.985	0.65	0.75	12.74	396.60	0.000	0.000	152.73	0.00	0.00
23	160.00	APXVAARR24_43-U-NA2	3	10.895	11.985	0.52	0.75	31.88	384.00	0.000	0.000	382.06	0.00	0.00
24	160.00	SDX1926Q-43	3	10.895	11.985	0.38	0.75	0.58	12.90	0.000	0.000	7.01	0.00	0.00
25	160.00	AIR6449 B41	3	10.895	11.985	0.53	0.75	9.03	309.00	0.000	0.000	108.17	0.00	0.00
26	160.00	MS-KI22-5 (Kickers)	1	10.895	11.985	1.00	1.00	5.33	146.00	0.000	0.000	63.88	0.00	0.00
27	160.00	KRY 112 144/1	3	10.895	11.985	0.38	0.75	0.46	33.00	0.000	0.000	5.53	0.00	0.00
28	160.00	RRUS 4415 B25	3	10.895	11.985	0.50	0.75	2.47	138.00	0.000	0.000	29.63	0.00	0.00
29	160.00	4449 B71+B12	3	10.895	11.985	0.50	0.75	2.49	210.00	0.000	0.000	29.81	0.00	0.00
30	160.00	MS-1436 (Light Collar	1	10.895	11.985	1.00	1.00	1.50	65.60	0.000	0.000	17.98	0.00	0.00
31	150.00	MC-PK8-DSH	1	10.749	11.824	1.00	1.00	37.59	1727.00	0.000	0.000	444.47	0.00	0.00
32	150.00	RDIDC-9181-OF-48	1	10.749	11.824	0.75	0.75	1.51	21.90	0.000	0.000	17.83	0.00	0.00
33	150.00	TA08025-B605	3	10.749	11.824	0.50	0.75	2.95	225.00	0.000	0.000	34.94	0.00	0.00
34	150.00	MX08FRO665-21	3	10.749	11.824	0.55	0.75	20.80	193.50	0.000	0.000	245.90	0.00	0.00
35	150.00	TA08025-B604	3	10.749	11.824	0.50	0.75	2.95	191.70	0.000	0.000	34.94	0.00	0.00
36	140.00	Samsung RF4440d-13A	3	10.595	11.655	0.50	0.75	2.82	210.90	0.000	0.000	32.86	0.00	0.00
37	140.00	Commscope	3	10.595	11.655	0.62	0.75	15.09	144.30	0.000	0.000	175.87	0.00	0.00
38	140.00	Samsung MT6407-77A	3	10.595	11.655	0.52	0.75	7.39	238.20	0.000	0.000	86.09	0.00	0.00
39	140.00	VZWSMART-PLK1	1	10.595	11.655	1.00	1.00	12.25	504.00	0.000	0.000	142.77	0.00	0.00
40	140.00	PRK-SFS	1	10.595	11.655	1.00	1.00	9.50	588.00	0.000	0.000	110.72	0.00	0.00
41	140.00	Commscope	3	10.595	11.655	0.62	0.75	15.09	131.10	0.000	0.000	175.87	0.00	0.00
42	140.00	Samsung RF4439d-25A	3	10.595	11.655	0.50	0.75	2.83	224.10	0.000	0.000	33.03	0.00	0.00
43	140.00	Samsung LTE CBRS	3	10.595	11.655	0.50	0.75	1.49	55.80	0.000	0.000	17.39	0.00	0.00
44	140.00	LNX-6514DS-VTM	3	10.595	11.655	0.60	0.75	14.56	116.40	0.000	0.000	169.72	0.00	0.00
45	140.00	DB-T1-6Z-8AB-0Z	2	10.595	11.655	0.68	0.75	5.60	88.00	0.000	0.000	65.23	0.00	0.00
46	140.00	KS-24019	6	10.595	11.655	1.00	1.00	0.72	3.00	0.000	0.000	8.39	0.00	0.00
47	140.00	Low Profile Platform	1	10.595	11.655	1.00	1.00	22.00	1500.00	0.000	0.000	256.41	0.00	0.00

Discrete Appurtenance Forces

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 44

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48	130.00	APXVSPP18-C-A20	3	10.433	11.476	0.66	0.80	15.98	171.00	0.000	0.000	183.34	0.00	0.00
49	130.00	APXVTM14-C-120	3	10.433	11.476	0.63	0.80	12.02	168.00	0.000	0.000	137.95	0.00	0.00
50	130.00	TD-RRH8x20-25	3	10.433	11.476	0.40	0.80	4.86	210.00	0.000	0.000	55.77	0.00	0.00
51	130.00	1900MHz RRH	3	10.433	11.476	0.54	0.80	6.11	132.00	0.000	0.000	70.12	0.00	0.00
52	130.00	800 MHz RRH	3	10.433	11.476	0.54	0.80	4.00	159.00	0.000	0.000	45.95	0.00	0.00
53	130.00	800MHz Filter	3	10.433	11.476	0.54	0.80	1.25	26.40	0.000	0.000	14.39	0.00	0.00
54	130.00	RF Filters	3	10.433	11.476	0.54	0.80	1.50	46.50	0.000	0.000	17.16	0.00	0.00
55	130.00	ACU-A20-N	4	10.433	11.476	0.40	0.80	0.22	4.00	0.000	0.000	2.57	0.00	0.00
56	130.00	Low Profile Platform	1	10.433	11.476	1.00	1.00	22.00	1500.00	0.000	0.000	252.47	0.00	0.00
57	92.00	Low Profile Platform	1	9.707	10.677	1.00	1.00	22.00	1500.00	0.000	0.000	234.90	0.00	0.00
58	92.00	DB205	1	9.897	10.887	1.00	1.00	1.80	38.00	0.000	9.000	19.60	0.00	176.37
59	92.00	ANT450Y10-WR	1	9.707	10.677	1.00	1.00	0.49	5.00	0.000	0.000	5.23	0.00	0.00
60	92.00	ANT150D3	1	9.814	10.796	1.00	1.00	2.18	18.00	0.000	5.000	23.53	0.00	117.67
61	92.00	ANT4506-9	1	9.772	10.749	1.00	1.00	2.77	18.00	0.000	3.000	29.77	0.00	89.32
62	92.00	MF-900B	2	9.707	10.677	1.00	1.00	6.90	26.00	2.887	0.000	73.67	212.69	0.00
							Totals:		**20,565.20**			**6,417.87**		

Total Applied Force Summary

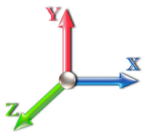
Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 45

Tower Engineering Solutions

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		144.62	1985.65	0.00	0.00
10.00		142.03	1954.60	0.00	0.00
15.00		141.17	1923.56	0.00	0.00
20.00		146.71	1892.51	0.00	0.00
25.00		150.56	1861.47	0.00	0.00
30.00		153.23	1830.42	0.00	0.00
35.00		155.02	1799.37	0.00	0.00
40.00		156.14	1768.33	0.00	0.00
45.00		156.70	1737.28	0.00	0.00
46.25		38.88	429.47	0.00	0.00
50.00		119.19	2238.01	0.00	0.00
53.25		103.11	1913.12	0.00	0.00
55.00		55.30	529.19	0.00	0.00
60.00		158.52	1493.63	0.00	0.00
65.00		157.64	1466.47	0.00	0.00
70.00		156.50	1439.30	0.00	0.00
75.00		155.13	1412.14	0.00	0.00
80.00		153.54	1384.97	0.00	0.00
85.00		151.76	1357.81	0.00	0.00
90.00		149.80	1330.64	0.00	0.00
92.00	(7) attachments	445.84	2129.65	212.69	383.36
93.75		51.44	453.82	0.00	0.00
95.00		37.18	547.03	0.00	0.00
99.75		140.54	2049.96	0.00	0.00
100.00		7.30	56.61	0.00	0.00
105.00		145.54	1119.91	0.00	0.00
110.00		143.02	1096.62	0.00	0.00
115.00		140.38	1073.34	0.00	0.00
120.00		137.62	1050.05	0.00	0.00
125.00		134.76	1026.77	0.00	0.00
130.00	(26) attachments	911.51	3420.38	0.00	0.00
135.00		128.73	963.89	0.00	0.00
140.00	(32) attachments	1399.92	4744.40	0.00	0.00
142.75		67.57	469.46	0.00	0.00
145.00		55.35	583.39	0.00	0.00
147.25		54.68	575.53	0.00	0.00
150.00	(11) attachments	844.00	2696.01	0.00	0.00
155.00		117.43	591.14	0.00	0.00
160.00	(24) attachments	1294.27	3870.71	0.00	0.00
165.00		110.40	491.29	0.00	0.00
170.00	(43) attachments	1627.34	5935.57	0.00	315.24
175.00		103.10	376.64	0.00	0.00
180.00		99.35	361.12	0.00	0.00
185.00		95.53	345.60	0.00	0.00
187.00	(9) attachments	535.22	1759.39	172.20	558.89

Total Applied Force Summary

Structure:	CT07824-S-SBA		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 46

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Totals:	**11,573.56**	**69,536.22**	**384.88**	**1,257.49**

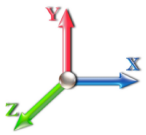
Linear Appurtenance Segment Forces (Factored)

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 47	

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	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.619	0.00	9.40
10.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.619	0.00	9.40
15.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	6.701	0.00	9.40
20.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.096	0.00	9.40
25.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.422	0.00	9.40
30.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.702	0.00	9.40
35.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	7.949	0.00	9.40
40.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.169	0.00	9.40
45.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.370	0.00	9.40
46.25	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	8.417	0.00	2.35
50.00	1.6" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.000	0.000	8.553	0.00	7.05
53.25	1.6" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.000	0.000	8.665	0.00	6.11
55.00	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	8.723	0.00	3.29
60.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	8.882	0.00	9.40
65.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.030	0.00	9.40
70.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.170	0.00	9.40
75.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.303	0.00	9.40
80.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.428	0.00	9.40
85.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.548	0.00	9.40
90.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.662	0.00	9.40
92.00	1.6" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.000	0.000	9.707	0.00	3.76
93.75	1.6" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.000	0.000	9.745	0.00	3.29
95.00	1.6" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.000	0.000	9.772	0.00	2.35
99.75	1.6" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.000	0.000	9.872	0.00	8.93
100.00	1.6" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.000	0.000	9.877	0.00	0.47
105.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	9.978	0.00	9.40
110.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.075	0.00	9.40
115.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.169	0.00	9.40
120.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.260	0.00	9.40
125.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.347	0.00	9.40
130.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.433	0.00	9.40
135.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.515	0.00	9.40
140.00	1.6" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.000	0.000	10.595	0.00	9.40
142.75	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	10.639	0.00	5.17
145.00	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	10.673	0.00	4.23
147.25	1.6" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.000	0.000	10.708	0.00	4.23
150.00	1.6" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.000	0.000	10.749	0.00	5.17
										Totals:	**0.0**	**282.0**

