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December 20, 2022

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

Re: **EM-VER-054-221013 – Cellco Partnership d/b/a Verizon Wireless – 175 Dickinson Street, Glastonbury, Connecticut**

Dear Attorney Bachman:

Pursuant to Condition No. 1 of the Siting Council's December 12, 2022 approval of the above referenced Notice of Exempt Modification, enclosed is a revised Structural Analysis referencing the recently revised Connecticut State Building Code, effective October 1, 2022. Also, pursuant to Condition No. 2 of the Siting Council's approval, attached is a cumulative far-field radio frequency analysis for the 175 Dickinson Street facility.

Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachments



**Tower Engineering Solutions**

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

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## **Structural Analysis Report**

**Existing 176 ft SUMMIT Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT02216-S**

**Customer Site Name: Glastonbury**

**Carrier Name: Verizon (App#: 202323-1)**

**Carrier Site ID / Name: 468152 / East Glastonbury 2\_CT**

**Site Location: 175 Dickinson Rd**

**Glastonbury, Connecticut**

**Hartford County**

**Latitude: 41.655897**

**Longitude: -72.523255**

### **Analysis Result:**

**Max Structural Usage: 89.5% [Pass]**

**Max Foundation Usage: 72.5% [Pass]**

**Additional Usage Caused by Mount Modification: +2.6%**



**Report Prepared By: Jacob C. Ehrmann**



**Tower Engineering Solutions**

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**Hartford County**  
**Latitude: 41.655897**  
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**Analysis Result:**

**Max Structural Usage: 89.5% [Pass]**  
**Max Foundation Usage: 72.5% [Pass]**  
**Additional Usage Caused by Mount Modification: +2.6%**

**Report Prepared By: Jacob C. Ehrmann**

## Introduction

The purpose of this report is to summarize the analysis results on the 176 ft SUMMIT 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

|                              |   |
|------------------------------|---|
| <b>Tower Drawings</b>        | Paul J. Ford and Company, Job #29200-887 dated June 19, 2000  |
| <b>Foundation Drawing</b>    | Paul J. Ford and Company, Job #29200-887 dated June 19, 2000  |
| <b>Geotechnical Report</b>   | FDH Engineering, Project #1204838EG1 dated August 13, 2012  |
| <b>Modification Drawings</b> | N/A   |
| <b>Mount Analysis</b>        | Maser Consulting Connecticut: 22777014A, Dated 08/24/2022;<br>MMD by Maser Consulting # 22777014A, Dated 08/24/2022 |

## 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.

|   |   |
|---|---|
| <b>Wind Speed Used in the Analysis:</b> | 119.0 mph (3-Sec. Gust) (Ultimate wind speed)               |
| <b>Wind Speed with Ice:</b>             | 50 mph (3-Sec. Gust) with 1 ½" radial ice concurrent        |
| <b>Service Load Wind Speed:</b>         | 60 mph + 0" Radial ice                                      |
| <b>Standard/Codes:</b>                  | TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code |
| <b>Exposure Category:</b>               | C   |
| <b>Risk Category:</b>                   | II  |
| <b>Topographic Category:</b>            | 1   |
| <b>Crest Height:</b>                    | 0 ft  |
| <b>Seismic Parameters:</b>              | $S_S = 0.203$ , $S_1 = 0.056$                               |

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     | 177.0          | 3    | Ericsson AIR6419 B41 Panel         | (1) Low profile platform w/HRK & reinforcement kit<br>Sitepro<br>RMQP-4096-HK  | (9) 1 5/8" Coax<br>(1) 1-5/8" Fiber<br>(2) 1.9" Fiber | T-Mobile         |
| 2     |                | 3    | RFS APXVAALL24_43-U-NA20 Panel     |  |   |                  |
| 3     |                | 6    | Allen Telecom FE15501P77/75 TMA    |  |   |                  |
| 4     |                | 3    | Ericsson KRY 112 144/1 TMA         |  |   |                  |
| 5     |                | 3    | Ericsson KRY 112 489/2 TMA         |  |   |                  |
| 6     |                | 3    | Ericsson 4449 B71 + B85 RRU        |  |   |                  |
| 7     |                | 3    | Ericsson 4460 B25 + B66 RRU        |  |   |                  |
| -     | 167.0          | 3    | RRH2X60-AWS                        | (1) Low Profile Platform   | (6) 1 5/8"<br>(2) 1 5/8"<br>Hybrid                    | Verizon          |
| -     |                | 3    | RRH2X60-700                        |  |   |                  |
| -     |                | 6    | SBNHH-1D65B - Panel                |  |   |                  |
| -     |                | 4    | LPA-80063-4CF-EDIN-5 - Panel       |  |   |                  |
| -     |                | 2    | APL868013 - Panel                  |  |   |                  |
| -     |                | 1    | DB-T16Z-8AB-0Z                     |  |   |                  |
| 17    | 157.0          | 3    | ALU 1900 Mhz                       | (1) Low Profile Platform w/<br>Mount Reinforcement kit:<br>(1) Sitepro PRK-1245L<br>(1) Sitepro HRK14-U<br>(1) Sitepro PRK-SFS-H-L | (4) 1 1/4" Fiber                                      | Sprint<br>Nextel |
| 18    |                | 6    | ALU 800 Mhz                        |  |   |                  |
| 19    |                | 3    | ALU TD-RRH8x20-25                  |  |   |                  |
| 20    |                | 3    | RFS APXVTM14-C-I20 - Panel         |  |   |                  |
| 21    |                | 3    | Commscope NNVV-65B-R4 - Panel      |  |   |                  |
| 22    | 147.0          | 3    | JMA Wireless MX08FRO665-21 - Panel | (1) Platform w/Handrail<br>Commscope<br>MC-PK8-DSH   | (1) 1.6" Hybrid                                       | Dish<br>Wireless |
| 23    |                | 3    | Fujitsu TA08025-B605 RRU           |  |   |                  |
| 24    |                | 3    | Fujitsu TA08025-B604 RRU           |  |   |                  |
| 25    |                | 1    | Raycap RDIDC-9181-PF-48            |  |   |                  |
| 26    | 137.0          | 3    | KMW HPA-65R-BU6AA Panel            | (1) LP<br>Platformw/handrail<br>Handrail SitePro 1:HRK14   | (12) 1 5/8"<br>(2) 1" DC<br>Power<br>(1) 1/2" Fiber   | AT&T             |
| 27    |                | 3    | CCI DMP65R-BU6DA Panel             |  |   |                  |
| 28    |                | 3    | Powerwave 7770 Panel               |  |   |                  |
| 29    |                | 6    | Powerwave LGP21401 TMA             |  |   |                  |
| 30    |                | 3    | Ericsson 4449 B5/B12 RRU           |  |   |                  |
| 31    |                | 3    | Ericsson RRUS 8843 B2 B66A RRU     |  |   |                  |
| 32    |                | 9    | Powerwave LGP21903 Diplexer        |  |   |                  |
| 33    |                | 12   | Powerwave 7020.00 RET              |  |   |                  |
| 34    |                | 1    | Raycap DC6-48-60-18-8F             |  |   |                  |
| 35    |                | 3    | Smart Bias T 1001940               |  |   |                  |

## 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   |
|-------|----------------|------|---|---|--|---------|
| 8     | 167.0          | 3    | Commscope NHH-65B-R2B - Panel             | Modified<br>Low Profile Platform W/ (1)<br>VZSMART-PLK5 (Kicker kit),<br>(1) VZSMART-PLK7 (Collar<br>mount), (3) VZSMART-P40-<br>238X096 (96" LONG, PIPE 2<br>SCH40 (2.375"OD X 0.154"<br>THK), (12) VZSMART-MSK2<br>(Crossover plate) & (3)<br>VZSMART-PLK3 (SUPPORT<br>RAIL CORNER BRACKET) | (2) 1 5/8"<br>Hybrid<br>(6) 1 5/8"<br>HybridFlex | Verizon |
| 9     |                | 3    | Commscope NHHSS-65B-R2BT4 -<br>Panel      |   |  |         |
| 10    |                | 3    | Samsung MT6407-77A - Panel                |   |  |         |
| 11    |                | 2    | Antel LPA 80063-4CF-EDIN-5 - Panel        |   |  |         |
| 12    |                | 1    | RFS APL868013 - Panel                     |   |  |         |
| 13    |                | 3    | Samsung B2/B66A RRH ORAN<br>(RF4439d-25A) |   |  |         |
| 14    |                | 3    | Samsung B5/B13 RRH ORAN<br>(RF4440d-13A)  |   |  |         |
| 15    |                | 3    | Samsung CBRS RRH - RT4401-48A             |   |  |         |
| 16    |                | 2    | Raycap DB-B1-6C-12AB-0Z-OVP               |   |  |         |

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: | <b>82.1%</b> | <b>73.1%</b> | <b>89.5%</b> |
| Pass/Fail   | <b>Pass</b>  | <b>Pass</b>  | <b>Pass</b>  |

## **Foundations**

|                    | Moment (Kip-Ft) | Shear (Kips) | Axial (Kips) |
|--------------------|-----------------|--------------|--------------|
| Analysis Reactions | 5786.8          | 43.0         | 68.1         |

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 1.8776 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.

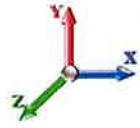


**Usage Diagram - Max Ratio 82.13% at 49.0ft**

|                                 |                            |   |
|---------------------------------|----------------------------|---|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> EIA/TIA-222-H | <b>12/15/2022</b>   |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C         |  |
| <b>Height:</b> 176.00 (ft)      | <b>Gh:</b> 1.1             |   |
| <b>Base Elev:</b> 0.000 (ft)    |                            |   |
|                                 |                            | <b>Page: 1</b>  |

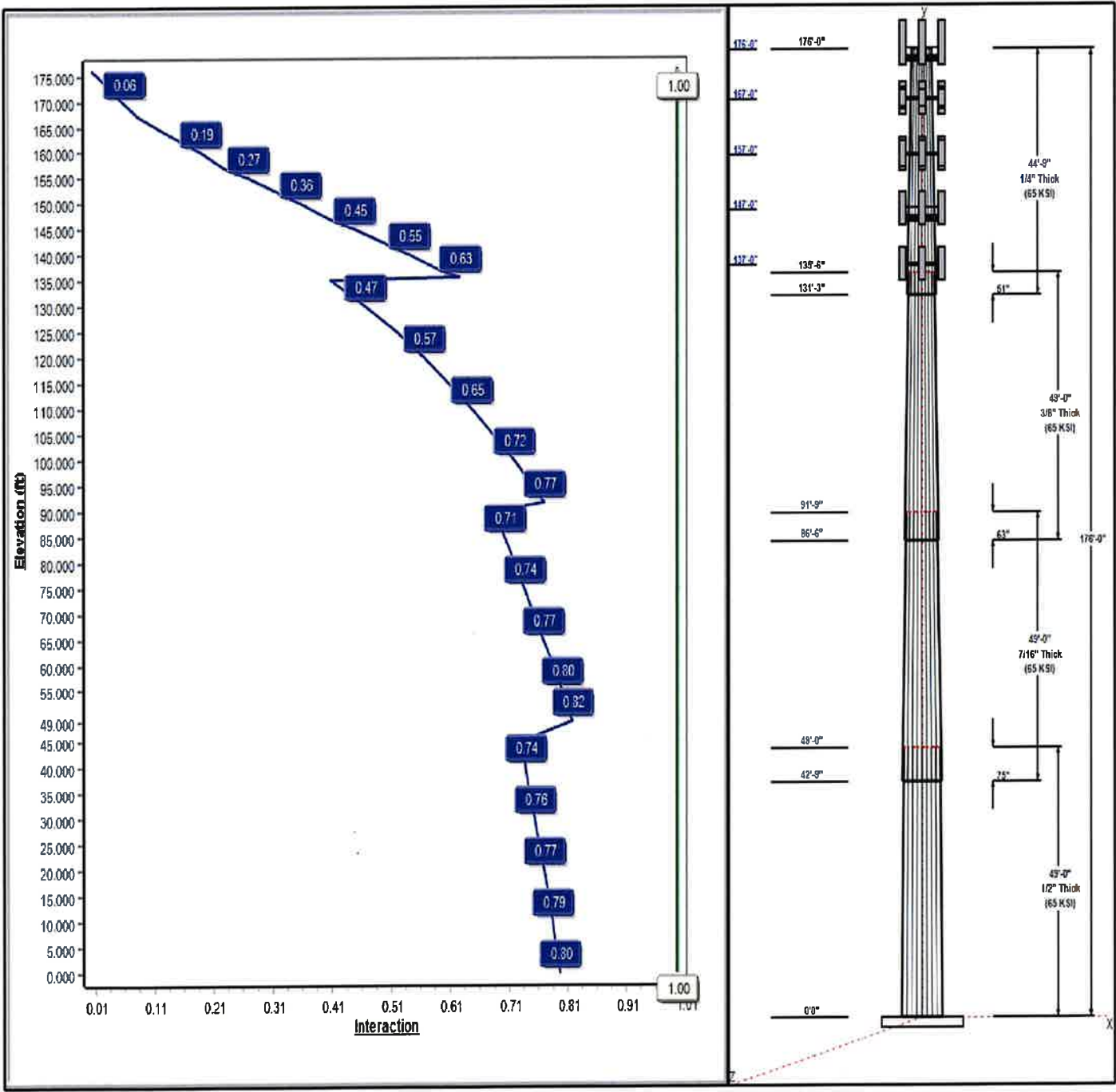
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.00