Calculated Forces

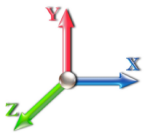
Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 48	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

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	-69.53	-11.60	-0.38	-1500.4	0.00	1500.45	7001.91	1793.04	9577.56	9276.01	0.00	0.000	0.000	0.172
5.00	-67.54	-11.50	-0.38	-1442.4	0.00	1442.47	6919.93	1761.01	9238.49	9002.40	0.02	-0.039	0.000	0.170
10.00	-65.58	-11.40	-0.38	-1384.9	0.00	1384.98	6836.37	1728.99	8905.54	8730.69	0.08	-0.079	0.000	0.168
15.00	-63.64	-11.30	-0.38	-1327.9	0.00	1327.98	6751.25	1696.96	8578.69	8461.01	0.19	-0.119	0.000	0.166
20.00	-61.74	-11.19	-0.38	-1271.4	0.00	1271.48	6664.57	1664.94	8257.96	8193.47	0.33	-0.160	0.000	0.164
25.00	-59.88	-11.08	-0.38	-1215.5	0.00	1215.51	6576.31	1632.91	7943.33	7928.16	0.52	-0.201	0.000	0.162
30.00	-58.04	-10.96	-0.38	-1160.1	0.00	1160.11	6486.49	1600.89	7634.82	7665.22	0.76	-0.243	0.000	0.160
35.00	-56.23	-10.84	-0.38	-1105.3	0.00	1105.30	6395.11	1568.86	7332.41	7404.75	1.03	-0.285	0.000	0.158
40.00	-54.46	-10.72	-0.38	-1051.1	0.00	1051.10	6302.15	1536.84	7036.12	7146.85	1.36	-0.328	0.000	0.156
45.00	-52.71	-10.57	-0.38	-997.52	0.00	997.52	6207.63	1504.81	6745.94	6891.65	1.72	-0.371	0.000	0.153
46.25	-52.28	-10.55	-0.38	-984.30	0.00	984.30	6183.76	1496.81	6674.35	6828.29	1.82	-0.382	0.000	0.153
50.00	-50.04	-10.44	-0.38	-944.73	0.00	944.73	6111.55	1472.79	6461.86	6639.26	2.14	-0.415	0.000	0.151
53.25	-48.12	-10.35	-0.38	-910.78	0.00	910.78	5153.03	1293.32	5694.85	5624.85	2.43	-0.444	0.000	0.171
55.00	-47.59	-10.31	-0.38	-892.68	0.00	892.68	5126.51	1283.52	5608.81	5553.12	2.59	-0.460	0.000	0.170
60.00	-46.09	-10.18	-0.38	-841.11	0.00	841.11	5049.68	1255.49	5366.58	5349.50	3.10	-0.508	0.000	0.166
65.00	-44.61	-10.05	-0.38	-790.21	0.00	790.21	4971.29	1227.47	5129.70	5147.92	3.66	-0.557	0.000	0.163
70.00	-43.17	-9.91	-0.38	-739.97	0.00	739.97	4891.33	1199.45	4898.16	4948.49	4.27	-0.605	0.000	0.158
75.00	-41.75	-9.78	-0.38	-690.41	0.00	690.41	4809.80	1171.43	4671.97	4751.33	4.93	-0.654	0.000	0.154
80.00	-40.36	-9.64	-0.38	-641.52	0.00	641.52	4726.70	1143.41	4451.13	4556.54	5.64	-0.702	0.000	0.149
85.00	-38.99	-9.51	-0.38	-593.31	0.00	593.31	4642.04	1115.39	4235.63	4364.25	6.40	-0.751	0.000	0.144
90.00	-37.66	-9.36	-0.38	-545.78	0.00	545.78	4555.82	1087.36	4025.49	4174.56	7.22	-0.799	0.000	0.139
92.00	-35.53	-8.90	-0.17	-526.68	0.00	526.68	4520.89	1076.16	3942.92	4099.44	7.55	-0.819	0.000	0.136
93.75	-35.08	-8.85	-0.17	-511.11	0.00	511.11	4490.12	1066.35	3871.38	4034.07	7.86	-0.836	0.000	0.135
95.00	-34.53	-8.82	-0.17	-500.05	0.00	500.05	4468.02	1059.34	3820.68	3987.58	8.08	-0.848	0.000	0.133
99.75	-32.48	-8.66	-0.17	-458.16	0.00	458.16	3653.35	902.16	3232.84	3243.96	8.95	-0.893	0.000	0.150
100.00	-32.42	-8.67	-0.17	-456.00	0.00	456.00	3649.96	900.96	3224.24	3236.59	8.99	-0.895	0.000	0.150
105.00	-31.29	-8.53	-0.17	-412.66	0.00	412.66	3581.25	876.94	3054.62	3090.28	9.96	-0.947	0.000	0.142
110.00	-30.19	-8.40	-0.17	-370.00	0.00	370.00	3510.98	852.92	2889.59	2945.93	10.98	-0.997	0.000	0.134
115.00	-29.11	-8.26	-0.17	-328.02	0.00	328.02	3439.14	828.91	2729.13	2803.65	12.05	-1.045	0.000	0.126
120.00	-28.06	-8.13	-0.17	-286.71	0.00	286.71	3365.73	804.89	2573.27	2663.56	13.17	-1.092	0.000	0.116
125.00	-27.03	-7.99	-0.17	-246.08	0.00	246.08	3290.76	780.87	2421.98	2525.77	14.33	-1.136	-0.001	0.106
130.00	-23.62	-7.03	-0.17	-206.13	0.00	206.13	3204.00	756.85	2275.28	2382.78	15.55	-1.177	-0.001	0.094
135.00	-22.66	-6.89	-0.17	-170.99	0.00	170.99	3102.32	732.83	2133.16	2233.19	16.80	-1.214	-0.001	0.084
140.00	-17.94	-5.40	-0.17	-136.53	0.00	136.53	3000.64	708.81	1995.62	2088.46	18.09	-1.248	-0.001	0.071
142.75	-17.47	-5.33	-0.17	-121.68	0.00	121.68	2944.72	695.60	1921.93	2010.92	18.81	-1.265	-0.001	0.067
145.00	-16.89	-5.26	-0.17	-109.70	0.00	109.70	2898.96	684.79	1862.67	1948.57	19.41	-1.278	-0.001	0.062
147.25	-16.31	-5.20	-0.17	-97.87	0.00	97.87	1774.96	458.03	1249.94	1201.53	20.02	-1.291	-0.001	0.091
150.00	-13.64	-4.30	-0.17	-83.57	0.00	83.57	1752.91	449.22	1202.33	1163.62	20.77	-1.305	-0.001	0.080
155.00	-13.05	-4.17	-0.17	-62.08	0.00	62.08	1711.62	433.21	1118.15	1095.40	22.15	-1.336	-0.001	0.064
160.00	-9.21	-2.79	-0.17	-41.22	0.00	41.22	1668.76	417.20	1037.02	1028.18	23.56	-1.360	-0.001	0.046
165.00	-8.72	-2.67	-0.17	-27.26	0.00	27.26	1624.34	401.18	958.94	962.08	25.00	-1.378	-0.001	0.034
170.00	-2.82	-0.90	-0.17	-13.59	0.00	13.59	1578.35	385.17	883.92	897.21	26.45	-1.390	-0.001	0.017
175.00	-2.45	-0.79	-0.17	-9.08	0.00	9.08	1530.79	369.16	811.95	833.68	27.91	-1.398	-0.001	0.012
180.00	-2.09	-0.68	-0.17	-5.13	0.00	5.13	1481.67	353.15	743.04	771.60	29.38	-1.403	-0.001	0.008
185.00	-1.75	-0.58	-0.17	-1.72	0.00	1.72	1427.20	337.13	677.19	709.20	30.85	-1.406	-0.001	0.004
187.00	0.00	-0.54	-0.17	-0.56	0.00	0.56	1400.09	330.73	651.70	682.38	31.44	-1.407	-0.002	0.001

Final Analysis Summary

Structure:	CT07824-S-SBA	**Code:**	TIA-222-H	10/26/2022	
Site Name:	South Windsor	**Exposure:**	C		
Height:	187.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 49	

Tower Engineering Solutions

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 + 1.0W 120 mph Wind	51.9	0.00	83.36	0.03	1.69	6759.12
0.9D + 1.0W 120 mph Wind	51.8	0.00	62.50	0.02	1.69	6666.62
1.2D + 1.0Di + 1.0Wi 50 mph Wind	14.5	0.00	109.35	0.01	1.68	1916.98
1.2D + 1.0Ev + 1.0Eh	1.0	0.00	86.22	0.00	0.00	153.60
0.9D + 1.0Ev + 1.0Eh	1.0	0.00	65.27	0.00	0.00	151.97
1.0D + 1.0W 60 mph Wind	11.6	0.00	69.53	0.00	0.38	1500.45

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 + 1.0W 120 mph Wind	-56.22	-46.59	-1.70	-4112.4	-0.04	-4112.4	5153.03	1293.3	5694.85	5624.85	53.25	0.743
0.9D + 1.0W 120 mph Wind	-62.50	-51.84	-1.69	-6666.6	-0.02	-6666.6	7001.91	1793.0	9577.56	9276.01	0.00	0.728
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-79.65	-13.18	-1.68	-1171.7	-0.02	-1171.7	5153.03	1293.3	5694.85	5624.85	53.25	0.224
1.2D + 1.0Ev + 1.0Eh	-59.77	-0.99	0.00	-101.13	0.00	-101.13	5153.03	1293.3	5694.85	5624.85	53.25	0.030
0.9D + 1.0Ev + 1.0Eh	-45.24	-0.98	0.00	-99.87	0.00	-99.87	5153.03	1293.3	5694.85	5624.85	53.25	0.027
1.0D + 1.0W 60 mph Wind	-69.53	-11.60	-0.38	-1500.4	0.00	-1500.4	7001.91	1793.0	9577.56	9276.01	0.00	0.172

Base Plate Summary

Structure:	CT07824-S-SB		**Code:**	TIA-222-H	10/26/2022
Site Name:	South Windsor		**Exposure:**	C	
Height:	187.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 50

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	6540.46
Axial (kip):	82.75
Shear (kip):	47.90

Analysis (1.2D + 1.0W)

Moment (kip-ft):	6759.12
Axial (kip):	83.36
Shear (kip):	51.87

Base Plate

Yield (ksi):	60.00
Width (in):	78.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	11.23
Moment (kip-in):	628.40
Allow Stress (ksi):	81.00
Applied Stress (ksi):	53.46
Stress Ratio:	0.66