**Load Case : 1.2D + 1.0W 119 mph Wind**



**Iterations:** 26

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**Structure: CT02216-S-SBA**

**Type:** Tapered  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.19702

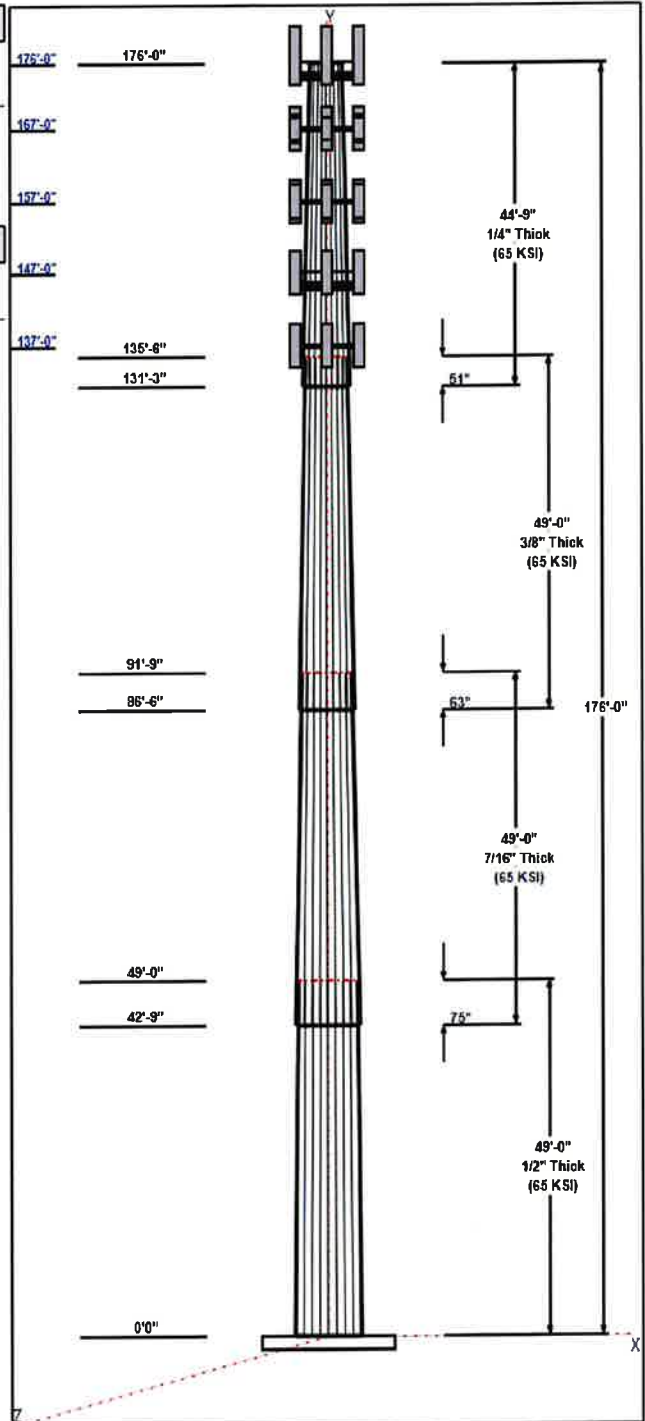
12/15/2022

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| Shaft Properties |             |          |             |            |            |         |             |
|------------------|-------------|----------|-------------|------------|------------|---------|-------------|
| Seq              | Length (ft) | Top (in) | Bottom (in) | Thick (in) | Joint Type | Taper   | Grade (ksi) |
| 1                | 49.00       | 46.90    | 56.55       | 0.500      |            | 0.19702 | 65          |
| 2                | 49.00       | 39.35    | 49.00       | 0.438      | Slip       | 0.19702 | 65          |
| 3                | 49.00       | 31.48    | 41.13       | 0.375      | Slip       | 0.19702 | 65          |
| 4                | 44.75       | 24.00    | 32.82       | 0.250      | Slip       | 0.19702 | 65          |

| Discrete Appurtenances |                 |     |                       |               |
|------------------------|-----------------|-----|-----------------------|---------------|
| Attach Elev (ft)       | Force Elev (ft) | Qty | Description           | Carrier       |
| 176.00                 | 177.00          | 6   | MHA FE15501P77/75     | T-Mobile      |
| 176.00                 | 177.00          | 1   | RMQP-496-HK           | T-Mobile      |
| 176.00                 | 177.00          | 3   | KRY 112 489/2         | T-Mobile      |
| 176.00                 | 177.00          | 3   | KRY 112 89/4          | T-Mobile      |
| 176.00                 | 177.00          | 3   | AIR 6419 B41          | T-Mobile      |
| 176.00                 | 177.00          | 3   | APXVAALL24_43-U-NA20  | T-Mobile      |
| 176.00                 | 177.00          | 3   | 4449 B71 + B85        | T-Mobile      |
| 176.00                 | 177.00          | 3   | 4460 B25 + B66        | T-Mobile      |
| 176.00                 | 179.50          | 1   | Lightning Rod         |               |
| 167.00                 | 167.00          | 3   | Commscope             | Verizon       |
| 167.00                 | 167.00          | 3   | Commscope             | Verizon       |
| 167.00                 | 167.00          | 3   | Samsung MT6407-77A    | Verizon       |
| 167.00                 | 167.00          | 3   | B2/B66A RRH ORAN      | Verizon       |
| 167.00                 | 167.00          | 3   | B5/B13 RRH ORAN       | Verizon       |
| 167.00                 | 167.00          | 3   | CBRS RRH - RT4401-48A | Verizon       |
| 167.00                 | 167.00          | 2   | Raycap                | Verizon       |
| 167.00                 | 167.00          | 1   | KICKER KIT            | Verizon       |
| 167.00                 | 167.00          | 1   | MONOPOLE COLLAR       | Verizon       |
| 167.00                 | 167.00          | 1   | SUPPORT RAIL CORNER   | Verizon       |
| 167.00                 | 167.00          | 2   | LPA-80063-4CF-EDIN-5  | Verizon       |
| 167.00                 | 167.00          | 1   | APL868013             | Verizon       |
| 167.00                 | 167.00          | 1   | Low Profile           | Verizon       |
| 157.00                 | 157.00          | 1   | Low Profile Platform  | Sprint Nextel |
| 157.00                 | 157.00          | 3   | RFS APXVTM14-C-I20    | Sprint Nextel |
| 157.00                 | 157.00          | 3   | Commscope             | Sprint Nextel |
| 157.00                 | 157.00          | 1   | Sitepro PRK-1245L     | Sprint Nextel |
| 157.00                 | 157.00          | 1   | Sitepro HRK14-U       | Sprint Nextel |
| 157.00                 | 157.00          | 1   | Sitepro PRK-SFS-H-L   | Sprint Nextel |
| 157.00                 | 157.00          | 3   | ALU 1900 Mhz          | Sprint Nextel |
| 157.00                 | 157.00          | 6   | ALU 800 Mhz           | Sprint Nextel |
| 157.00                 | 157.00          | 3   | ALU TD-RRH8x20-25     | Sprint Nextel |
| 147.00                 | 147.00          | 3   | MX08FRO665-21         | Dish Wireless |
| 147.00                 | 147.00          | 1   | MC-PK8-DSH            | Dish Wireless |
| 147.00                 | 147.00          | 3   | TA08025-B605          | Dish Wireless |
| 147.00                 | 147.00          | 3   | TA08025-B604          | Dish Wireless |
| 147.00                 | 147.00          | 1   | RDIDC-9181-PF-48      | Dish Wireless |
| 137.00                 | 137.00          | 1   | DC6-48-60-18-8F       | AT&T          |
| 137.00                 | 137.00          | 3   | 7770.00               | AT&T          |
| 137.00                 | 137.00          | 6   | LGP21401              | AT&T          |
| 137.00                 | 137.00          | 6   | LGP21903              | AT&T          |
| 137.00                 | 137.00          | 1   | LP Platform-Round     | AT&T          |
| 137.00                 | 137.00          | 3   | HPA-65R-BUU-H6        | AT&T          |
| 137.00                 | 137.00          | 12  | 7020                  | AT&T          |
| 137.00                 | 137.00          | 3   | Smart Bias T 1001940  | AT&T          |
| 137.00                 | 137.00          | 1   | HRK14                 | AT&T          |



**Structure: CT02216-S-SBA**

**Type:** Tapered  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.19702

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|        |        |   |              |      |
|--------|--------|---|--------------|------|
| 137.00 | 137.00 | 3 | DMP65R-BU6DA | AT&T |
| 137.00 | 137.00 | 3 | 4449 B5/B12  | AT&T |
| 137.00 | 137.00 | 3 | B2 B66A 8843 | AT&T |

**Linear Appurtenances**

| Elev From (ft) | Elev To (ft) | Placement | Description         | Carrier       |
|----------------|--------------|-----------|---------------------|---------------|
| 0.00           | 177.00       | Inside    | 1 5/8" Coax         | T-Mobile      |
| 0.00           | 177.00       | Inside    | 1 5/8" Fiber        | T-Mobile      |
| 0.00           | 177.00       | Inside    | 1.9" Fiber          | T-Mobile      |
| 0.00           | 176.00       | Outside   | Safety Cable        |               |
| 0.00           | 176.00       | Outside   | Step bolts (ladder) |               |
| 0.00           | 167.00       | Inside    | 1 5/8" Hybrid       | Verizon       |
| 0.00           | 167.00       | Inside    | 1 5/8" HybridFlex   | Verizon       |
| 0.00           | 157.00       | Inside    | 1 1/4" Fiber        | Sprint Nextel |
| 0.00           | 147.00       | Inside    | 1.6" Hybrid         | Dish Wireless |
| 0.00           | 137.00       | Inside    | 1 5/8" Coax         | AT&T          |
| 0.00           | 137.00       | Inside    | 1" DC               | AT&T          |
| 0.00           | 137.00       | Inside    | 1/2" Fiber          | AT&T          |

**Anchor Bolts**

| Qty | Specifications | Grade (ksi) | Arrangement |
|-----|----------------|-------------|-------------|
| 24  | 2.25" 18J      | 75.0        | Cluster     |

**Base Plate**

| Thickness (in) | Specifications (in) | Grade (ksi) | Geometry |
|----------------|---------------------|-------------|----------|
| 3.0000         | 66.0                | 50.0        | Clipped  |

**Reactions**

| Load Case                        | Moment (FT-Kips) | Shear (Kips) | Axial (Kips) |
|----------------------------------|------------------|--------------|--------------|
| 1.2D + 1.0W 119 mph Wind         | 5786.8           | 43.0         | 68.1         |
| 0.9D + 1.0W 119 mph Wind         | 5686.6           | 43.0         | 51.1         |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 1741.2           | 12.5         | 103.5        |
| 1.2D + 1.0Ev + 1.0Eh             | 130.6            | 0.8          | 70.7         |
| 0.9D + 1.0Ev + 1.0Eh             | 128.7            | 0.8          | 53.6         |
| 1.0D + 1.0W 60 mph Wind          | 1304.8           | 9.8          | 56.8         |

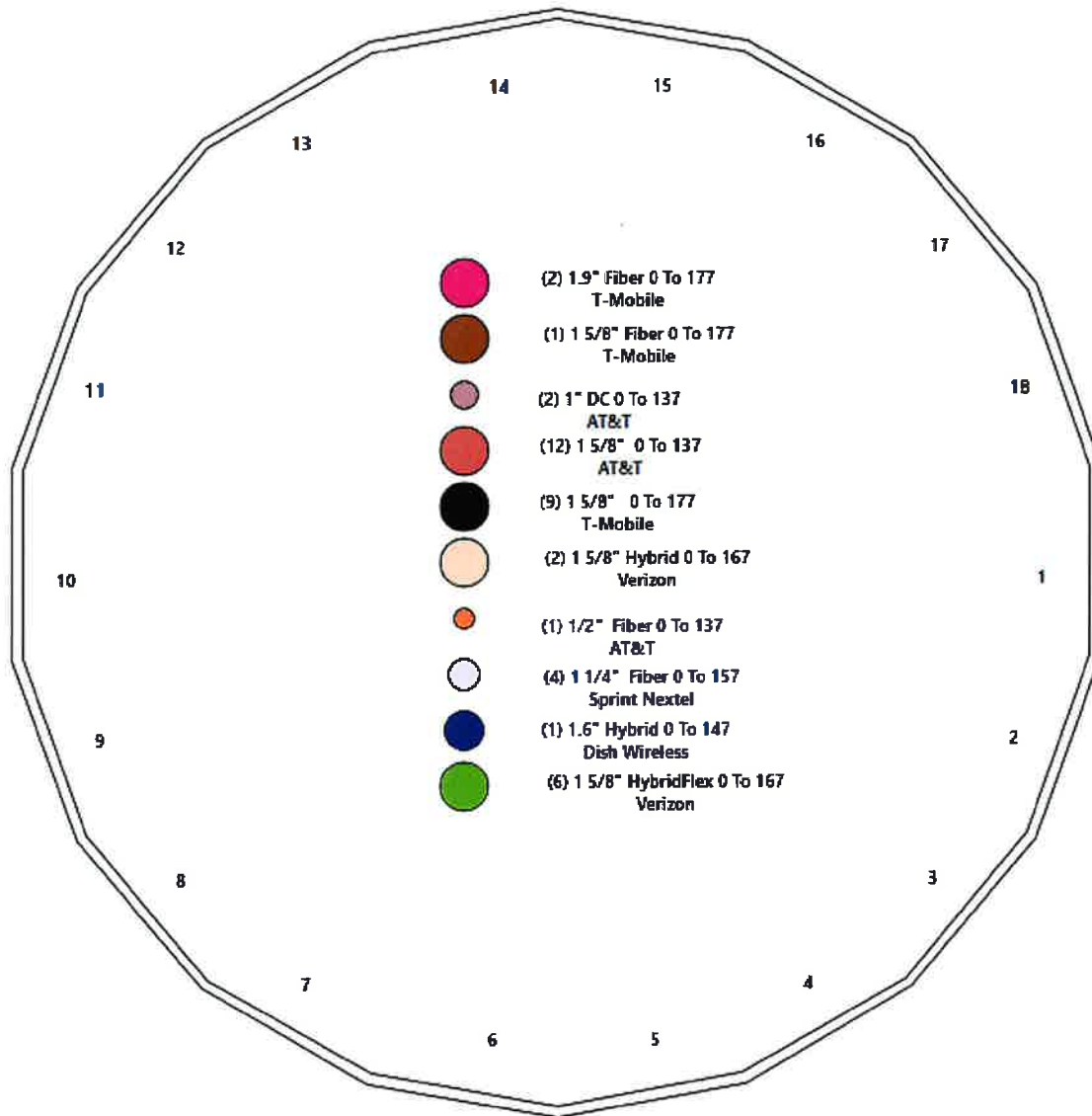
Structure: CT02216-S-SBA - Coax Line Placement

Type: Monopole  
Site Name: Glastonbury  
Height: 176.00 (ft)

12/15/2022



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## Shaft Properties

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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| Sec. No.                   | Shape | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Overlap (in) | Weight (lb)   |
|----------------------------|-------|-------------|------------|----------|------------|--------------|---------------|
| 1                          | 18    | 49.000      | 0.5000     | 65       |            | 0.00         | 13,554        |
| 2                          | 18    | 49.000      | 0.4375     | 65       | Slip       | 75.00        | 10,126        |
| 3                          | 18    | 49.000      | 0.3750     | 65       | Slip       | 63.00        | 7,131         |
| 4                          | 18    | 44.750      | 0.2500     | 65       | Slip       | 51.00        | 3,402         |
| <b>Total Shaft Weight:</b> |       |             |            |          |            |              | <b>34,213</b> |

### 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        | 56.55    | 0.00      | 88.95       | 35305.41  | 18.53     | 113.10    | 46.90    | 49.00     | 73.63       | 20024.4   | 15.13     | 93.79     | 0.197017 |
| 2        | 49.00    | 42.75     | 67.44       | 20095.24  | 18.34     | 112.01    | 39.35    | 91.75     | 54.03       | 10335.8   | 14.45     | 89.94     | 0.197017 |
| 3        | 41.13    | 86.50     | 48.51       | 10181.58  | 17.93     | 109.69    | 31.48    | 135.50    | 37.02       | 4525.14   | 13.39     | 83.94     | 0.197017 |
| 4        | 32.82    | 131.2     | 25.84       | 3462.57   | 21.74     | 131.27    | 24.00    | 176.00    | 18.84       | 1343.00   | 15.52     | 96.00     | 0.197017 |

## Load Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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### Discrete Appurtenances

| No.            | Elev (ft) | Description                 | Qty        | No Ice           |           |             | Ice              |           |             | Hor. Ecc. (ft) | Vert Ecc (ft) |
|----------------|-----------|-----------------------------|------------|------------------|-----------|-------------|------------------|-----------|-------------|----------------|---------------|
|                |           |                             |            | Weight (lb)      | CaAa (sf) | CaAa Factor | Weight (lb)      | CaAa (sf) | CaAa Factor |                |               |
| 1              | 176.00    | MHA FE15501P77/75           | 6          | 11.00            | 0.93      | 0.65        | 30.58            | 1.647     | 0.65        | 0.00           | 1.00          |
| 2              | 176.00    | RMQP-496-HK                 | 1          | 2449.00          | 46.00     | 1.00        | 5054.74          | 78.629    | 1.00        | 0.00           | 1.00          |
| 3              | 176.00    | KRY 112 489/2               | 3          | 15.40            | 0.65      | 0.67        | 33.30            | 1.272     | 0.67        | 0.00           | 1.00          |
| 4              | 176.00    | KRY 112 89/4                | 3          | 15.40            | 0.65      | 0.67        | 33.30            | 1.272     | 0.67        | 0.00           | 1.00          |
| 5              | 176.00    | AIR 6419 B41                | 3          | 133.20           | 6.53      | 0.70        | 300.45           | 7.618     | 0.70        | 0.00           | 1.00          |
| 6              | 176.00    | APXVAALL24_43-U-NA20        | 3          | 122.80           | 20.24     | 0.73        | 558.27           | 22.172    | 0.73        | 0.00           | 1.00          |
| 7              | 176.00    | 4449 B71 + B85              | 3          | 73.20            | 1.97      | 0.67        | 131.87           | 2.549     | 0.67        | 0.00           | 1.00          |
| 8              | 176.00    | 4460 B25 + B66              | 3          | 72.00            | 1.64      | 0.67        | 119.60           | 2.145     | 0.67        | 0.00           | 1.00          |
| 9              | 176.00    | Lightning Rod               | 1          | 35.00            | 1.05      | 1.00        | 66.92            | 3.462     | 1.00        | 0.00           | 3.50          |
| 10             | 167.00    | Commscope NHH-65B-R2B       | 3          | 43.70            | 8.08      | 0.83        | 247.90           | 9.387     | 0.83        | 0.00           | 0.00          |
| 11             | 167.00    | Commscope NHHSS-65B-R2BT4   | 3          | 50.70            | 8.19      | 0.85        | 256.97           | 9.504     | 0.85        | 0.00           | 0.00          |
| 12             | 167.00    | Samsung MT6407-77A          | 3          | 79.40            | 4.69      | 0.70        | 200.51           | 5.648     | 0.70        | 0.00           | 0.00          |
| 13             | 167.00    | B2/B66A RRH ORAN            | 3          | 84.40            | 1.87      | 0.67        | 161.99           | 2.450     | 0.67        | 0.00           | 0.00          |
| 14             | 167.00    | B5/B13 RRH ORAN             | 3          | 70.30            | 1.87      | 0.67        | 140.60           | 2.450     | 0.67        | 0.00           | 0.00          |
| 15             | 167.00    | CBRS RRH - RT4401-48A       | 3          | 18.60            | 0.99      | 0.67        | 46.59            | 1.416     | 0.67        | 0.00           | 0.00          |
| 16             | 167.00    | Raycap DB-B1-6C-12AB-0Z-OVP | 2          | 32.00            | 3.78      | 0.90        | 159.97           | 4.606     | 0.90        | 0.00           | 0.00          |
| 17             | 167.00    | KICKER KIT                  | 1          | 146.00           | 5.33      | 1.00        | 352.04           | 10.971    | 1.00        | 0.00           | 0.00          |
| 18             | 167.00    | MONOPOLE COLLAR MOUNT       | 1          | 150.60           | 2.50      | 1.00        | 363.13           | 5.146     | 1.00        | 0.00           | 0.00          |
| 19             | 167.00    | SUPPORT RAIL CORNER         | 1          | 430.00           | 8.75      | 1.00        | 945.81           | 17.394    | 1.00        | 0.00           | 0.00          |
| 20             | 167.00    | LPA-80063-4CF-EDIN-5        | 2          | 20.00            | 6.15      | 0.93        | 204.91           | 8.064     | 0.93        | 0.00           | 0.00          |
| 21             | 167.00    | APL868013                   | 1          | 6.30             | 2.86      | 1.00        | 115.06           | 3.736     | 1.00        | 0.00           | 0.00          |
| 22             | 167.00    | Low Profile Platform-Round  | 1          | 1500.00          | 22.00     | 1.00        | 2823.04          | 39.852    | 1.00        | 0.00           | 0.00          |
| 23             | 157.00    | Low Profile Platform        | 1          | 1500.00          | 22.00     | 1.00        | 2814.90          | 39.742    | 1.00        | 0.00           | 0.00          |
| 24             | 157.00    | RFS APXVTM14-C-I20          | 3          | 56.20            | 6.34      | 0.77        | 217.49           | 7.459     | 0.77        | 0.00           | 0.00          |
| 25             | 157.00    | Commscope NNVV-65B-R4       | 3          | 77.40            | 12.27     | 0.75        | 364.26           | 13.733    | 0.75        | 0.00           | 0.00          |
| 26             | 157.00    | Sitepro PRK-1245L           | 1          | 464.91           | 9.50      | 1.00        | 790.94           | 19.493    | 1.00        | 0.00           | 0.00          |
| 27             | 157.00    | Sitepro HRK14-U             | 1          | 302.36           | 8.13      | 1.00        | 662.83           | 16.112    | 1.00        | 0.00           | 0.00          |
| 28             | 157.00    | Sitepro PRK-SFS-H-L         | 1          | 230.00           | 6.70      | 1.00        | 552.59           | 13.748    | 1.00        | 0.00           | 0.00          |
| 29             | 157.00    | ALU 1900 Mhz                | 3          | 60.00            | 2.77      | 0.67        | 143.82           | 4.044     | 0.67        | 0.00           | 0.00          |
| 30             | 157.00    | ALU 800 Mhz                 | 6          | 53.00            | 2.49      | 0.67        | 127.30           | 3.639     | 0.67        | 0.00           | 0.00          |
| 31             | 157.00    | ALU TD-RRH8x20-25           | 3          | 70.00            | 4.05      | 0.67        | 181.07           | 4.867     | 0.67        | 0.00           | 0.00          |
| 32             | 147.00    | MX08FRO665-21               | 3          | 64.50            | 12.49     | 0.74        | 354.78           | 13.952    | 0.74        | 0.00           | 0.00          |
| 33             | 147.00    | MC-PK8-DSH                  | 1          | 1727.00          | 37.59     | 1.00        | 3411.43          | 84.729    | 1.00        | 0.00           | 0.00          |
| 34             | 147.00    | TA08025-B605                | 3          | 75.00            | 1.96      | 0.67        | 127.20           | 2.520     | 0.67        | 0.00           | 0.00          |
| 35             | 147.00    | TA08025-B604                | 3          | 63.90            | 1.96      | 0.67        | 114.43           | 2.520     | 0.67        | 0.00           | 0.00          |
| 36             | 147.00    | RDIDC-9181-PF-48            | 1          | 21.90            | 2.01      | 1.00        | 75.04            | 2.577     | 1.00        | 0.00           | 0.00          |
| 37             | 137.00    | DC6-48-60-18-8F             | 1          | 32.80            | 1.47      | 1.00        | 95.99            | 2.163     | 1.00        | 0.00           | 0.00          |
| 38             | 137.00    | 7770.00                     | 3          | 35.00            | 5.50      | 0.73        | 168.68           | 6.555     | 0.73        | 0.00           | 0.00          |
| 39             | 137.00    | LGP21401                    | 6          | 19.00            | 1.29      | 0.67        | 52.39            | 2.118     | 0.67        | 0.00           | 0.00          |
| 40             | 137.00    | LGP21903                    | 6          | 5.00             | 0.27      | 0.67        | 12.59            | 0.664     | 0.67        | 3.00           | 0.00          |
| 41             | 137.00    | LP Platform-Round           | 1          | 1500.00          | 22.00     | 1.00        | 2797.10          | 39.502    | 1.00        | 0.00           | 0.00          |
| 42             | 137.00    | HPA-65R-BUU-H6              | 3          | 51.00            | 9.66      | 0.85        | 296.50           | 11.013    | 0.85        | 0.00           | 0.00          |
| 43             | 137.00    | 7020                        | 12         | 2.20             | 0.40      | 0.67        | 12.34            | 0.880     | 0.67        | 0.00           | 0.00          |
| 44             | 137.00    | Smart Bias T 1001940        | 3          | 2.00             | 0.09      | 0.67        | 3.98             | 0.322     | 0.67        | 5.70           | 0.00          |
| 45             | 137.00    | HRK14                       | 1          | 302.36           | 8.13      | 1.00        | 657.95           | 16.004    | 1.00        | 0.00           | 0.00          |
| 46             | 137.00    | DMP65R-BU6DA                | 3          | 79.40            | 12.71     | 0.72        | 371.29           | 14.161    | 0.72        | 0.00           | 0.00          |
| 47             | 137.00    | 4449 B5/B12                 | 3          | 71.00            | 1.97      | 0.67        | 123.90           | 2.512     | 0.67        | 0.00           | 0.00          |
| 48             | 137.00    | B2 B66A 8843                | 3          | 70.00            | 1.64      | 0.67        | 115.57           | 2.152     | 0.67        | 0.00           | 0.00          |
| <b>Totals:</b> |           |                             | <b>131</b> | <b>16,120.13</b> |           |             | <b>38,237.43</b> |           |             |                |               |