Anchor Bolts

Bolt Circle:	72.00
Number Bolts:	26.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	176.52
Allowable (kip):	268.39
Ratio:	0.66

Tension

Force (kip):	170.10
Allowable (kip):	243.75
Ratio:	0.70

Monopole Mat Foundation Design

			Date: 10/26/2022
Customer Name:	AT&T	**TIA Standard:**	TIA-222-H
Site Name:		**Structure Height (Ft.):**	187
Site Number:	CT07824-S-SBA	**Engineer Name:**	H. You
Engr. Number:	135712	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

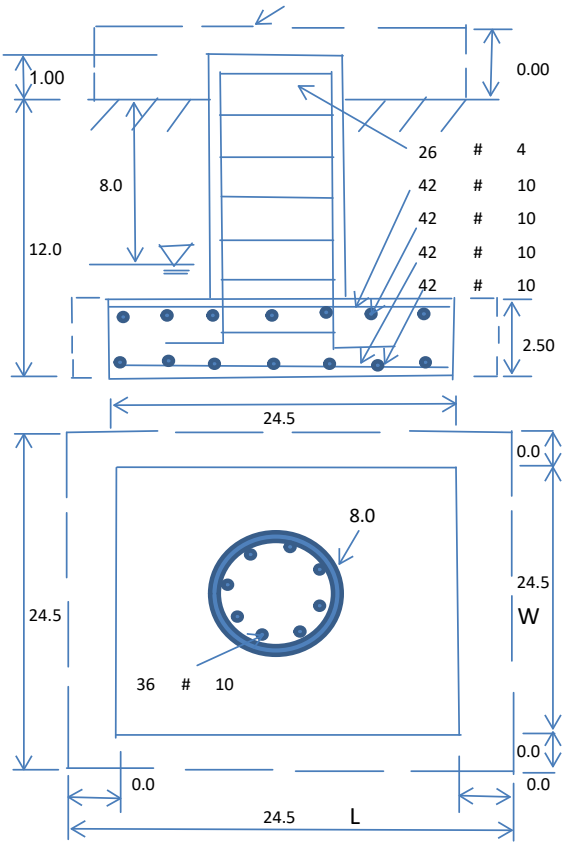
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	83.4	Shear Force (Kips):	51.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	6759.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	12.0
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	24.5	Width of Pad (ft.):	24.5
Final Length of pad (ft)	24.5	Final width of pad (ft):	24.5



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	10	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	42	Qty. of Rebar in Pad (W):	42	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	42	Qty. of Rebar in Pad (W):	42	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	8.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	4399.88	Total Dry Soil Weight (Kips):	527.99
Total Buoyant Soil Volume (cu. Ft.):	889.38	Total Buoyant Soil Weight (Kips):	44.47
Total Effective Soil Weight (Kips):	572.45	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	452.39	Total Dry Concrete Weight (Kips):	67.86
Total Buoyant Concrete Volume (cu. Ft.):	1576.02	Total Buoyant Concrete Weight (Kips):	138.06
Total Effective Concrete Weight (Kips):	205.92	Total Vertical Load on Base (Kips):	861.77

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	5425	<	Allowable Factored Soil Bearing (psf):	6000	0.90	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	9567.7	>	Design Factored Momont (kips-ft):	6748	0.71	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.42	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.27		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	8888.9	>	Design Factored Moment (Mu, Kips-F	7304.1	0.82	OK!
Calculated Shear Capacity (Kips):	993.9	>	Design Factored Shear (Kips):	51.9	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	2468.9	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12716.4	>	Design Factored Axial Load (Pu Kips):	83.4	0.01	OK!
Moment & Axial Strength Combination:	0.82	OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.006		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	735.6	>	One-Way Factored Shear (L-D. Kips):	439.6	0.60	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	735.6	>	One-Way Factored Shear (W-D., Kips)	439.6	0.60	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	668.1	>	One-Way Factored Shear (C-C, Kips):	430.6	0.64	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0069	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0069		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5946.5	>	Moment at Bottom (L-Dir. K-Ft):	2162.3	0.36	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5946.5	>	Moment at Bottom (W-Dir. K-Ft):	2162.3	0.36	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8246.5	>	Moment at Bottom (C-C Dir. K-Ft):	3057.9	0.37	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0069	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0069		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5946.5	>	Moment at the top (L-Dir K-Ft):	818.6	0.14	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5946.5	>	Moment at the top (W-Dir K-Ft):	818.6	0.14	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8246.5	>	Moment at the top (C-C Dir. K-Ft):	774.1	0.09	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	2703.6	k-ft.	Max. factored shear stress v_{u_CD}:		4.7	Psi
Max. factored shear stress v_{u_AB}:	18.2	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	18.2	Psi	Check Usage of Punching Shear Capacity:		0.10	OK!
(4).Check Bending Capacity of the Pad Within the Effective Slab Width:						
Overturning moment to be transferred by flexure:	2027.7	k-ft.	Effective Width for resisting OT moment:		15.5	ft.
Calculated number of Rebar in Effective width:	27		Actual number of Rebar in Effective width:		13	
Steel Pad Moment Capacity (L-Direc. Kips-ft):	1901.3	k-ft.	Check Usage of the Flexure Capacity:		1.07	NG!

Radio Frequency Exposure Analysis Report

October 28, 2022

Centerline on behalf of AT&T

AT&T Site Name: SOUTH WINDSOR SAND HILL RD
AT&T Site Number: CTL01139
FA#: 10035389
USID: 59386

Site Address: 151 Sand Hill Road, Sound Windsor, CT 06074

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2023

Signed 28 October 2022

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	18.94314 µW/cm^2
Cumulative General Population % MPE (Ground Level):	1.8967%

October 28, 2022

Centerline
Attn: Jennifer Iliades, Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **SOUTH WINDSOR SAND HILL RD**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **151 Sand Hill Road, Sound Windsor, CT 06074** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{MHz}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of 1 mW/cm^2 (1000 $\mu W/cm^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/ controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.

Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

Data & Results

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at ground level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