## Discrete Appurtenances

| No. | Elev<br>(ft) | Description | Qty | No Ice         |              |                | Ice            |              |                | Hor.<br>Ecc.<br>(ft) | Vert<br>Ecc<br>(ft) |
|-----|--------------|-------------|-----|----------------|--------------|----------------|----------------|--------------|----------------|----------------------|---------------------|
|     |              |             |     | Weight<br>(lb) | CaAa<br>(sf) | CaAa<br>Factor | Weight<br>(lb) | CaAa<br>(sf) | CaAa<br>Factor |                      |                     |

## Linear Appurtenances

| Bottom<br>Elev.<br>(ft) | Top<br>Elev.<br>(ft) | Description             | Exposed<br>Width | Exposed |
|-------------------------|----------------------|-------------------------|------------------|---------|
| 0.00                    | 177.00               | (9) 1 5/8" Coax         | 0.00             | Inside  |
| 0.00                    | 177.00               | (1) 1 5/8" Fiber        | 0.00             | Inside  |
| 0.00                    | 177.00               | (2) 1.9" Fiber          | 0.00             | Inside  |
| 0.00                    | 176.00               | (1) Safety Cable        | 0.38             | Outside |
| 0.00                    | 176.00               | (1) Step bolts (ladder) | 0.63             | Outside |
| 0.00                    | 167.00               | (2) 1 5/8" Hybrid       | 0.00             | Inside  |
| 0.00                    | 167.00               | (6) 1 5/8" HybridFlex   | 0.00             | Inside  |
| 0.00                    | 157.00               | (4) 1 1/4" Fiber        | 0.00             | Inside  |
| 0.00                    | 147.00               | (1) 1.6" Hybrid         | 0.00             | Inside  |
| 0.00                    | 137.00               | (12) 1 5/8" Coax        | 0.00             | Inside  |
| 0.00                    | 137.00               | (2) 1" DC               | 0.00             | Inside  |
| 0.00                    | 137.00               | (1) 1/2" Fiber          | 0.00             | Inside  |

## Shaft Section Properties

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



**Increment Length:** 5 (ft)

| Elev<br>(ft) | Description     | Thick<br>(in) | Dia<br>(in) | Area<br>(in^2) | Ix<br>(in^4) | W/t<br>Ratio | D/t<br>Ratio | Fpy<br>(ksi) | S<br>(in^3) | Weight<br>(lb) |
|--------------|-----------------|---------------|-------------|----------------|--------------|--------------|--------------|--------------|-------------|----------------|
| 0.00         |                 | 0.5000        | 56.550      | 88.948         | 35305.4      | 18.53        | 113.10       | 79.6         | 1229.       | 0.0            |
| 5.00         |                 | 0.5000        | 55.565      | 87.385         | 33476.4      | 18.18        | 111.13       | 80.0         | 1186.       | 1500.1         |
| 10.00        |                 | 0.5000        | 54.580      | 85.822         | 31711.8      | 17.84        | 109.16       | 80.4         | 1144.       | 1473.5         |
| 15.00        |                 | 0.5000        | 53.595      | 84.258         | 30010.2      | 17.49        | 107.19       | 80.8         | 1102.       | 1446.9         |
| 20.00        |                 | 0.5000        | 52.610      | 82.695         | 28370.6      | 17.14        | 105.22       | 81.2         | 1062.       | 1420.3         |
| 25.00        |                 | 0.5000        | 51.625      | 81.132         | 26791.9      | 16.79        | 103.25       | 81.6         | 1022.       | 1393.7         |
| 30.00        |                 | 0.5000        | 50.639      | 79.569         | 25272.8      | 16.45        | 101.28       | 82.1         | 983.0       | 1367.1         |
| 35.00        |                 | 0.5000        | 49.654      | 78.005         | 23812.3      | 16.10        | 99.31        | 82.5         | 944.6       | 1340.5         |
| 40.00        |                 | 0.5000        | 48.669      | 76.442         | 22409.2      | 15.75        | 97.34        | 82.5         | 906.9       | 1313.9         |
| 42.75        | Bot - Section 2 | 0.5000        | 48.128      | 75.582         | 21661.5      | 15.56        | 96.26        | 82.5         | 886.5       | 711.3          |
| 45.00        |                 | 0.5000        | 47.684      | 74.879         | 21062.3      | 15.41        | 95.37        | 82.5         | 870.0       | 1089.9         |
| 49.00        | Top - Section 1 | 0.4375        | 47.771      | 65.726         | 18605.1      | 17.84        | 109.19       | 0.0          | 0.0         | 1912.7         |
| 50.00        |                 | 0.4375        | 47.574      | 65.453         | 18373.8      | 17.76        | 108.74       | 80.5         | 760.7       | 223.2          |
| 55.00        |                 | 0.4375        | 46.589      | 64.085         | 17245.7      | 17.37        | 106.49       | 81.0         | 729.1       | 1102.0         |
| 60.00        |                 | 0.4375        | 45.604      | 62.717         | 16164.8      | 16.97        | 104.24       | 81.4         | 698.2       | 1078.7         |
| 65.00        |                 | 0.4375        | 44.619      | 61.349         | 15130.1      | 16.57        | 101.99       | 81.9         | 667.9       | 1055.4         |
| 70.00        |                 | 0.4375        | 43.634      | 59.981         | 14140.4      | 16.18        | 99.73        | 82.4         | 638.3       | 1032.2         |
| 75.00        |                 | 0.4375        | 42.649      | 58.613         | 13194.9      | 15.78        | 97.48        | 82.5         | 609.4       | 1008.9         |
| 80.00        |                 | 0.4375        | 41.664      | 57.246         | 12292.5      | 15.38        | 95.23        | 82.5         | 581.1       | 985.6          |
| 85.00        |                 | 0.4375        | 40.679      | 55.878         | 11432.2      | 14.98        | 92.98        | 82.5         | 553.5       | 962.3          |
| 86.50        | Bot - Section 3 | 0.4375        | 40.383      | 55.467         | 11182.2      | 14.87        | 92.30        | 82.5         | 545.4       | 284.2          |
| 90.00        |                 | 0.4375        | 39.693      | 54.510         | 10613.0      | 14.59        | 90.73        | 82.5         | 526.6       | 1227.8         |
| 91.75        | Top - Section 2 | 0.3750        | 40.099      | 47.279         | 9425.9       | 17.44        | 106.93       | 0.0          | 0.0         | 605.9          |
| 95.00        |                 | 0.3750        | 39.458      | 46.517         | 8977.4       | 17.14        | 105.22       | 81.2         | 448.1       | 518.7          |
| 100.00       |                 | 0.3750        | 38.473      | 45.345         | 8315.6       | 16.68        | 102.60       | 81.8         | 425.7       | 781.5          |
| 105.00       |                 | 0.3750        | 37.488      | 44.172         | 7687.1       | 16.22        | 99.97        | 82.3         | 403.9       | 761.5          |
| 110.00       |                 | 0.3750        | 36.503      | 43.000         | 7091.1       | 15.75        | 97.34        | 82.5         | 382.6       | 741.6          |
| 115.00       |                 | 0.3750        | 35.518      | 41.827         | 6526.7       | 15.29        | 94.71        | 82.5         | 361.9       | 721.6          |
| 120.00       |                 | 0.3750        | 34.533      | 40.655         | 5993.1       | 14.83        | 92.09        | 82.5         | 341.8       | 701.7          |
| 125.00       |                 | 0.3750        | 33.548      | 39.483         | 5489.4       | 14.36        | 89.46        | 82.5         | 322.3       | 681.7          |
| 130.00       |                 | 0.3750        | 32.563      | 38.310         | 5014.7       | 13.90        | 86.83        | 82.5         | 303.3       | 661.8          |
| 131.25       | Bot - Section 4 | 0.3750        | 32.317      | 38.017         | 4900.5       | 13.78        | 86.18        | 82.5         | 298.7       | 162.3          |
| 135.00       |                 | 0.3750        | 31.578      | 37.138         | 4568.3       | 13.44        | 84.21        | 82.5         | 284.9       | 805.5          |
| 135.50       | Top - Section 3 | 0.2500        | 31.979      | 25.176         | 3202.3       | 21.14        | 127.92       | 0.0          | 0.0         | 106.0          |
| 137.00       |                 | 0.2500        | 31.684      | 24.942         | 3113.6       | 20.94        | 126.73       | 76.8         | 193.6       | 127.9          |
| 140.00       |                 | 0.2500        | 31.093      | 24.473         | 2941.3       | 20.52        | 124.37       | 77.3         | 186.3       | 252.2          |
| 145.00       |                 | 0.2500        | 30.108      | 23.691         | 2668.4       | 19.82        | 120.43       | 78.1         | 174.6       | 409.7          |
| 147.00       |                 | 0.2500        | 29.713      | 23.378         | 2564.1       | 19.55        | 118.85       | 78.4         | 170.0       | 160.2          |
| 150.00       |                 | 0.2500        | 29.122      | 22.909         | 2412.9       | 19.13        | 116.49       | 78.9         | 163.2       | 236.3          |
| 155.00       |                 | 0.2500        | 28.137      | 22.128         | 2174.2       | 18.43        | 112.55       | 79.7         | 152.2       | 383.1          |
| 157.00       |                 | 0.2500        | 27.743      | 21.815         | 2083.4       | 18.16        | 110.97       | 80.0         | 147.9       | 149.5          |
| 160.00       |                 | 0.2500        | 27.152      | 21.346         | 1951.9       | 17.74        | 108.61       | 80.5         | 141.6       | 220.3          |
| 165.00       |                 | 0.2500        | 26.167      | 20.565         | 1745.2       | 17.05        | 104.67       | 81.4         | 131.4       | 356.5          |
| 167.00       |                 | 0.2500        | 25.773      | 20.252         | 1666.8       | 16.77        | 103.09       | 81.7         | 127.4       | 138.9          |
| 170.00       |                 | 0.2500        | 25.182      | 19.783         | 1553.7       | 16.35        | 100.73       | 82.2         | 121.5       | 204.3          |
| 175.00       |                 | 0.2500        | 24.197      | 19.001         | 1376.7       | 15.66        | 96.79        | 82.5         | 112.1       | 329.9          |
| 176.00       |                 | 0.2500        | 24.000      | 18.845         | 1343.0       | 15.52        | 96.00        | 82.5         | 110.2       | 64.4           |