Maximum Calculated Cumulative Power Density (Location: approximately 458' west of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
AT&T A 1	QUINTEL QD6616-7 V1	700	11.93	170.00	4.00	30.00	1871.85	0.00000	466.67	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	1900	15.11	170.00	4.00	30.00	3888.22	0.00000	1000.00	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	2100	15.50	170.00	4.00	30.00	4257.96	0.00000	1000.00	0.00000
AT&T A 1	QUINTEL QD6616-7 V1	700	11.93	170.00	2.00	30.00	935.93	0.00000	466.67	0.00000
AT&T A 2	ERICSSON AIR6449	3700	23.55	168.20	1.00	108.40	24548.74	0.00000	1000.00	0.00000
AT&T A 3	ERICSSON AIR6419	3450	23.55	171.80	1.00	108.40	24548.74	0.00000	1000.00	0.00000
AT&T A 4	CCI DMP65R-BU6D	700	11.35	170.00	4.00	30.00	1637.50	0.00000	466.67	0.00000
AT&T A 4	CCI DMP65R-BU6D	850	11.45	170.00	4.00	30.00	1675.64	0.00000	566.67	0.00000
AT&T A 4	CCI DMP65R-BU6D	2300	15.25	170.00	4.00	18.00	2411.75	0.00000	1000.00	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	700	11.93	170.00	4.00	30.00	1871.85	0.00000	466.67	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	1900	15.11	170.00	4.00	30.00	3888.22	0.00000	1000.00	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	2100	15.50	170.00	4.00	30.00	4257.96	0.00000	1000.00	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	700	11.93	170.00	2.00	30.00	935.93	0.00000	466.67	0.00000
AT&T B 6	ERICSSON AIR6449	3700	23.55	168.20	1.00	108.40	24548.74	0.00000	1000.00	0.00000
AT&T B 7	ERICSSON AIR6419	3450	23.55	171.80	1.00	108.40	24548.74	0.00000	1000.00	0.00000
AT&T B 8	CCI DMP65R-BU6D	700	11.35	170.00	4.00	30.00	1637.50	0.00000	466.67	0.00000
AT&T B 8	CCI DMP65R-BU6D	850	11.45	170.00	4.00	30.00	1675.64	0.00000	566.67	0.00000
AT&T B 8	CCI DMP65R-BU6D	2300	15.25	170.00	4.00	18.00	2411.75	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	700	11.93	170.00	4.00	30.00	1871.85	0.00006	466.67	0.00001
AT&T C 9	QUINTEL QD6616-7 V1	1900	15.11	170.00	4.00	30.00	3888.22	0.00006	1000.00	0.00001
AT&T C 9	QUINTEL QD6616-7 V1	2100	15.50	170.00	4.00	30.00	4257.96	0.00008	1000.00	0.00001
AT&T C 9	QUINTEL QD6616-7 V1	700	11.93	170.00	2.00	30.00	935.93	0.00003	466.67	0.00001
AT&T C 10	ERICSSON AIR6449	3700	23.55	168.20	1.00	108.40	24548.74	0.00047	1000.00	0.00005
AT&T C 11	ERICSSON AIR6419	3450	23.55	171.80	1.00	108.40	24548.74	0.00044	1000.00	0.00004
AT&T C 12	CCI DMP65R-BU6D	700	11.35	170.00	4.00	30.00	1637.50	0.00012	466.67	0.00003
AT&T C 12	CCI DMP65R-BU6D	850	11.45	170.00	4.00	30.00	1675.64	0.00006	566.67	0.00001
AT&T C 12	CCI DMP65R-BU6D	2300	15.25	170.00	4.00	18.00	2411.75	0.00004	1000.00	0.00000
Town of South Windsor 13	GENERIC OMNI 6FT	850	5.96	187.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Town of South Windsor 14	GENERIC OMNI 5FT	850	5.96	187.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Town of South Windsor 15	GENERIC OMNI 5FT	850	5.96	187.00	1.00	25.00	98.61	0.00000	566.67	0.00000
Town of South Windsor 16	COMMSCOPE DB201-L	50	0.00	187.00	1.00	25.00	25.00	0.00271	200.00	0.00136
Town of South Windsor 17	COMMSCOPE DB201-L	50	0.00	187.00	1.00	25.00	25.00	0.00271	200.00	0.00136
Town of South Windsor 18	KATHREIN MF-950B	950	14.00	187.00	1.00	0.10	2.51	0.00000	633.33	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
T-Mobile A 19	ERICSSON AIR6449	2500	17.30	160.00	1.00	60.00	3222.19	0.00218	1000.00	0.00022
T-Mobile A 19	ERICSSON AIR6449	2500	22.35	160.00	1.00	90.00	15461.18	0.09086	1000.00	0.00909
T-Mobile A 19	ERICSSON AIR6449	2500	22.35	160.00	1.00	90.00	15461.18	0.09086	1000.00	0.00909
T-Mobile A 20	RFS APXVAARR24 43-U-NA20	700	13.17	160.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile A 20	RFS APXVAARR24 43-U-NA20	600	13.09	160.00	2.00	40.00	1629.63	0.00000	400.00	0.00000
T-Mobile A 20	RFS APXVAARR24 43-U-NA20	600	13.09	160.00	2.00	30.00	1222.23	0.00000	400.00	0.00000
T-Mobile A 21	ERICSSON AIR 32	2100	15.55	160.00	4.00	30.00	4307.06	0.00000	1000.00	0.00000
T-Mobile A 21	ERICSSON AIR 32	1900	15.65	160.00	4.00	30.00	4407.39	0.00000	1000.00	0.00000
T-Mobile B 22	ERICSSON AIR6449	2500	17.30	160.00	1.00	60.00	3222.19	0.00218	1000.00	0.00022
T-Mobile B 22	ERICSSON AIR6449	2500	22.35	160.00	1.00	90.00	15461.18	0.09086	1000.00	0.00909
T-Mobile B 22	ERICSSON AIR6449	2500	22.35	160.00	1.00	90.00	15461.18	0.09086	1000.00	0.00909
T-Mobile B 23	RFS APXVAARR24 43-U-NA20	700	13.17	160.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile B 23	RFS APXVAARR24 43-U-NA20	600	13.09	160.00	2.00	40.00	1629.63	0.00000	400.00	0.00000
T-Mobile B 23	RFS APXVAARR24 43-U-NA20	600	13.09	160.00	2.00	30.00	1222.23	0.00000	400.00	0.00000
T-Mobile B 24	ERICSSON AIR 32	2100	15.55	160.00	4.00	30.00	4307.06	0.00000	1000.00	0.00000
T-Mobile B 24	ERICSSON AIR 32	1900	15.65	160.00	4.00	30.00	4407.39	0.00000	1000.00	0.00000
T-Mobile C 25	ERICSSON AIR6449	2500	17.30	160.00	1.00	60.00	3222.19	1.21183	1000.00	0.12118
T-Mobile C 25	ERICSSON AIR6449	2500	22.35	160.00	1.00	90.00	15461.18	8.67706	1000.00	0.86771
T-Mobile C 25	ERICSSON AIR6449	2500	22.35	160.00	1.00	90.00	15461.18	8.67706	1000.00	0.86771
T-Mobile C 26	RFS APXVAARR24 43-U-NA20	700	13.17	160.00	4.00	40.00	3319.86	0.00007	466.67	0.00002
T-Mobile C 26	RFS APXVAARR24 43-U-NA20	600	13.09	160.00	2.00	40.00	1629.63	0.00003	400.00	0.00001
T-Mobile C 26	RFS APXVAARR24 43-U-NA20	600	13.09	160.00	2.00	30.00	1222.23	0.00002	400.00	0.00001
T-Mobile C 27	ERICSSON AIR 32	2100	15.55	160.00	4.00	30.00	4307.06	0.00008	1000.00	0.00001
T-Mobile C 27	ERICSSON AIR 32	1900	15.65	160.00	4.00	30.00	4407.39	0.00015	1000.00	0.00002
Verizon A 28	COMMSCOPE LNX-6514DS-VTM	850	13.85	140.00	7.00	20.00	3396.47	0.00000	566.67	0.00000
Verizon A 29	COMMSCOPE NHH-65B-R2B	700	12.29	140.00	4.00	40.00	2710.94	0.00000	466.67	0.00000
Verizon A 29	COMMSCOPE NHH-65B-R2B	1900	15.65	140.00	4.00	40.00	5876.52	0.00000	1000.00	0.00000
Verizon A 30	COMMSCOPE NHHSS-65B-R2BT0	850	12.85	140.00	4.00	40.00	3084.04	0.00000	566.67	0.00000
Verizon A 30	COMMSCOPE NHHSS-65B-R2BT0	2100	15.45	140.00	4.00	40.00	5612.03	0.00000	1000.00	0.00000
Verizon A 30	COMMSCOPE NHHSS-65B-R2BT0	3600	15.05	140.00	4.00	5.00	639.78	0.00000	1000.00	0.00000
Verizon A 31	SAMSUNG MT6407	3700	23.35	140.00	4.00	50.00	43254.37	0.00010	1000.00	0.00001
Verizon B 32	COMMSCOPE LNX-6514DS-VTM	850	13.85	140.00	7.00	20.00	3396.47	0.00000	566.67	0.00000
Verizon B 33	COMMSCOPE NHH-65B-R2B	700	12.29	140.00	4.00	40.00	2710.94	0.00000	466.67	0.00000
Verizon B 33	COMMSCOPE NHH-65B-R2B	1900	15.65	140.00	4.00	40.00	5876.52	0.00000	1000.00	0.00000
Verizon B 34	COMMSCOPE NHHSS-65B-R2BT0	850	12.85	140.00	4.00	40.00	3084.04	0.00000	566.67	0.00000
Verizon B 34	COMMSCOPE NHHSS-65B-R2BT0	2100	15.45	140.00	4.00	40.00	5612.03	0.00000	1000.00	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
Verizon B 34	COMMSCOPE NHHSS-65B-R2BT0	3600	15.05	140.00	4.00	5.00	639.78	0.00000	1000.00	0.00000
Verizon B 35	SAMSUNG MT6407	3700	23.35	140.00	4.00	50.00	43254.37	0.00002	1000.00	0.00000
Verizon C 36	COMMSCOPE LNX-6514DS-VTM	850	13.85	140.00	7.00	20.00	3396.47	0.00000	566.67	0.00001
Verizon C 37	COMMSCOPE NHH-65B-R2B	700	12.29	140.00	4.00	40.00	2710.94	0.00007	466.67	0.00002
Verizon C 37	COMMSCOPE NHH-65B-R2B	1900	15.65	140.00	4.00	40.00	5876.52	0.00007	1000.00	0.00001
Verizon C 38	COMMSCOPE NHHSS-65B-R2BT0	850	12.85	140.00	4.00	40.00	3084.04	0.00007	566.67	0.00001
Verizon C 38	COMMSCOPE NHHSS-65B-R2BT0	2100	15.45	140.00	4.00	40.00	5612.03	0.00005	1000.00	0.00001
Verizon C 38	COMMSCOPE NHHSS-65B-R2BT0	3600	15.05	140.00	4.00	5.00	639.78	0.00001	1000.00	0.00000
Verizon C 39	SAMSUNG MT6407	3700	23.35	140.00	4.00	50.00	43254.37	0.00133	1000.00	0.00013
Sprint A 40	RFS APXVSPP18-C-A20	850	13.35	130.00	2.00	40.00	1730.17	0.00000	566.67	0.00000
Sprint A 40	RFS APXVSPP18-C-A20-	1900	15.85	130.00	2.00	60.00	4615.10	0.00000	1000.00	0.00000
Sprint A 41	RFS APXVTM14-C-I20 BC	2500	15.85	130.00	1.00	34.70	1334.53	0.00000	1000.00	0.00000
Sprint B 42	RFS APXVSPP18-C-A20	850	13.35	130.00	2.00	40.00	1730.17	0.00000	566.67	0.00000
Sprint B 42	RFS APXVSPP18-C-A20-	1900	15.85	130.00	2.00	60.00	4615.10	0.00000	1000.00	0.00000
Sprint B 43	RFS APXVTM14-C-I20 BC	2500	15.85	130.00	1.00	34.70	1334.53	0.00000	1000.00	0.00000
Sprint C 44	RFS APXVSPP18-C-A20	850	13.35	130.00	2.00	40.00	1730.17	0.00004	566.67	0.00001
Sprint C 44	RFS APXVSPP18-C-A20-	1900	15.85	130.00	2.00	60.00	4615.10	0.00005	1000.00	0.00001
Sprint C 45	RFS APXVTM14-C-I20 BC	2500	15.85	130.00	1.00	34.70	1334.53	0.00002	1000.00	0.00000
Dish A 46	JMA MX08FRO665-21	600	11.35	150.00	4.00	40.00	2183.33	0.00000	400.00	0.00000
Dish A 46	JMA MX08FRO665-21	700	12.05	150.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Dish A 46	JMA MX08FRO665-21	2000	15.75	150.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Dish A 46	JMA MX08FRO665-21	2100	16.75	150.00	4.00	40.00	7570.42	0.00000	1000.00	0.00000
Dish B 47	JMA MX08FRO665-21	600	11.35	150.00	4.00	40.00	2183.33	0.00000	400.00	0.00000
Dish B 47	JMA MX08FRO665-21	700	12.05	150.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Dish B 47	JMA MX08FRO665-21	2000	15.75	150.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Dish B 47	JMA MX08FRO665-21	2100	16.75	150.00	4.00	40.00	7570.42	0.00000	1000.00	0.00000
Dish C 48	JMA MX08FRO665-21	600	11.35	150.00	4.00	40.00	2183.33	0.00010	400.00	0.00003
Dish C 48	JMA MX08FRO665-21	700	12.05	150.00	4.00	40.00	2565.19	0.00012	466.67	0.00003
Dish C 48	JMA MX08FRO665-21	2000	15.75	150.00	4.00	40.00	6013.40	0.00009	1000.00	0.00001
Dish C 48	JMA MX08FRO665-21	2100	16.75	150.00	4.00	40.00	7570.42	0.00009	1000.00	0.00001
Town of South Windsor 49	KATHREIN MF-950B	950	14.00	92.00	1.00	0.10	2.51	0.00000	633.33	0.00000
Town of South Windsor 50	KATHREIN MF-950B	950	14.00	92.00	1.00	0.10	2.51	0.00000	633.33	0.00000
Town of South Windsor 51	GENERIC YAGI 2FT	700	11.10	92.00	1.00	6.46	83.18	0.00000	466.67	0.00000
Town of South Windsor 52	COMMSCOPE DB201-L	50	0.00	92.00	1.00	25.00	25.00	0.00001	200.00	0.00000
Town of South Windsor 53	GENERIC OMNI 3FT	850	2.60	92.00	1.00	55.00	100.08	0.00001	566.67	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
Town of South Windsor 54	GENERIC OMNI 6FT	850	5.96	92.00	1.00	25.00	98.61	0.00001	566.67	0.00000
							Cumulative Power Density:	**18.94314 $\mu W/cm^2$**	**Cumulative % MPE:**	**1.8967%**

Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

Michelle Stone
RF EME Technical Writer
Centerline Communications, LLC

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT: • NEW AT&T ANTENNAS: QD6616-7 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3) (STACKED) (TOP). • NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3) (STACKED) (BOTTOM). • NEW AT&T RRUS: 4478 B14 (1 PER GAMMA SECTOR, TOTAL OF 1). • NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8F (TOTAL OF 1). • NEW AT&T (2) 6 AWG DC POWER CABLES & (1) 18 PAIR OF FIBER RUNS. • RELOCATE (2) EXISTING 4478 B14 FROM SHELTER TO TOWER • NEW AT&T LOW PROFILE PLATFORM, SITEPRO-1 PART# RMQLP-4210-H10 ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION: • INSTALL (1) FRONTHAUL GATEWAY (FHG) 6648 +XCEDE CABLE. FINAL=1x6601/1x5216/1xXMU03/1x6630 Mixed-Mode+IDLe/1x6648+IDLe Xcede. • INSTALL (2) -48v RECTIFIERS FOR TOTAL OF (10) -48v RECTIFIERS. • INSTALL (12) VERTIV UPCONVERTERS. ITEMS TO BE REMOVED: • DECOMMISSION EXISTING AT&T ANTENNA: HPA65R-BU6A (TYP. OF 1 PER SECTOR, TOTAL OF 3). • DECOMMISSION EXISTING AT&T ANTENNA: HPA-65R-BUU-H6 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • DECOMMISSION EXISTING AT&T DIPLEXERS: DBCT108F1V92-1 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • DECOMMISSION EXISTING AT&T (6) 1-5/8" COAX CABLES. ITEMS TO REMAIN: • (3) ANTENNAS, (14) RRU'S, (2) SURGE ARRESTOR, (4) DC POWER, (2) FIBER, & (6) 1-5/8" COAX CABLES
SITE ADDRESS:	151 SAND HILL ROAD SOUTH WINDSOR, CT 06074
LATITUDE:	41.8359919° N, 41° 50' 9.57" N
LONGITUDE:	72.5519989° W, 72° 33' 7.19" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	187'-0"±
RAD CENTER:	170'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SITE NUMBER: CTL01139

SITE NAME: SOUTH WINDSOR SAND HILL RD

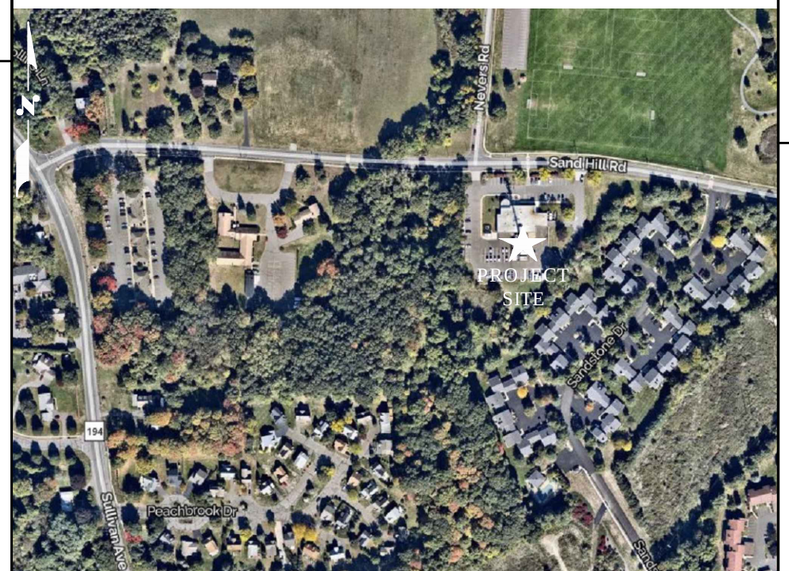
FA CODE: 10035389

PACE ID: MRCTB053539, MRCTB055316, MRCTB054747, MRCTB056457, MRCTB061753

PROJECT: 5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:
HEAD SOUTHEAST TOWARD CAPITAL BLVD, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT LANE TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE WITH I-91 N, MERGE WITH I-91 N, USE THE LEFT LANE TO TAKE EXIT 29 FOR U.S.5 N/CONNECTICUT 15 N/I-84 E TOWARD E HARTFORD/BOSTON, MERGE WITH US-5 N, CONTINUE ONTO CT-15 N, TAKE THE EXIT ON THE LEFT ONTO I-84 E TOWARD BOSTON, TAKE EXIT 62 FOR BUCKLAND STREET, USE THE LEFT 2 LANES TO TURN LEFT ONTO BUCKLAND ST, CONTINUE ONTO CT-194 W, TURN RIGHT ONTO SAND HILL RD, TURN RIGHT ONTO SAND HILL DR, DESTINATION WILL BE ON THE RIGHT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

HUDSON Design Group LLC
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TEL: (978) 557-5553
FAX: (978) 336-5586

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

AT&T

TITLE SHEET
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL01139	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – CENTERLINE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

    FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL01139
SITE NAME: SOUTH WINDSOR SAND HILL RD

151 SAND HILL ROAD
SOUTH WINDSOR, CT 06074
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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A	04/26/22	ISSUED FOR REVIEW	GD	MKT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

AT&T

GENERAL NOTES
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

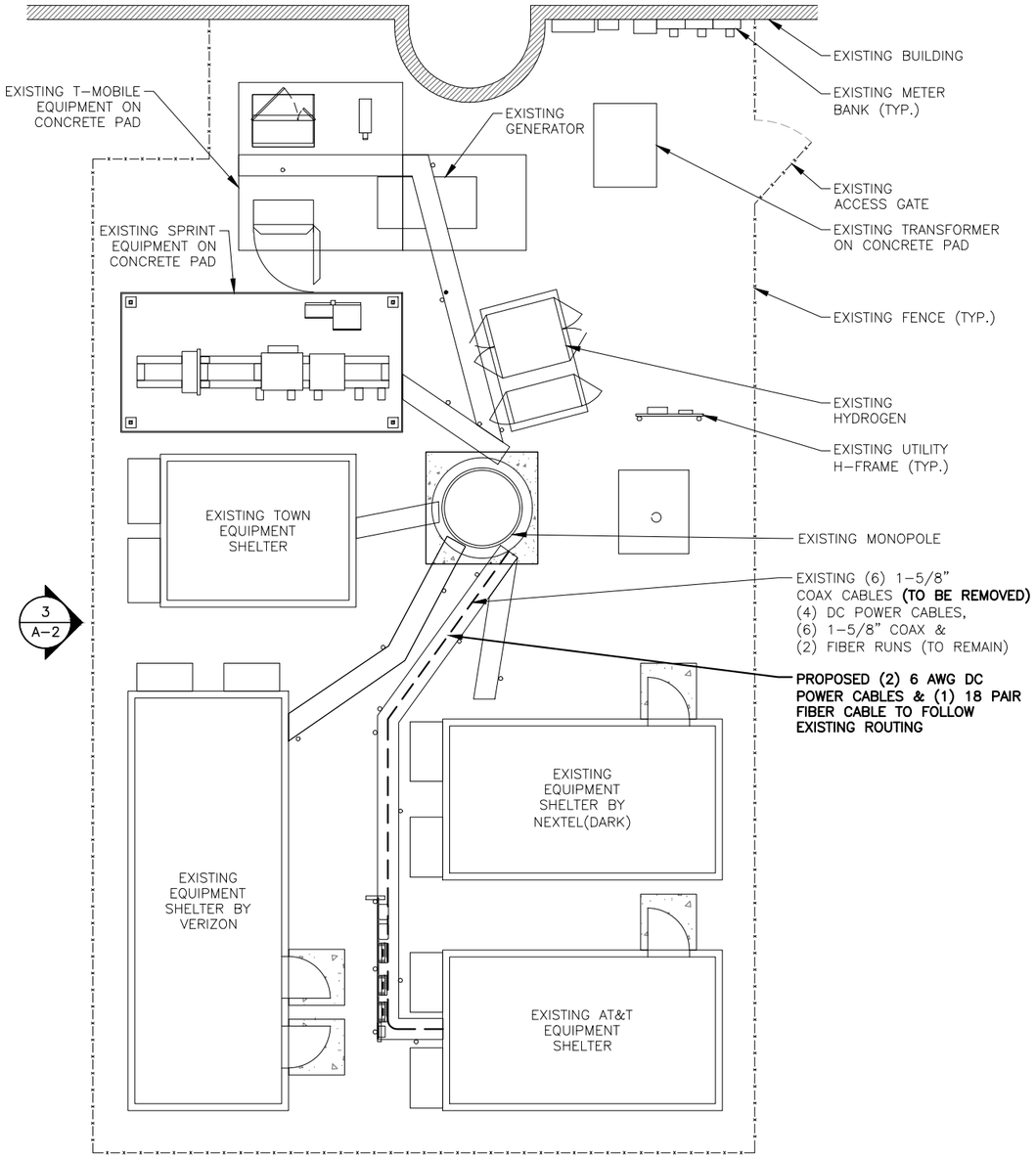
SITE NUMBER	DRAWING NUMBER	REV
CTL01139	GN-1	1

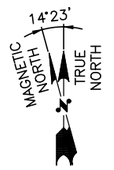
NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

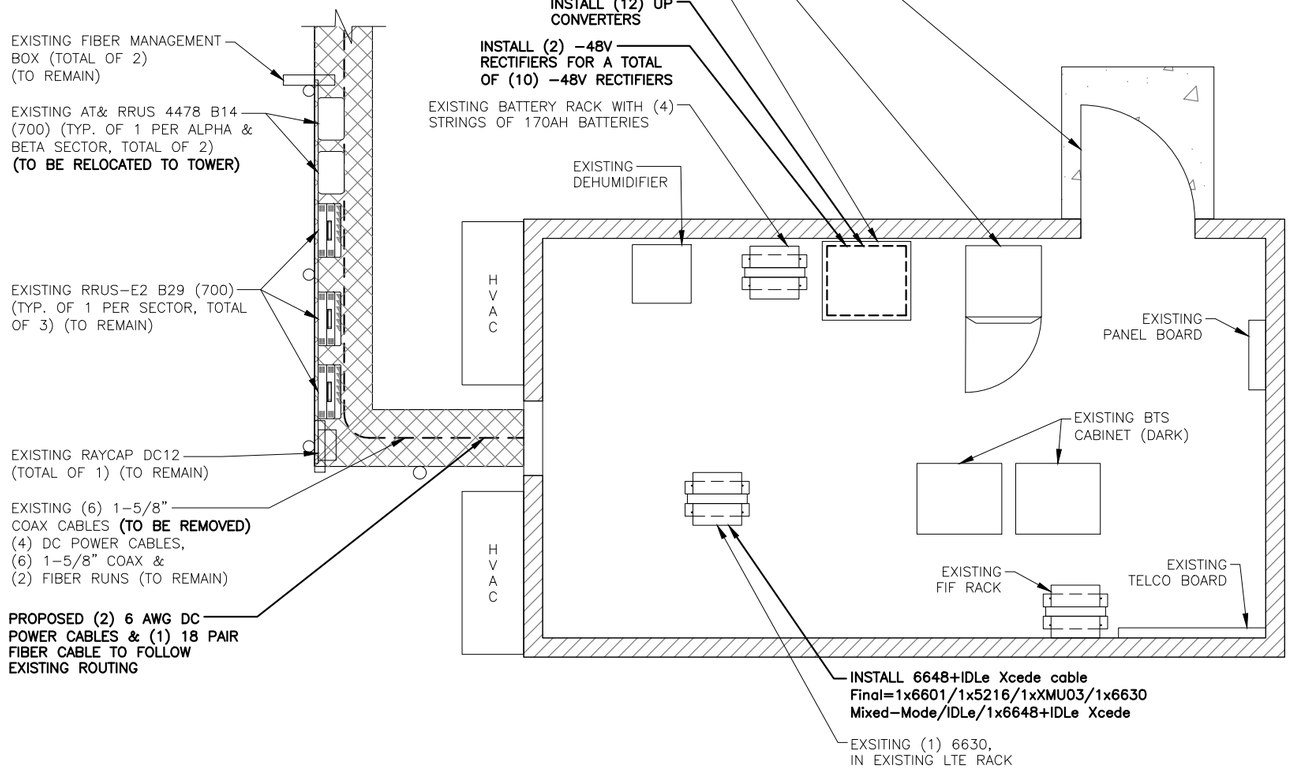
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TOWER ENGINEERING PROFESSIONALS
DATED: **SEPTEMBER 1, 2022**