**34212.9**



## Wind Loading - Shaft

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

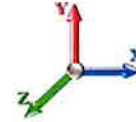
12/15/2022

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**Load Case:** 1.2D + 1.0W 119 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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 | 28.787   | 31.67      | 520.62     | 0.730 | 0.000          | 0.00           | 0.000   | 0.00      | 0.0               | 0.0                | 0.0                |
| 5.00      |                 | 1.00 | 0.85 | 28.787   | 31.67      | 511.55     | 0.730 | 0.000          | 5.00           | 23.718  | 17.31     | 548.3             | 0.0                | 1800.1             |
| 10.00     |                 | 1.00 | 0.85 | 28.787   | 31.67      | 502.48     | 0.730 | 0.000          | 5.00           | 23.301  | 17.01     | 538.6             | 0.0                | 1768.1             |
| 15.00     |                 | 1.00 | 0.85 | 28.787   | 31.67      | 493.41     | 0.730 | 0.000          | 5.00           | 22.884  | 16.71     | 529.0             | 0.0                | 1736.2             |
| 20.00     |                 | 1.00 | 0.90 | 30.544   | 33.60      | 498.90     | 0.730 | 0.000          | 5.00           | 22.467  | 16.40     | 551.1             | 0.0                | 1704.3             |
| 25.00     |                 | 1.00 | 0.95 | 32.013   | 35.21      | 501.20     | 0.730 | 0.000          | 5.00           | 22.050  | 16.10     | 566.8             | 0.0                | 1672.4             |
| 30.00     |                 | 1.00 | 0.98 | 33.266   | 36.59      | 501.16     | 0.730 | 0.000          | 5.00           | 21.634  | 15.79     | 577.9             | 0.0                | 1640.5             |
| 35.00     |                 | 1.00 | 1.01 | 34.363   | 37.80      | 499.45     | 0.730 | 0.000          | 5.00           | 21.217  | 15.49     | 585.5             | 0.0                | 1608.6             |
| 40.00     |                 | 1.00 | 1.04 | 35.343   | 38.88      | 496.47     | 0.730 | 0.000          | 5.00           | 20.800  | 15.18     | 590.3             | 0.0                | 1576.6             |
| 42.75     | Bot - Section 2 | 1.00 | 1.06 | 35.841   | 39.43      | 494.39     | 0.730 | 0.000          | 2.75           | 11.262  | 8.22      | 324.1             | 0.0                | 853.6              |
| 45.00     |                 | 1.00 | 1.07 | 36.231   | 39.85      | 492.49     | 0.730 | 0.000          | 2.25           | 9.288   | 6.78      | 270.2             | 0.0                | 1307.9             |
| 49.00     | Top - Section 1 | 1.00 | 1.09 | 36.886   | 40.57      | 488.71     | 0.730 | 0.000          | 4.00           | 16.303  | 11.90     | 482.9             | 0.0                | 2295.3             |
| 50.00     |                 | 1.00 | 1.09 | 37.043   | 40.75      | 496.83     | 0.730 | 0.000          | 1.00           | 4.034   | 2.94      | 120.0             | 0.0                | 267.8              |
| 55.00     |                 | 1.00 | 1.12 | 37.794   | 41.57      | 491.45     | 0.730 | 0.000          | 5.00           | 19.920  | 14.54     | 604.5             | 0.0                | 1322.4             |
| 60.00     |                 | 1.00 | 1.14 | 38.493   | 42.34      | 485.49     | 0.730 | 0.000          | 5.00           | 19.503  | 14.24     | 602.8             | 0.0                | 1294.4             |
| 65.00     |                 | 1.00 | 1.16 | 39.147   | 43.06      | 479.02     | 0.730 | 0.000          | 5.00           | 19.086  | 13.93     | 600.0             | 0.0                | 1266.5             |
| 70.00     |                 | 1.00 | 1.17 | 39.762   | 43.74      | 472.11     | 0.730 | 0.000          | 5.00           | 18.670  | 13.63     | 596.1             | 0.0                | 1238.6             |
| 75.00     |                 | 1.00 | 1.19 | 40.344   | 44.38      | 464.82     | 0.730 | 0.000          | 5.00           | 18.253  | 13.32     | 591.3             | 0.0                | 1210.7             |
| 80.00     |                 | 1.00 | 1.21 | 40.896   | 44.99      | 457.18     | 0.730 | 0.000          | 5.00           | 17.836  | 13.02     | 585.7             | 0.0                | 1182.7             |
| 85.00     |                 | 1.00 | 1.22 | 41.421   | 45.56      | 449.22     | 0.730 | 0.000          | 5.00           | 17.419  | 12.72     | 579.4             | 0.0                | 1154.8             |
| 86.50     | Bot - Section 3 | 1.00 | 1.23 | 41.574   | 45.73      | 446.78     | 0.730 | 0.000          | 1.50           | 5.145   | 3.76      | 171.7             | 0.0                | 341.0              |
| 90.00     |                 | 1.00 | 1.24 | 41.923   | 46.11      | 440.99     | 0.730 | 0.000          | 3.50           | 12.080  | 8.82      | 406.7             | 0.0                | 1473.3             |
| 91.75     | Top - Section 2 | 1.00 | 1.24 | 42.093   | 46.30      | 438.05     | 0.730 | 0.000          | 1.75           | 5.963   | 4.35      | 201.6             | 0.0                | 727.1              |
| 95.00     |                 | 1.00 | 1.25 | 42.403   | 46.64      | 440.88     | 0.730 | 0.000          | 3.25           | 10.940  | 7.99      | 372.5             | 0.0                | 622.4              |
| 100.00    |                 | 1.00 | 1.27 | 42.863   | 47.15      | 432.20     | 0.730 | 0.000          | 5.00           | 16.486  | 12.03     | 567.4             | 0.0                | 937.8              |
| 105.00    |                 | 1.00 | 1.28 | 43.306   | 47.64      | 423.30     | 0.730 | 0.000          | 5.00           | 16.069  | 11.73     | 558.8             | 0.0                | 913.8              |
| 110.00    |                 | 1.00 | 1.29 | 43.732   | 48.10      | 414.20     | 0.730 | 0.000          | 5.00           | 15.653  | 11.43     | 549.7             | 0.0                | 889.9              |
| 115.00    |                 | 1.00 | 1.30 | 44.143   | 48.56      | 404.92     | 0.730 | 0.000          | 5.00           | 15.236  | 11.12     | 540.1             | 0.0                | 865.9              |
| 120.00    |                 | 1.00 | 1.32 | 44.540   | 48.99      | 395.45     | 0.730 | 0.000          | 5.00           | 14.819  | 10.82     | 530.0             | 0.0                | 842.0              |
| 125.00    |                 | 1.00 | 1.33 | 44.925   | 49.42      | 385.83     | 0.730 | 0.000          | 5.00           | 14.402  | 10.51     | 519.6             | 0.0                | 818.1              |
| 130.00    |                 | 1.00 | 1.34 | 45.297   | 49.83      | 376.05     | 0.730 | 0.000          | 5.00           | 13.986  | 10.21     | 508.7             | 0.0                | 794.1              |
| 131.25    | Bot - Section 4 | 1.00 | 1.34 | 45.388   | 49.93      | 373.58     | 0.730 | 0.000          | 1.25           | 3.431   | 2.50      | 125.1             | 0.0                | 194.8              |
| 135.00    |                 | 1.00 | 1.35 | 45.658   | 50.22      | 366.12     | 0.730 | 0.000          | 3.75           | 10.296  | 7.52      | 377.5             | 0.0                | 966.6              |
| 135.50    | Top - Section 3 | 1.00 | 1.35 | 45.694   | 50.26      | 365.12     | 0.730 | 0.000          | 0.50           | 1.355   | 0.99      | 49.7              | 0.0                | 127.2              |
| 137.00    | Appurtenance(s) | 1.00 | 1.35 | 45.800   | 50.38      | 367.92     | 0.730 | 0.000          | 1.50           | 4.040   | 2.95      | 148.6             | 0.0                | 153.5              |
| 140.00    |                 | 1.00 | 1.36 | 46.009   | 50.61      | 361.88     | 0.730 | 0.000          | 3.00           | 7.968   | 5.82      | 294.4             | 0.0                | 302.7              |
| 145.00    |                 | 1.00 | 1.37 | 46.351   | 50.99      | 351.71     | 0.730 | 0.000          | 5.00           | 12.947  | 9.45      | 481.9             | 0.0                | 491.7              |
| 147.00    | Appurtenance(s) | 1.00 | 1.37 | 46.484   | 51.13      | 347.61     | 0.730 | 0.000          | 2.00           | 5.062   | 3.70      | 188.9             | 0.0                | 192.2              |
| 150.00    |                 | 1.00 | 1.38 | 46.683   | 51.35      | 341.42     | 0.730 | 0.000          | 3.00           | 7.468   | 5.45      | 279.9             | 0.0                | 283.5              |
| 155.00    |                 | 1.00 | 1.39 | 47.006   | 51.71      | 331.01     | 0.730 | 0.000          | 5.00           | 12.113  | 8.84      | 457.2             | 0.0                | 459.8              |
| 157.00    | Appurtenance(s) | 1.00 | 1.39 | 47.133   | 51.85      | 326.82     | 0.730 | 0.000          | 2.00           | 4.729   | 3.45      | 179.0             | 0.0                | 179.4              |
| 160.00    |                 | 1.00 | 1.40 | 47.321   | 52.05      | 320.49     | 0.730 | 0.000          | 3.00           | 6.968   | 5.09      | 264.8             | 0.0                | 264.4              |
| 165.00    |                 | 1.00 | 1.41 | 47.629   | 52.39      | 309.87     | 0.730 | 0.000          | 5.00           | 11.280  | 8.23      | 431.4             | 0.0                | 427.8              |
| 167.00    | Appurtenance(s) | 1.00 | 1.41 | 47.750   | 52.52      | 305.59     | 0.730 | 0.000          | 2.00           | 4.395   | 3.21      | 168.5             | 0.0                | 166.7              |
| 170.00    |                 | 1.00 | 1.42 | 47.929   | 52.72      | 299.14     | 0.730 | 0.000          | 3.00           | 6.468   | 4.72      | 248.9             | 0.0                | 245.2              |
| 175.00    |                 | 1.00 | 1.42 | 48.222   | 53.04      | 288.32     | 0.730 | 0.000          | 5.00           | 10.446  | 7.63      | 404.5             | 0.0                | 395.9              |
| 176.00    | Appurtenance(s) | 1.00 | 1.43 | 48.280   | 53.11      | 286.14     | 0.730 | 0.000          | 1.00           | 2.039   | 1.49      | 79.1              | 0.0                | 77.3               |

## Wind Loading - Shaft

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|                |               |                 |                 |
|----------------|---------------|-----------------|-----------------|
| <b>Totals:</b> | <b>176.00</b> | <b>18,950.6</b> | <b>41,055.5</b> |
|----------------|---------------|-----------------|-----------------|