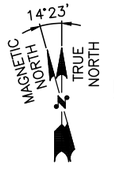




COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"





EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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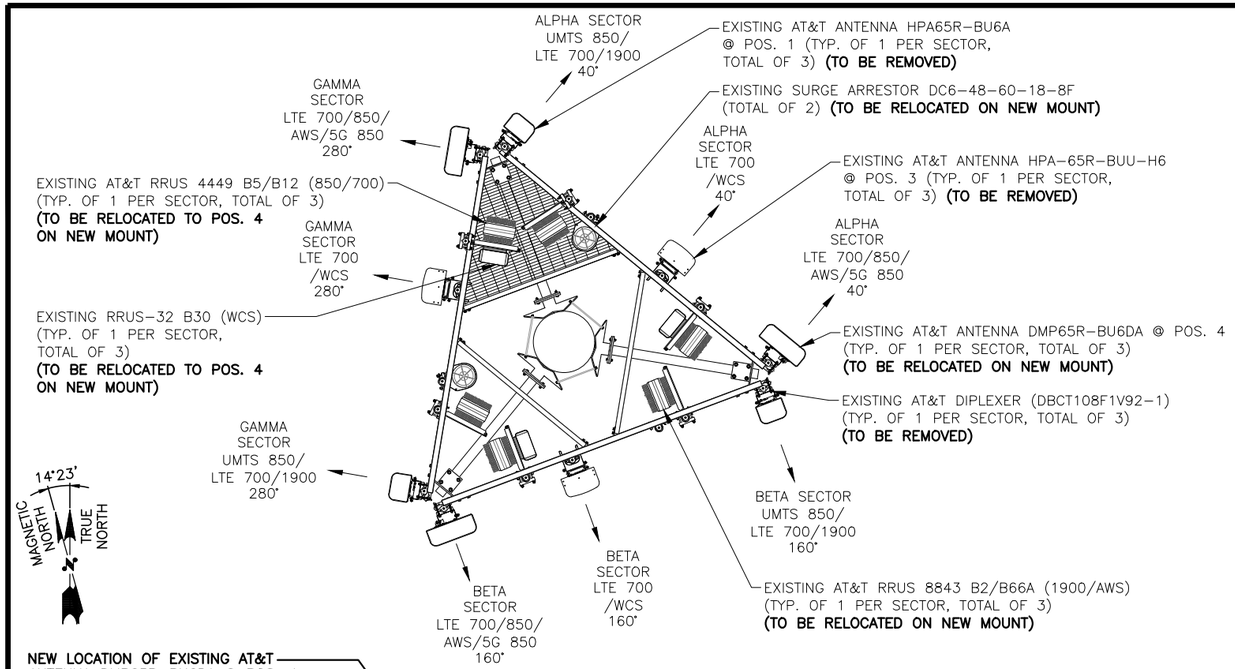
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

AT&T

COMPOUND & EQUIPMENT PLANS
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

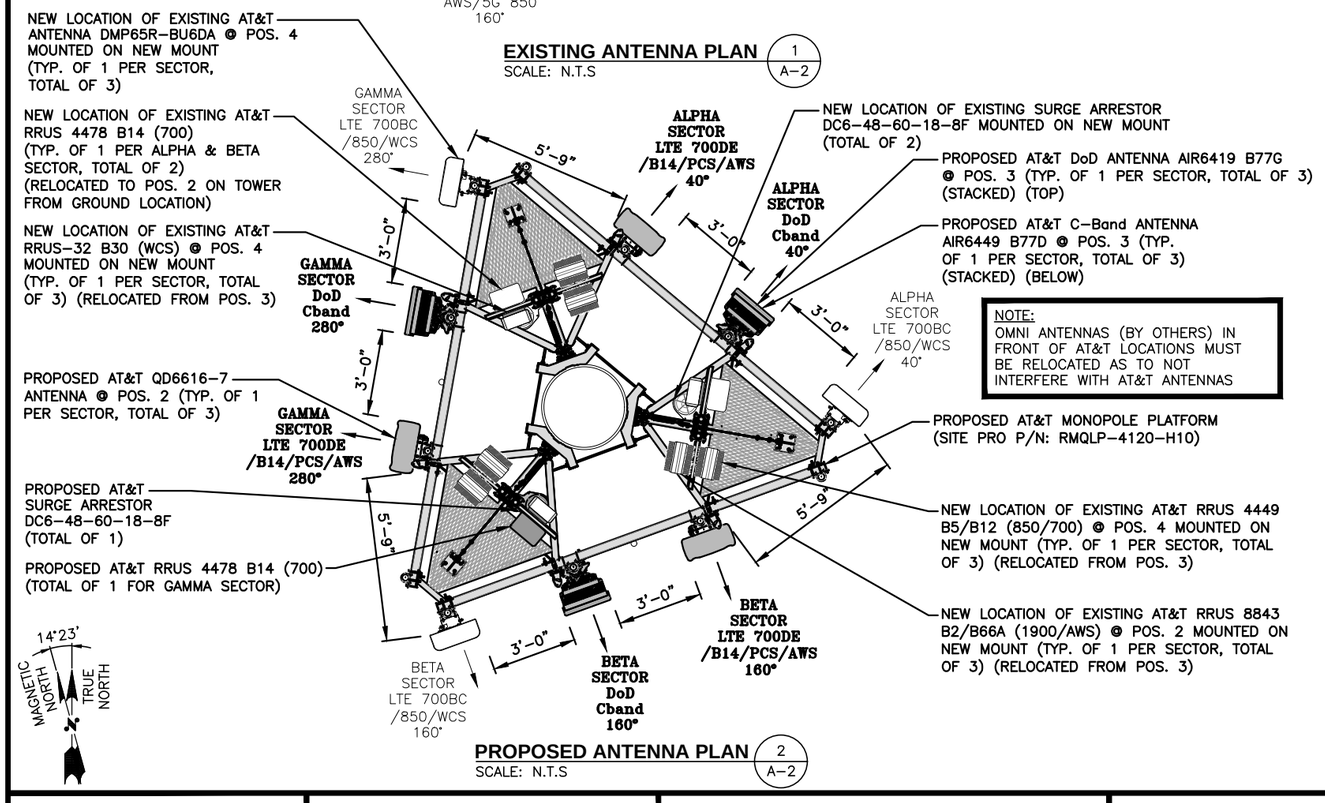
SITE NUMBER	DRAWING NUMBER	REV
CTL01139	A-1	1



EXISTING ANTENNA PLAN

SCALE: N.T.S

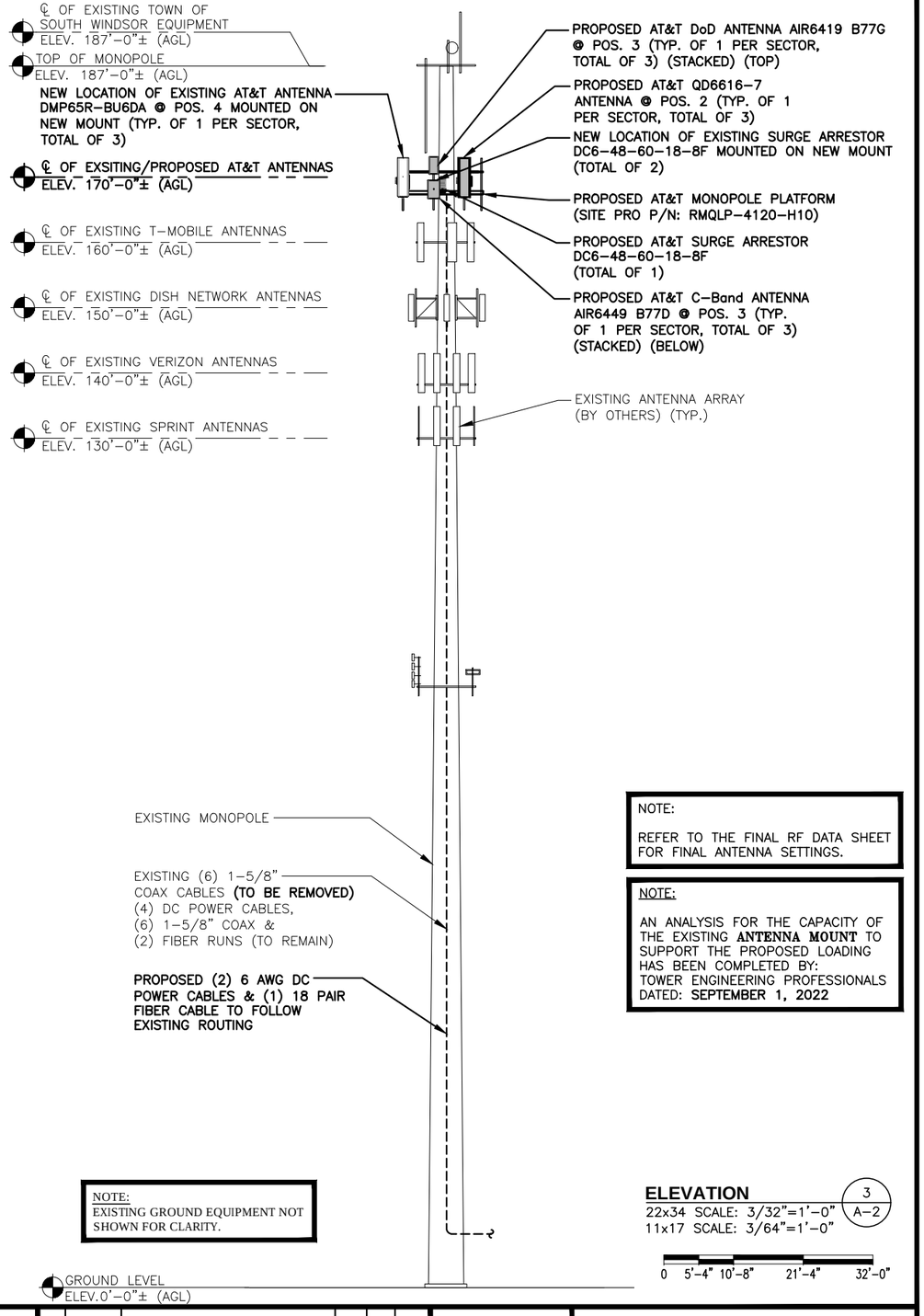
1 / A-2



PROPOSED ANTENNA PLAN

SCALE: N.T.S

2 / A-2



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NOTE: AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TOWER ENGINEERING PROFESSIONALS DATED: **SEPTEMBER 1, 2022**

NOTE: EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

ELEVATION

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

3 / A-2

0 5'-4" 10'-8" 21'-4" 32'-0"

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

AT&T

ANTENNA LAYOUT PLANS & ELEVATION
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL01139	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	(2) 1–5/8" COAX	(E) (1) RAYCAP DC6–48–60–18–8F
A2	**PROPOSED**	**LTE 700DE /B14/PCS/AWS**	**QD6616–7**	**72"X22"X9.6"**	**170'–0"±**	**40°**	–	(E)(1)RRUS–4478 B14 (700) (E)(1)RRUS–8843 B2/B66A (1900/AWS) (E)(1)RRUS–E2 B29 (700)(GROUND)	– – –	(E)(2) DC POWER (1) FIBER (E)(1)(Y–CABLE)	
A3	**PROPOSED**	**DoD C–BAND**	**AIR6419 B77G AIR6449 B77D**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**170'–0"±**	**40°**	–	–	–	–	
A4	EXSITING	LTE 700BC /850/WCS	DMP65R–BU6DA	71.2"X20.7"X7.7"	170'–0"±	40°	–	(E)(1)RRUS–4449 B5/B12 (850/700) (E)(1)RRUS–32 B30 (WCS)	– –	(E)(1)(Y–CABLE)	
B1	–	–	–	–	–	–	–	–	–	(2) 1–5/8" COAX	(E) (1) RAYCAP DC6–48–60–18–8F
B2	**PROPOSED**	**LTE 700DE /B14/PCS/AWS**	**QD6616–7**	**72"X22"X9.6"**	**170'–0"±**	**160°**	–	(E)(1)RRUS–4478 B14 (700) (E)(1)RRUS–8843 B2/B66A (1900/AWS) (E)(1)RRUS–E2 B29 (700)(GROUND)	– – –	(E)(2) DC POWER (1) FIBER (E)(1)(Y–CABLE)	
B3	**PROPOSED**	**DoD C–BAND**	**AIR6419 B77G AIR6449 B77D**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**170'–0"±**	**160°**	–	–	–	–	
B4	EXSITING	LTE 700BC /850/WCS	DMP65R–BU6DA	71.2"X20.7"X7.7"	170'–0"±	160°	–	(E)(1)RRUS–4449 B5/B12 (850/700) (E)(1)RRUS–32 B30 (WCS)	– –	(E)(1)(Y–CABLE)	
C1	–	–	–	–	–	–	–	–	–	(2) 1–5/8" COAX	(P) (1) RAYCAP DC6–48–60–18–8F
C2	**PROPOSED**	**LTE 700DE /B14/PCS/AWS**	**QD6616–7**	**72"X22"X9.6"**	**170'–0"±**	**280°**	–	**(P)(1)RRUS–4478 B14 (700)** (E)(1)RRUS–8843 B2/B66A (1900/AWS) (E)(1)RRUS–E2 B29 (700)(GROUND)	**18.1"x13.4"x8.3"** – –	**(P)(2) 6 AWG DC POWER (P)(1) 18 PAIR FIBER** (E)(1)(Y–CABLE)	
C3	**PROPOSED**	**DoD C–BAND**	**AIR6419 B77G AIR6449 B77D**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**170'–0"±**	**280°**	–	–	–	–	
C4	EXSITING	LTE 700BC /850/WCS	DMP65R–BU6DA	71.2"X20.7"X7.7"	170'–0"±	280°	–	(E)(1)RRUS–4449 B5/B12 (850/700) (E)(1)RRUS–32 B30 (WCS)	– –	(E)(1)(Y–CABLE)	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
P(1)	**4478 B14 (700)**	**18.1"x13.4"x8.3"**
E(2)	4478 B14 (700)	18.1"x13.4"x8.3"
E(3)	RRUS–E2 B29 (700)	20.4"x18.5"x7.5"
E(3)	4449 B5/B12 (700/850)	17.9"x13.2"x10.4"
E(3)	8843 B2/B66A(1900/AWS)	14.9"x13.2"x10.9"
E(3)	RRUS–32 B30 (WCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

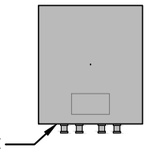
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TOWER ENGINEERING PROFESSIONALS DATED: **SEPTEMBER 1, 2022**

NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

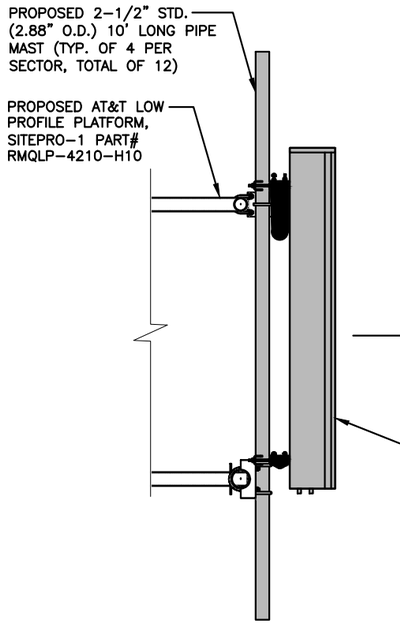
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

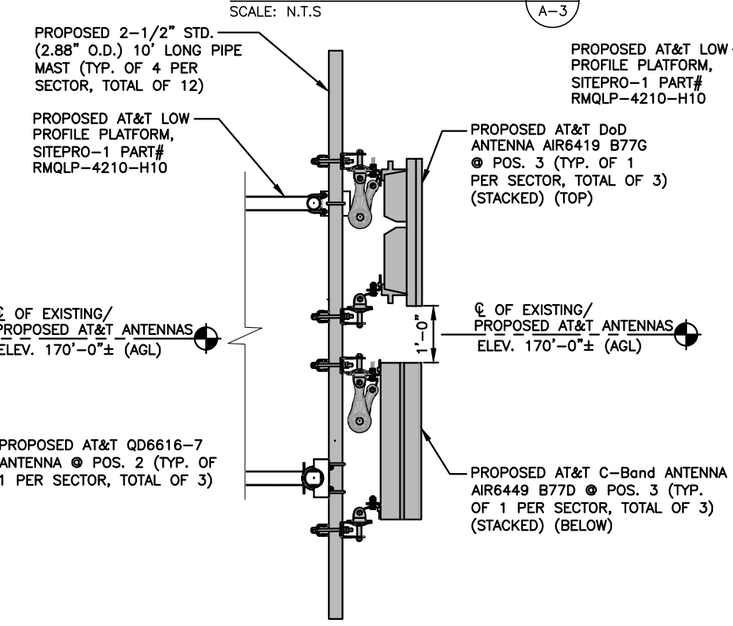
PROPOSED RRUS DETAIL (2 / A–3)

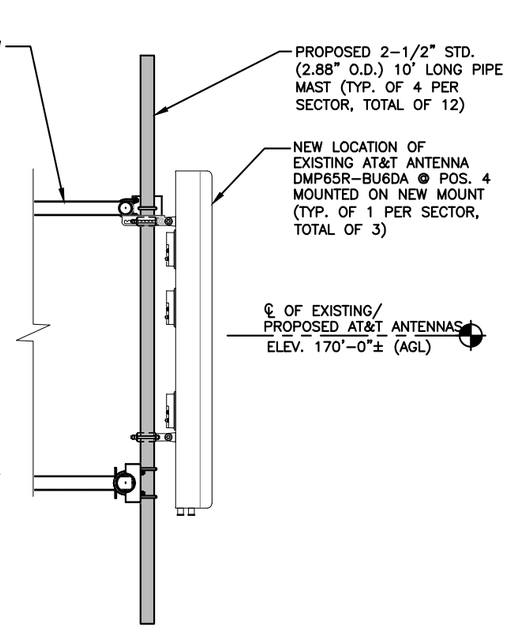
SCALE: N.T.S

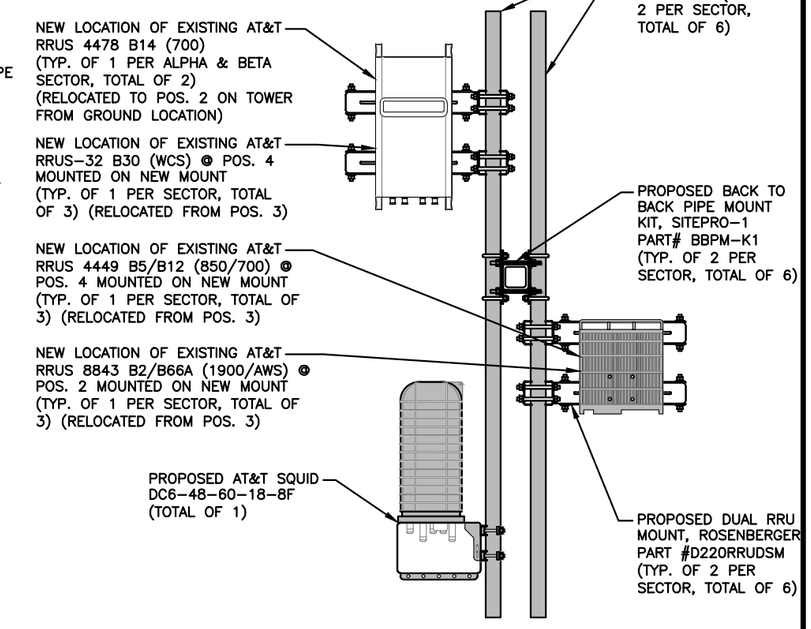
FINAL ANTENNA SCHEDULE (1 / A–3)

SCALE: N.T.S









PROPOSED ANTENNA @ POS. 2 (3 / A–3)

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

PROPOSED ANTENNA @ POS. 3 (4 / A–3)

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

PROPOSED ANTENNA @ POS. 4 (5 / A–3)