## Discrete Appurtenance Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

12/15/2022

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**Load Case:** 1.2D + 1.0W 119 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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   | 176.00    | KRY 112 89/4          | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 0.98            | 55.44          | 0.000          | 1.000         | 52.10        | 0.00          | 52.10         |
| 2   | 176.00    | MHA FE15501P77/75     | 6   | 48.338   | 53.172     | 0.49               | 0.75 | 2.72            | 79.20          | 0.000          | 1.000         | 144.64       | 0.00          | 144.64        |
| 3   | 176.00    | RMQP-496-HK           | 1   | 48.338   | 53.172     | 1.00               | 1.00 | 46.00           | 2938.80        | 0.000          | 1.000         | 2445.89      | 0.00          | 2445.89       |
| 4   | 176.00    | KRY 112 489/2         | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 0.98            | 55.44          | 0.000          | 1.000         | 52.10        | 0.00          | 52.10         |
| 5   | 176.00    | Lightning Rod         | 1   | 48.481   | 53.329     | 1.00               | 1.00 | 1.05            | 42.00          | 0.000          | 3.500         | 56.00        | 0.00          | 195.98        |
| 6   | 176.00    | AIR 6419 B41          | 3   | 48.338   | 53.172     | 0.52               | 0.75 | 10.28           | 479.52         | 0.000          | 1.000         | 546.86       | 0.00          | 546.86        |
| 7   | 176.00    | APXVAALL24_43-U-NA20  | 3   | 48.338   | 53.172     | 0.55               | 0.75 | 33.24           | 442.08         | 0.000          | 1.000         | 1767.65      | 0.00          | 1767.65       |
| 8   | 176.00    | 4449 B71 + B85        | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 2.97            | 263.52         | 0.000          | 1.000         | 157.91       | 0.00          | 157.91        |
| 9   | 176.00    | 4460 B25 + B66        | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 2.47            | 259.20         | 0.000          | 1.000         | 131.46       | 0.00          | 131.46        |
| 10  | 167.00    | B5/B13 RRH ORAN       | 3   | 47.750   | 52.525     | 0.50               | 0.75 | 2.82            | 253.08         | 0.000          | 0.000         | 148.07       | 0.00          | 0.00          |
| 11  | 167.00    | B2/B66A RRH ORAN      | 3   | 47.750   | 52.525     | 0.50               | 0.75 | 2.82            | 303.84         | 0.000          | 0.000         | 148.07       | 0.00          | 0.00          |
| 12  | 167.00    | Samsung MT6407-77A    | 3   | 47.750   | 52.525     | 0.52               | 0.75 | 7.39            | 285.84         | 0.000          | 0.000         | 387.99       | 0.00          | 0.00          |
| 13  | 167.00    | CBRS RRH - RT4401-48A | 3   | 47.750   | 52.525     | 0.50               | 0.75 | 1.49            | 66.96          | 0.000          | 0.000         | 78.39        | 0.00          | 0.00          |
| 14  | 167.00    | Commscope             | 3   | 47.750   | 52.525     | 0.64               | 0.75 | 15.66           | 182.52         | 0.000          | 0.000         | 822.71       | 0.00          | 0.00          |
| 15  | 167.00    | Commscope             | 3   | 47.750   | 52.525     | 0.62               | 0.75 | 15.09           | 157.32         | 0.000          | 0.000         | 792.56       | 0.00          | 0.00          |
| 16  | 167.00    | LPA-80063-4CF-EDIN-5  | 2   | 47.750   | 52.525     | 0.84               | 0.90 | 10.30           | 48.00          | 0.000          | 0.000         | 540.75       | 0.00          | 0.00          |
| 17  | 167.00    | Raycap                | 2   | 47.750   | 52.525     | 0.81               | 0.90 | 6.12            | 76.80          | 0.000          | 0.000         | 321.64       | 0.00          | 0.00          |
| 18  | 167.00    | KICKER KIT            | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 5.33            | 175.20         | 0.000          | 0.000         | 279.96       | 0.00          | 0.00          |
| 19  | 167.00    | MONOPOLE COLLAR       | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 2.50            | 180.72         | 0.000          | 0.000         | 131.31       | 0.00          | 0.00          |
| 20  | 167.00    | SUPPORT RAIL CORNER   | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 8.75            | 516.00         | 0.000          | 0.000         | 459.59       | 0.00          | 0.00          |
| 21  | 167.00    | APL868013             | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 2.86            | 7.56           | 0.000          | 0.000         | 150.22       | 0.00          | 0.00          |
| 22  | 167.00    | Low Profile           | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 22.00           | 1800.00        | 0.000          | 0.000         | 1155.54      | 0.00          | 0.00          |
| 23  | 157.00    | Sitepro PRK-SFS-H-L   | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 6.70            | 276.00         | 0.000          | 0.000         | 347.37       | 0.00          | 0.00          |
| 24  | 157.00    | Sitepro HRK14-U       | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 8.13            | 362.83         | 0.000          | 0.000         | 421.51       | 0.00          | 0.00          |
| 25  | 157.00    | Sitepro PRK-1245L     | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 9.50            | 557.89         | 0.000          | 0.000         | 492.54       | 0.00          | 0.00          |
| 26  | 157.00    | ALU 800 Mhz           | 6   | 47.133   | 51.846     | 0.54               | 0.80 | 8.01            | 381.60         | 0.000          | 0.000         | 415.18       | 0.00          | 0.00          |
| 27  | 157.00    | Low Profile Platform  | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 22.00           | 1800.00        | 0.000          | 0.000         | 1140.62      | 0.00          | 0.00          |
| 28  | 157.00    | ALU 1900 Mhz          | 3   | 47.133   | 51.846     | 0.54               | 0.80 | 4.45            | 216.00         | 0.000          | 0.000         | 230.93       | 0.00          | 0.00          |
| 29  | 157.00    | Commscope             | 3   | 47.133   | 51.846     | 0.60               | 0.80 | 22.09           | 278.64         | 0.000          | 0.000         | 1145.08      | 0.00          | 0.00          |
| 30  | 157.00    | ALU TD-RRH8x20-25     | 3   | 47.133   | 51.846     | 0.54               | 0.80 | 6.51            | 252.00         | 0.000          | 0.000         | 337.64       | 0.00          | 0.00          |
| 31  | 157.00    | RFS APXVTM14-C-I20    | 3   | 47.133   | 51.846     | 0.62               | 0.80 | 11.72           | 202.32         | 0.000          | 0.000         | 607.45       | 0.00          | 0.00          |
| 32  | 147.00    | RDIDC-9181-PF-48      | 1   | 46.484   | 51.133     | 1.00               | 1.00 | 2.01            | 26.28          | 0.000          | 0.000         | 102.78       | 0.00          | 0.00          |
| 33  | 147.00    | TA08025-B604          | 3   | 46.484   | 51.133     | 0.50               | 0.75 | 2.95            | 230.04         | 0.000          | 0.000         | 151.08       | 0.00          | 0.00          |
| 34  | 147.00    | TA08025-B605          | 3   | 46.484   | 51.133     | 0.50               | 0.75 | 2.95            | 270.00         | 0.000          | 0.000         | 151.08       | 0.00          | 0.00          |
| 35  | 147.00    | MC-PK8-DSH            | 1   | 46.484   | 51.133     | 1.00               | 1.00 | 37.59           | 2072.40        | 0.000          | 0.000         | 1922.08      | 0.00          | 0.00          |
| 36  | 147.00    | MX08FRO665-21         | 3   | 46.484   | 51.133     | 0.55               | 0.75 | 20.80           | 232.20         | 0.000          | 0.000         | 1063.35      | 0.00          | 0.00          |
| 37  | 137.00    | B2 B66A 8843          | 3   | 45.800   | 50.380     | 0.50               | 0.75 | 2.47            | 252.00         | 0.000          | 0.000         | 124.55       | 0.00          | 0.00          |
| 38  | 137.00    | 4449 B5/B12           | 3   | 45.800   | 50.380     | 0.50               | 0.75 | 2.97            | 255.60         | 0.000          | 0.000         | 149.62       | 0.00          | 0.00          |
| 39  | 137.00    | HPA-65R-BUU-H6        | 3   | 45.800   | 50.380     | 0.64               | 0.75 | 18.47           | 183.60         | 0.000          | 0.000         | 930.76       | 0.00          | 0.00          |
| 40  | 137.00    | 7020                  | 12  | 45.800   | 50.380     | 0.50               | 0.75 | 2.41            | 31.68          | 0.000          | 0.000         | 121.52       | 0.00          | 0.00          |
| 41  | 137.00    | DMP65R-BU6DA          | 3   | 45.800   | 50.380     | 0.54               | 0.75 | 20.59           | 285.84         | 0.000          | 0.000         | 1037.33      | 0.00          | 0.00          |
| 42  | 137.00    | HRK14                 | 1   | 45.800   | 50.380     | 1.00               | 1.00 | 8.13            | 362.83         | 0.000          | 0.000         | 409.59       | 0.00          | 0.00          |
| 43  | 137.00    | LP Platform-Round     | 1   | 45.800   | 50.380     | 1.00               | 1.00 | 22.00           | 1800.00        | 0.000          | 0.000         | 1108.36      | 0.00          | 0.00          |
| 44  | 137.00    | Smart Bias T 1001940  | 3   | 45.800   | 50.380     | 0.50               | 0.75 | 0.14            | 7.20           | 7.041          | 0.000         | 6.84         | 48.12         | 0.00          |
| 45  | 137.00    | DC6-48-60-18-8F       | 1   | 45.800   | 50.380     | 1.00               | 1.00 | 1.47            | 39.36          | 0.000          | 0.000         | 74.06        | 0.00          | 0.00          |
| 46  | 137.00    | 7770.00               | 3   | 45.800   | 50.380     | 0.55               | 0.75 | 9.03            | 126.00         | 0.000          | 0.000         | 455.12       | 0.00          | 0.00          |
| 47  | 137.00    | LGP21401              | 6   | 45.800   | 50.380     | 0.50               | 0.75 | 3.89            | 136.80         | 0.000          | 0.000         | 195.95       | 0.00          | 0.00          |

## Discrete Appurtenance Forces

|                                 |                                   |                 |
|---------------------------------|-----------------------------------|-----------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022      |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                 |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                 |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                 |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Page:</b> 12 |



|                |        |          |   |        |        |      |      |      |       |       |                  |                  |        |      |
|----------------|--------|----------|---|--------|--------|------|------|------|-------|-------|------------------|------------------|--------|------|
| 48             | 137.00 | LGP21903 | 6 | 45.800 | 50.380 | 0.50 | 0.75 | 0.81 | 36.00 | 4.341 | 0.000            | 41.01            | 178.01 | 0.00 |
| <b>Totals:</b> |        |          |   |        |        |      |      |      |       |       | <b>19,344.16</b> | <b>23,954.78</b> |        |      |

## Total Applied Force Summary

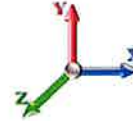
|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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**Load Case:** 1.2D + 1.0W 119 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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      |                  | 548.26              | 2045.30           | 0.00               | 0.00              |
| 10.00     |                  | 538.62              | 2013.39           | 0.00               | 0.00              |
| 15.00     |                  | 528.99              | 1981.47           | 0.00               | 0.00              |
| 20.00     |                  | 551.06              | 1949.55           | 0.00               | 0.00              |
| 25.00     |                  | 566.85              | 1917.64           | 0.00               | 0.00              |
| 30.00     |                  | 577.89              | 1885.72           | 0.00               | 0.00              |
| 35.00     |                  | 585.46              | 1853.80           | 0.00               | 0.00              |
| 40.00     |                  | 590.32              | 1821.89           | 0.00               | 0.00              |
| 42.75     |                  | 324.14              | 988.43            | 0.00               | 0.00              |
| 45.00     |                  | 270.20              | 1418.28           | 0.00               | 0.00              |
| 49.00     |                  | 482.88              | 2491.46           | 0.00               | 0.00              |
| 50.00     |                  | 119.99              | 316.87            | 0.00               | 0.00              |
| 55.00     |                  | 604.54              | 1567.60           | 0.00               | 0.00              |
| 60.00     |                  | 602.83              | 1539.67           | 0.00               | 0.00              |
| 65.00     |                  | 599.98              | 1511.75           | 0.00               | 0.00              |
| 70.00     |                  | 596.10              | 1483.82           | 0.00               | 0.00              |
| 75.00     |                  | 591.32              | 1455.89           | 0.00               | 0.00              |
| 80.00     |                  | 585.73              | 1427.97           | 0.00               | 0.00              |
| 85.00     |                  | 579.39              | 1400.04           | 0.00               | 0.00              |
| 86.50     |                  | 171.74              | 414.57            | 0.00               | 0.00              |
| 90.00     |                  | 406.66              | 1644.98           | 0.00               | 0.00              |
| 91.75     |                  | 201.57              | 812.96            | 0.00               | 0.00              |
| 95.00     |                  | 372.48              | 781.79            | 0.00               | 0.00              |
| 100.00    |                  | 567.44              | 1183.00           | 0.00               | 0.00              |
| 105.00    |                  | 558.80              | 1159.06           | 0.00               | 0.00              |
| 110.00    |                  | 549.67              | 1135.12           | 0.00               | 0.00              |
| 115.00    |                  | 540.06              | 1111.18           | 0.00               | 0.00              |
| 120.00    |                  | 530.02              | 1087.25           | 0.00               | 0.00              |
| 125.00    |                  | 519.56              | 1063.31           | 0.00               | 0.00              |
| 130.00    |                  | 508.70              | 1039.37           | 0.00               | 0.00              |
| 131.25    |                  | 125.06              | 256.10            | 0.00               | 0.00              |
| 135.00    |                  | 377.49              | 1150.53           | 0.00               | 0.00              |
| 135.50    |                  | 49.72               | 151.71            | 0.00               | 0.00              |
| 137.00    | (45) attachments | 4803.29             | 3743.97           | 226.14             | 0.00              |
| 140.00    |                  | 294.39              | 401.42            | 0.00               | 0.00              |
| 145.00    |                  | 481.87              | 656.27            | 0.00               | 0.00              |
| 147.00    | (11) attachments | 3579.32             | 3088.96           | 0.00               | 0.00              |
| 150.00    |                  | 279.94              | 378.67            | 0.00               | 0.00              |
| 155.00    |                  | 457.22              | 618.35            | 0.00               | 0.00              |
| 157.00    | (22) attachments | 5317.27             | 4570.16           | 0.00               | 0.00              |
| 160.00    |                  | 264.77              | 350.02            | 0.00               | 0.00              |
| 165.00    |                  | 431.40              | 570.60            | 0.00               | 0.00              |
| 167.00    | (27) attachments | 5585.31             | 4277.61           | 0.00               | 0.00              |
| 170.00    |                  | 248.92              | 299.19            | 0.00               | 0.00              |
| 175.00    |                  | 404.50              | 485.88            | 0.00               | 0.00              |
| 176.00    | (26) attachments | 5433.66             | 4710.46           | 0.00               | 5494.59           |

### Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|                |                  |                  |               |                 |
|----------------|------------------|------------------|---------------|-----------------|
| <b>Totals:</b> | <b>42,905.39</b> | <b>68,213.02</b> | <b>226.14</b> | <b>5,494.59</b> |
|----------------|------------------|------------------|---------------|-----------------|

## Linear Appurtenance Segment Forces (Factored)

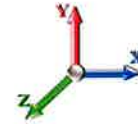
|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