22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

PROPOSED RRH & SURGE PROTECTOR MOUNTING DETAIL (6 / A–3)

22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL01139
SITE NAME: SOUTH WINDSOR SAND HILL RD

151 SAND HILL ROAD
SOUTH WINDSOR, CT 06074
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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B	08/15/22	ISSUED FOR PERMITTING	KW	MKT	DPH
A	04/26/22	ISSUED FOR REVIEW	GD	MKT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

AT&T

DETAILS
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL01139	A–3	1

NOTE:

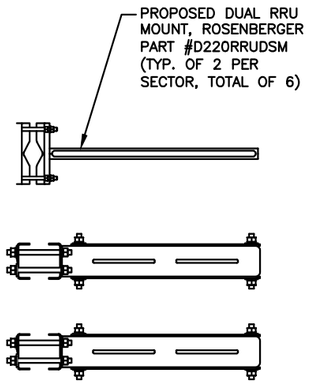
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

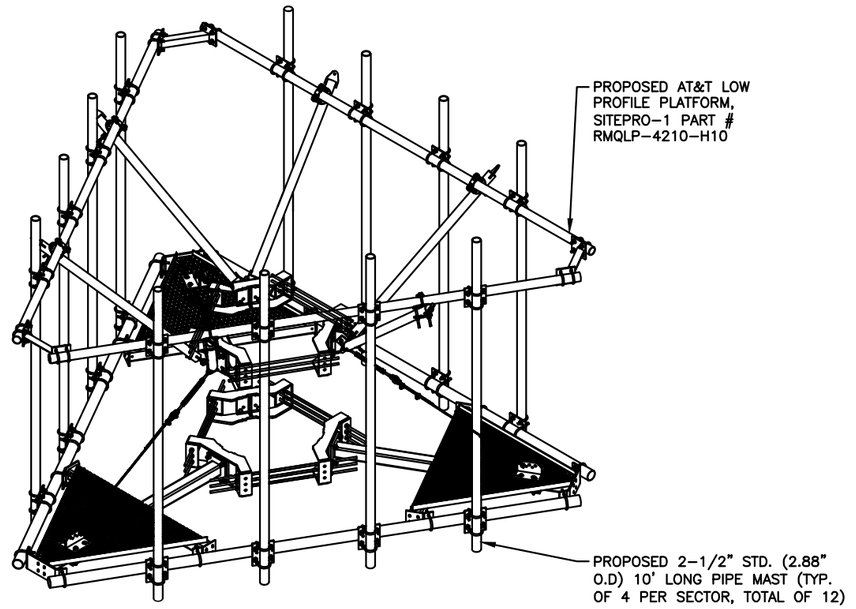
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TOWER ENGINEERING PROFESSIONALS
DATED: **SEPTEMBER 1, 2022**

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (1 / A-4)
SCALE: N.T.S



BACK TO BACK RRU MOUNT DETAIL (2 / A-4)
SCALE: N.T.S



14'-6" LOW PROFILE PLATFORM (RMQLP-4120-H10) (3 / A-4)
SCALE: N.T.S

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

AT&T

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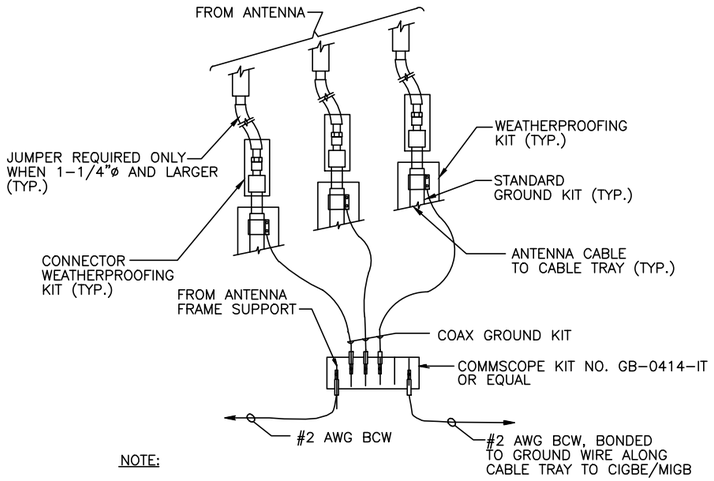
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL01139	A-4	1



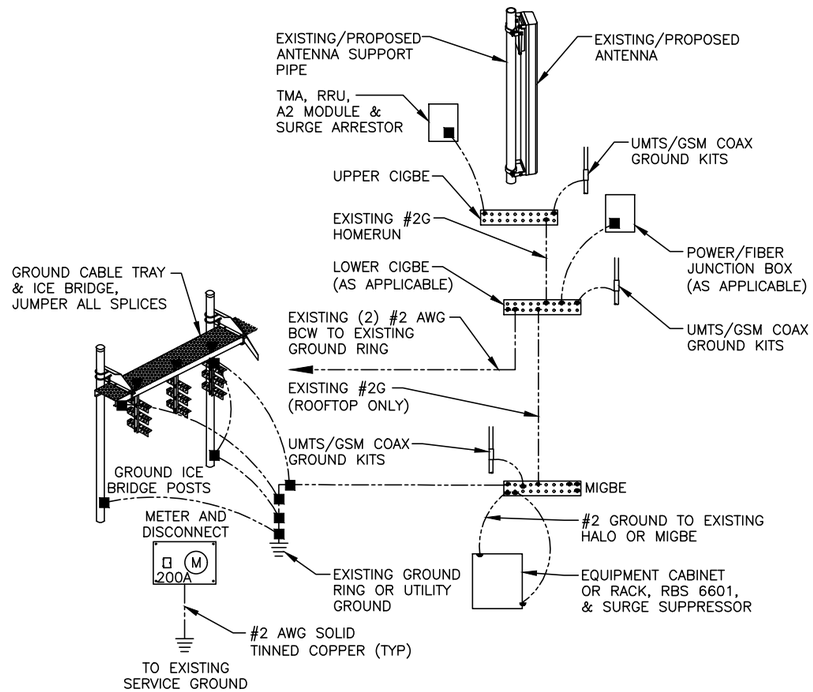
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

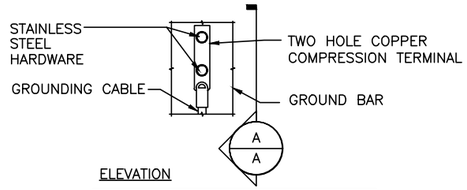
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

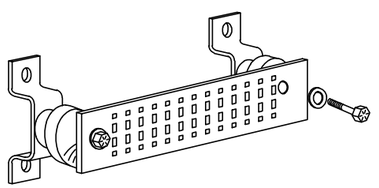
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

4 / G-1

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SITE NUMBER	DRAWING NUMBER	REV
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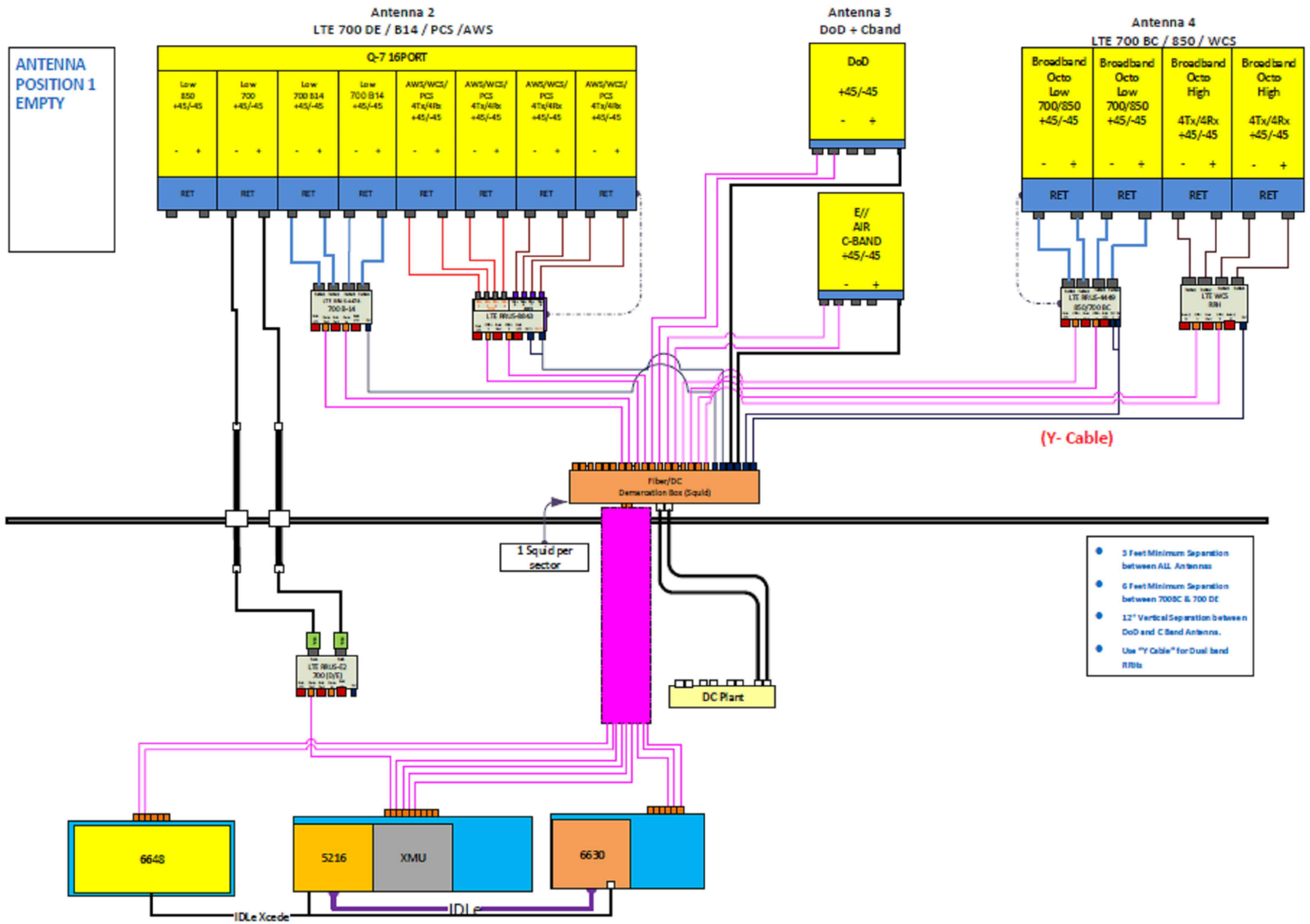

RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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RF PLUMBING DIAGRAM
5G NR RADIO, 5G NR 1SR CBAND, 5G NR SOFTWARE RADIO, 5G NR ACTIVATION, 4T4R, 2022 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
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