**Load Case:** 1.2D + 1.0W 119 mph Wind

**Iterations** 26

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



| Top Elev (ft) | Description         | Wind Exposed | Length (ft) | Ca    | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra    | Cf Adjust Factor | qz (psf) | F X (lb) | Dead Load (lb) |
|---------------|---------------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 5.00          | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 1.64           |
| 5.00          | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 6.24           |
| 10.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 1.64           |
| 10.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 6.24           |
| 15.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 1.64           |
| 15.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 6.24           |
| 20.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 30.544   | 0.00     | 1.64           |
| 20.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 30.544   | 0.00     | 6.24           |
| 25.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 32.013   | 0.00     | 1.64           |
| 25.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 32.013   | 0.00     | 6.24           |
| 30.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 33.266   | 0.00     | 1.64           |
| 30.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 33.266   | 0.00     | 6.24           |
| 35.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.020 | 0.000            | 34.363   | 0.00     | 1.64           |
| 35.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.020 | 0.000            | 34.363   | 0.00     | 6.24           |
| 40.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.020 | 0.000            | 35.343   | 0.00     | 1.64           |
| 40.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.020 | 0.000            | 35.343   | 0.00     | 6.24           |
| 42.75         | Safety Cable        | Yes          | 2.75        | 0.000 | 0.38               | 0.09        | 0.00        | 0.021 | 0.000            | 35.841   | 0.00     | 0.90           |
| 42.75         | Step bolts (ladder) | Yes          | 2.75        | 0.000 | 0.63               | 0.14        | 0.00        | 0.021 | 0.000            | 35.841   | 0.00     | 3.43           |
| 45.00         | Safety Cable        | Yes          | 2.25        | 0.000 | 0.38               | 0.07        | 0.00        | 0.021 | 0.000            | 36.231   | 0.00     | 0.74           |
| 45.00         | Step bolts (ladder) | Yes          | 2.25        | 0.000 | 0.63               | 0.12        | 0.00        | 0.021 | 0.000            | 36.231   | 0.00     | 2.81           |
| 49.00         | Safety Cable        | Yes          | 4.00        | 0.000 | 0.38               | 0.13        | 0.00        | 0.021 | 0.000            | 36.886   | 0.00     | 1.31           |
| 49.00         | Step bolts (ladder) | Yes          | 4.00        | 0.000 | 0.63               | 0.21        | 0.00        | 0.021 | 0.000            | 36.886   | 0.00     | 4.99           |
| 50.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.03        | 0.00        | 0.021 | 0.000            | 37.043   | 0.00     | 0.33           |
| 50.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.05        | 0.00        | 0.021 | 0.000            | 37.043   | 0.00     | 1.25           |
| 55.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.021 | 0.000            | 37.794   | 0.00     | 1.64           |
| 55.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.021 | 0.000            | 37.794   | 0.00     | 6.24           |
| 60.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.022 | 0.000            | 38.493   | 0.00     | 1.64           |
| 60.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.022 | 0.000            | 38.493   | 0.00     | 6.24           |
| 65.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.022 | 0.000            | 39.147   | 0.00     | 1.64           |
| 65.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.022 | 0.000            | 39.147   | 0.00     | 6.24           |
| 70.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.023 | 0.000            | 39.762   | 0.00     | 1.64           |
| 70.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.023 | 0.000            | 39.762   | 0.00     | 6.24           |
| 75.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.023 | 0.000            | 40.344   | 0.00     | 1.64           |
| 75.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.023 | 0.000            | 40.344   | 0.00     | 6.24           |
| 80.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.024 | 0.000            | 40.896   | 0.00     | 1.64           |
| 80.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.024 | 0.000            | 40.896   | 0.00     | 6.24           |
| 85.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.024 | 0.000            | 41.421   | 0.00     | 1.64           |
| 85.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.024 | 0.000            | 41.421   | 0.00     | 6.24           |
| 86.50         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.05        | 0.00        | 0.025 | 0.000            | 41.574   | 0.00     | 0.49           |
| 86.50         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.08        | 0.00        | 0.025 | 0.000            | 41.574   | 0.00     | 1.87           |
| 90.00         | Safety Cable        | Yes          | 3.50        | 0.000 | 0.38               | 0.11        | 0.00        | 0.025 | 0.000            | 41.923   | 0.00     | 1.15           |
| 90.00         | Step bolts (ladder) | Yes          | 3.50        | 0.000 | 0.63               | 0.18        | 0.00        | 0.025 | 0.000            | 41.923   | 0.00     | 4.37           |
| 91.75         | Safety Cable        | Yes          | 1.75        | 0.000 | 0.38               | 0.06        | 0.00        | 0.025 | 0.000            | 42.093   | 0.00     | 0.57           |
| 91.75         | Step bolts (ladder) | Yes          | 1.75        | 0.000 | 0.63               | 0.09        | 0.00        | 0.025 | 0.000            | 42.093   | 0.00     | 2.18           |
| 95.00         | Safety Cable        | Yes          | 3.25        | 0.000 | 0.38               | 0.10        | 0.00        | 0.025 | 0.000            | 42.403   | 0.00     | 1.06           |
| 95.00         | Step bolts (ladder) | Yes          | 3.25        | 0.000 | 0.63               | 0.17        | 0.00        | 0.025 | 0.000            | 42.403   | 0.00     | 4.06           |
| 100.00        | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.026 | 0.000            | 42.863   | 0.00     | 1.64           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

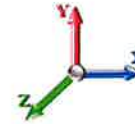
12/15/2022

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**Load Case:** 1.2D + 1.0W 119 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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) |
|----------------|---------------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 100.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.026 | 0.000            | 42.863   | 0.00       | 6.24           |
| 105.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.026 | 0.000            | 43.306   | 0.00       | 1.64           |
| 105.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.026 | 0.000            | 43.306   | 0.00       | 6.24           |
| 110.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.027 | 0.000            | 43.732   | 0.00       | 1.64           |
| 110.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.027 | 0.000            | 43.732   | 0.00       | 6.24           |
| 115.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.028 | 0.000            | 44.143   | 0.00       | 1.64           |
| 115.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.028 | 0.000            | 44.143   | 0.00       | 6.24           |
| 120.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.028 | 0.000            | 44.540   | 0.00       | 1.64           |
| 120.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.028 | 0.000            | 44.540   | 0.00       | 6.24           |
| 125.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.029 | 0.000            | 44.925   | 0.00       | 1.64           |
| 125.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.029 | 0.000            | 44.925   | 0.00       | 6.24           |
| 130.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.030 | 0.000            | 45.297   | 0.00       | 1.64           |
| 130.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.030 | 0.000            | 45.297   | 0.00       | 6.24           |
| 131.25         | Safety Cable        | Yes          | 1.25        | 0.000 | 0.38               | 0.04        | 0.00        | 0.031 | 0.000            | 45.388   | 0.00       | 0.41           |
| 131.25         | Step bolts (ladder) | Yes          | 1.25        | 0.000 | 0.63               | 0.07        | 0.00        | 0.031 | 0.000            | 45.388   | 0.00       | 1.56           |
| 135.00         | Safety Cable        | Yes          | 3.75        | 0.000 | 0.38               | 0.12        | 0.00        | 0.031 | 0.000            | 45.658   | 0.00       | 1.23           |
| 135.00         | Step bolts (ladder) | Yes          | 3.75        | 0.000 | 0.63               | 0.20        | 0.00        | 0.031 | 0.000            | 45.658   | 0.00       | 4.68           |
| 135.50         | Safety Cable        | Yes          | 0.50        | 0.000 | 0.38               | 0.02        | 0.00        | 0.032 | 0.000            | 45.694   | 0.00       | 0.16           |
| 135.50         | Step bolts (ladder) | Yes          | 0.50        | 0.000 | 0.63               | 0.03        | 0.00        | 0.032 | 0.000            | 45.694   | 0.00       | 0.62           |
| 137.00         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.05        | 0.00        | 0.031 | 0.000            | 45.800   | 0.00       | 0.49           |
| 137.00         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.08        | 0.00        | 0.031 | 0.000            | 45.800   | 0.00       | 1.87           |
| 140.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.032 | 0.000            | 46.009   | 0.00       | 0.98           |
| 140.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.032 | 0.000            | 46.009   | 0.00       | 3.74           |
| 145.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.033 | 0.000            | 46.351   | 0.00       | 1.64           |
| 145.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.033 | 0.000            | 46.351   | 0.00       | 6.24           |
| 147.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.033 | 0.000            | 46.484   | 0.00       | 0.66           |
| 147.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.033 | 0.000            | 46.484   | 0.00       | 2.50           |
| 150.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.034 | 0.000            | 46.683   | 0.00       | 0.98           |
| 150.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.034 | 0.000            | 46.683   | 0.00       | 3.74           |
| 155.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.035 | 0.000            | 47.006   | 0.00       | 1.64           |
| 155.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.035 | 0.000            | 47.006   | 0.00       | 6.24           |
| 157.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.036 | 0.000            | 47.133   | 0.00       | 0.66           |
| 157.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.036 | 0.000            | 47.133   | 0.00       | 2.50           |
| 160.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.036 | 0.000            | 47.321   | 0.00       | 0.98           |
| 160.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.036 | 0.000            | 47.321   | 0.00       | 3.74           |
| 165.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.037 | 0.000            | 47.629   | 0.00       | 1.64           |
| 165.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.037 | 0.000            | 47.629   | 0.00       | 6.24           |
| 167.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.038 | 0.000            | 47.750   | 0.00       | 0.66           |
| 167.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.038 | 0.000            | 47.750   | 0.00       | 2.50           |
| 170.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.039 | 0.000            | 47.929   | 0.00       | 0.98           |
| 170.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.039 | 0.000            | 47.929   | 0.00       | 3.74           |
| 175.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.040 | 0.000            | 48.222   | 0.00       | 1.64           |
| 175.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.040 | 0.000            | 48.222   | 0.00       | 6.24           |
| 176.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.03        | 0.00        | 0.041 | 0.000            | 48.280   | 0.00       | 0.33           |
| 176.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.05        | 0.00        | 0.041 | 0.000            | 48.280   | 0.00       | 1.25           |
| <b>Totals:</b> |                     |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>277.3</b>   |



## Calculated Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

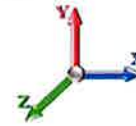
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**Load Case:** 1.2D + 1.0W 119 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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          | -68.13           | -43.04           | -0.22               | -5786.7         | -0.01           | 5786.76                    | 6372.54       | 1561.04       | 7259.46          | 7341.49          | 0.00               | 0.000               | 0.000                | 0.800        |
| 5.00          | -65.91           | -42.76           | -0.22               | -5571.5         | -0.01           | 5571.55                    | 6292.68       | 1533.60       | 7006.53          | 7120.95          | 0.12               | -0.229              | 0.000                | 0.794        |
| 10.00         | -63.73           | -42.47           | -0.22               | -5357.7         | -0.01           | 5357.77                    | 6211.66       | 1506.17       | 6758.08          | 6902.39          | 0.49               | -0.461              | 0.000                | 0.787        |
| 15.00         | -61.58           | -42.17           | -0.22               | -5145.4         | -0.01           | 5145.44                    | 6129.50       | 1478.73       | 6514.12          | 6685.89          | 1.10               | -0.697              | 0.000                | 0.780        |
| 20.00         | -59.46           | -41.84           | -0.22               | -4934.5         | -0.01           | 4934.59                    | 6046.18       | 1451.30       | 6274.65          | 6471.51          | 1.95               | -0.936              | 0.000                | 0.773        |
| 25.00         | -57.38           | -41.49           | -0.22               | -4725.3         | -0.01           | 4725.37                    | 5961.72       | 1423.86       | 6039.66          | 6259.33          | 3.06               | -1.178              | 0.000                | 0.765        |
| 30.00         | -55.33           | -41.10           | -0.22               | -4517.9         | -0.01           | 4517.95                    | 5876.11       | 1396.43       | 5809.15          | 6049.42          | 4.43               | -1.423              | 0.000                | 0.757        |
| 35.00         | -53.31           | -40.70           | -0.22               | -4312.4         | -0.01           | 4312.43                    | 5789.35       | 1368.99       | 5583.13          | 5841.84          | 6.05               | -1.672              | 0.000                | 0.748        |
| 40.00         | -51.37           | -40.23           | -0.22               | -4108.9         | -0.01           | 4108.92                    | 5679.25       | 1341.56       | 5361.59          | 5614.75          | 7.94               | -1.923              | 0.000                | 0.742        |
| 42.75         | -50.31           | -39.99           | -0.22               | -3998.2         | -0.01           | 3998.29                    | 5615.38       | 1326.47       | 5241.66          | 5488.51          | 9.08               | -2.065              | 0.000                | 0.738        |
| 45.00         | -48.79           | -39.80           | -0.22               | -3908.3         | -0.01           | 3908.32                    | 5563.11       | 1314.12       | 5144.54          | 5386.29          | 10.09              | -2.181              | 0.000                | 0.735        |
| 49.00         | -46.23           | -39.32           | -0.22               | -3749.1         | -0.01           | 3749.12                    | 4756.80       | 1153.50       | 4530.03          | 4626.40          | 12.00              | -2.388              | 0.000                | 0.821        |
| 50.00         | -45.80           | -39.33           | -0.22               | -3709.8         | -0.01           | 3709.80                    | 4742.51       | 1148.70       | 4492.40          | 4593.12          | 12.51              | -2.441              | 0.000                | 0.819        |
| 55.00         | -44.07           | -38.87           | -0.22               | -3513.1         | -0.01           | 3513.18                    | 4670.33       | 1124.69       | 4306.59          | 4427.82          | 15.21              | -2.721              | 0.000                | 0.804        |
| 60.00         | -42.38           | -38.40           | -0.22               | -3318.8         | -0.01           | 3318.85                    | 4597.00       | 1100.68       | 4124.71          | 4264.39          | 18.21              | -3.003              | 0.000                | 0.789        |
| 65.00         | -40.71           | -37.92           | -0.22               | -3126.8         | -0.01           | 3126.86                    | 4522.52       | 1076.68       | 3946.75          | 4102.93          | 21.51              | -3.286              | 0.000                | 0.772        |
| 70.00         | -39.08           | -37.43           | -0.22               | -2937.2         | -0.01           | 2937.28                    | 4446.89       | 1052.67       | 3772.72          | 3943.48          | 25.10              | -3.571              | 0.000                | 0.755        |
| 75.00         | -37.48           | -36.93           | -0.22               | -2750.1         | -0.01           | 2750.13                    | 4354.69       | 1028.67       | 3602.61          | 3772.77          | 28.99              | -3.857              | 0.000                | 0.739        |
| 80.00         | -35.92           | -36.43           | -0.22               | -2565.4         | -0.01           | 2565.47                    | 4253.06       | 1004.66       | 3436.42          | 3597.85          | 33.18              | -4.144              | 0.000                | 0.723        |
| 85.00         | -34.45           | -35.86           | -0.22               | -2383.3         | -0.01           | 2383.33                    | 4151.43       | 980.65        | 3274.16          | 3427.08          | 37.67              | -4.430              | 0.000                | 0.705        |
| 86.50         | -33.96           | -35.74           | -0.22               | -2329.5         | -0.01           | 2329.55                    | 4120.95       | 973.45        | 3226.24          | 3376.66          | 39.08              | -4.518              | 0.000                | 0.699        |
| 90.00         | -32.26           | -35.29           | -0.22               | -2204.4         | -0.01           | 2204.46                    | 4049.81       | 956.65        | 3115.82          | 3260.47          | 42.46              | -4.720              | 0.000                | 0.685        |
| 91.75         | -31.38           | -35.10           | -0.22               | -2142.7         | -0.01           | 2142.70                    | 3441.70       | 829.75        | 2734.72          | 2808.64          | 44.21              | -4.822              | 0.000                | 0.774        |
| 95.00         | -30.48           | -34.79           | -0.22               | -2028.6         | -0.01           | 2028.63                    | 3401.05       | 816.38        | 2647.27          | 2730.31          | 47.55              | -5.009              | 0.000                | 0.754        |
| 100.00        | -29.17           | -34.28           | -0.22               | -1854.6         | -0.01           | 1854.67                    | 3337.56       | 795.80        | 2515.51          | 2611.16          | 52.96              | -5.316              | 0.000                | 0.721        |
| 105.00        | -27.89           | -33.76           | -0.22               | -1683.2         | -0.01           | 1683.28                    | 3272.92       | 775.23        | 2387.10          | 2493.74          | 58.68              | -5.619              | 0.000                | 0.685        |
| 110.00        | -26.65           | -33.23           | -0.22               | -1514.4         | -0.02           | 1514.49                    | 3194.68       | 754.65        | 2262.06          | 2368.87          | 64.72              | -5.915              | 0.000                | 0.650        |
| 115.00        | -25.44           | -32.70           | -0.22               | -1348.3         | -0.02           | 1348.33                    | 3107.57       | 734.07        | 2140.39          | 2240.81          | 71.05              | -6.202              | 0.000                | 0.612        |
| 120.00        | -24.27           | -32.17           | -0.22               | -1184.8         | -0.02           | 1184.82                    | 3020.47       | 713.50        | 2022.08          | 2116.30          | 77.69              | -6.478              | -0.001               | 0.570        |
| 125.00        | -23.13           | -31.64           | -0.22               | -1023.9         | -0.02           | 1023.96                    | 2933.36       | 692.92        | 1907.13          | 1995.35          | 84.60              | -6.740              | -0.001               | 0.523        |
| 130.00        | -22.08           | -31.06           | -0.23               | -865.79         | -0.02           | 865.79                     | 2846.25       | 672.34        | 1795.55          | 1877.96          | 91.77              | -6.985              | -0.001               | 0.471        |
| 131.25        | -21.78           | -30.95           | -0.23               | -826.96         | -0.02           | 826.96                     | 2824.47       | 667.20        | 1768.17          | 1849.17          | 93.61              | -7.045              | -0.001               | 0.457        |
| 135.00        | -20.63           | -30.47           | -0.23               | -710.89         | -0.02           | 710.89                     | 2759.14       | 651.77        | 1687.32          | 1764.13          | 99.20              | -7.213              | -0.001               | 0.413        |
| 135.50        | -20.47           | -30.42           | -0.23               | -695.65         | -0.02           | 695.65                     | 1734.08       | 441.84        | 1163.16          | 1132.07          | 99.95              | -7.234              | -0.001               | 0.631        |
| 137.00        | -17.31           | -25.21           | 0.00                | -650.03         | 0.01            | 650.03                     | 1723.43       | 437.73        | 1141.60          | 1114.56          | 102.23             | -7.298              | -0.001               | 0.597        |
| 140.00        | -16.86           | -24.93           | 0.00                | -574.40         | 0.01            | 574.40                     | 1701.83       | 429.50        | 1099.07          | 1079.73          | 106.86             | -7.466              | -0.001               | 0.545        |
| 145.00        | -16.20           | -24.41           | 0.00                | -449.74         | 0.00            | 449.74                     | 1664.90       | 415.78        | 1029.98          | 1022.29          | 114.79             | -7.713              | -0.001               | 0.453        |
| 147.00        | -13.59           | -20.48           | 0.00                | -400.91         | 0.00            | 400.91                     | 1649.80       | 410.29        | 1002.98          | 999.54           | 118.03             | -7.804              | -0.001               | 0.412        |
| 150.00        | -13.20           | -20.18           | 0.00                | -339.49         | 0.00            | 339.49                     | 1626.81       | 402.06        | 963.14           | 965.67           | 122.96             | -7.927              | -0.001               | 0.362        |
| 155.00        | -12.61           | -19.67           | 0.00                | -238.58         | 0.00            | 238.58                     | 1587.58       | 388.34        | 898.54           | 909.96           | 131.33             | -8.098              | -0.001               | 0.273        |
| 157.00        | -8.82            | -13.77           | 0.00                | -199.25         | 0.00            | 199.25                     | 1571.57       | 382.86        | 873.33           | 887.94           | 134.73             | -8.155              | -0.001               | 0.231        |
| 160.00        | -8.49            | -13.47           | 0.00                | -157.95         | 0.00            | 157.95                     | 1547.20       | 374.63        | 836.18           | 855.21           | 139.86             | -8.228              | -0.001               | 0.191        |
| 165.00        | -7.98            | -12.97           | 0.00                | -90.62          | 0.00            | 90.62                      | 1505.67       | 360.91        | 776.07           | 801.50           | 148.50             | -8.319              | -0.001               | 0.120        |
| 167.00        | -4.55            | -6.82            | 0.00                | -64.69          | 0.00            | 64.69                      | 1488.74       | 355.42        | 752.65           | 780.32           | 151.98             | -8.344              | -0.001               | 0.086        |
| 170.00        | -4.29            | -6.53            | 0.00                | -44.23          | 0.00            | 44.23                      | 1462.99       | 347.19        | 718.19           | 748.90           | 157.21             | -8.372              | -0.001               | 0.062        |
| 175.00        | -3.87            | -6.06            | 0.00                | -11.56          | 0.00            | 11.56                      | 1411.70       | 333.47        | 662.56           | 693.80           | 165.97             | -8.397              | -0.001               | 0.020        |
| 176.00        | 0.00             | -5.43            | 0.00                | -5.49           | 0.00            | 5.49                       | 1400.09       | 330.73        | 651.70           | 682.38           | 167.72             | -8.399              | -0.001               | 0.008        |

## Calculated Forces

**Structure:** CT02216-S-SBA

**Code:** TIA-222-H

12/15/2022

**Site Name:** Glastonbury

**Exposure:** C

**Height:** 176.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

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## Wind Loading - Shaft

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

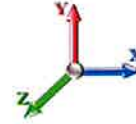
**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

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**Load Case:** 0.9D + 1.0W 119 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.00



**Iterations** 26

| 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 | 28.787   | 31.67      | 520.62     | 0.730 | 0.000          | 0.00           | 0.000   | 0.00      | 0.0               | 0.0                | 0.0                |
| 5.00      |                 | 1.00 | 0.85 | 28.787   | 31.67      | 511.55     | 0.730 | 0.000          | 5.00           | 23.718  | 17.31     | 548.3             | 0.0                | 1350.0             |
| 10.00     |                 | 1.00 | 0.85 | 28.787   | 31.67      | 502.48     | 0.730 | 0.000          | 5.00           | 23.301  | 17.01     | 538.6             | 0.0                | 1326.1             |
| 15.00     |                 | 1.00 | 0.85 | 28.787   | 31.67      | 493.41     | 0.730 | 0.000          | 5.00           | 22.884  | 16.71     | 529.0             | 0.0                | 1302.2             |
| 20.00     |                 | 1.00 | 0.90 | 30.544   | 33.60      | 498.90     | 0.730 | 0.000          | 5.00           | 22.467  | 16.40     | 551.1             | 0.0                | 1278.2             |
| 25.00     |                 | 1.00 | 0.95 | 32.013   | 35.21      | 501.20     | 0.730 | 0.000          | 5.00           | 22.050  | 16.10     | 566.8             | 0.0                | 1254.3             |
| 30.00     |                 | 1.00 | 0.98 | 33.266   | 36.59      | 501.16     | 0.730 | 0.000          | 5.00           | 21.634  | 15.79     | 577.9             | 0.0                | 1230.4             |
| 35.00     |                 | 1.00 | 1.01 | 34.363   | 37.80      | 499.45     | 0.730 | 0.000          | 5.00           | 21.217  | 15.49     | 585.5             | 0.0                | 1206.4             |
| 40.00     |                 | 1.00 | 1.04 | 35.343   | 38.88      | 496.47     | 0.730 | 0.000          | 5.00           | 20.800  | 15.18     | 590.3             | 0.0                | 1182.5             |
| 42.75     | Bot - Section 2 | 1.00 | 1.06 | 35.841   | 39.43      | 494.39     | 0.730 | 0.000          | 2.75           | 11.262  | 8.22      | 324.1             | 0.0                | 640.2              |
| 45.00     |                 | 1.00 | 1.07 | 36.231   | 39.85      | 492.49     | 0.730 | 0.000          | 2.25           | 9.288   | 6.78      | 270.2             | 0.0                | 980.9              |
| 49.00     | Top - Section 1 | 1.00 | 1.09 | 36.886   | 40.57      | 488.71     | 0.730 | 0.000          | 4.00           | 16.303  | 11.90     | 482.9             | 0.0                | 1721.5             |
| 50.00     |                 | 1.00 | 1.09 | 37.043   | 40.75      | 496.83     | 0.730 | 0.000          | 1.00           | 4.034   | 2.94      | 120.0             | 0.0                | 200.9              |
| 55.00     |                 | 1.00 | 1.12 | 37.794   | 41.57      | 491.45     | 0.730 | 0.000          | 5.00           | 19.920  | 14.54     | 604.5             | 0.0                | 991.8              |
| 60.00     |                 | 1.00 | 1.14 | 38.493   | 42.34      | 485.49     | 0.730 | 0.000          | 5.00           | 19.503  | 14.24     | 602.8             | 0.0                | 970.8              |
| 65.00     |                 | 1.00 | 1.16 | 39.147   | 43.06      | 479.02     | 0.730 | 0.000          | 5.00           | 19.086  | 13.93     | 600.0             | 0.0                | 949.9              |
| 70.00     |                 | 1.00 | 1.17 | 39.762   | 43.74      | 472.11     | 0.730 | 0.000          | 5.00           | 18.670  | 13.63     | 596.1             | 0.0                | 928.9              |
| 75.00     |                 | 1.00 | 1.19 | 40.344   | 44.38      | 464.82     | 0.730 | 0.000          | 5.00           | 18.253  | 13.32     | 591.3             | 0.0                | 908.0              |
| 80.00     |                 | 1.00 | 1.21 | 40.896   | 44.99      | 457.18     | 0.730 | 0.000          | 5.00           | 17.836  | 13.02     | 585.7             | 0.0                | 887.0              |
| 85.00     |                 | 1.00 | 1.22 | 41.421   | 45.56      | 449.22     | 0.730 | 0.000          | 5.00           | 17.419  | 12.72     | 579.4             | 0.0                | 866.1              |
| 86.50     | Bot - Section 3 | 1.00 | 1.23 | 41.574   | 45.73      | 446.78     | 0.730 | 0.000          | 1.50           | 5.145   | 3.76      | 171.7             | 0.0                | 255.7              |
| 90.00     |                 | 1.00 | 1.24 | 41.923   | 46.11      | 440.99     | 0.730 | 0.000          | 3.50           | 12.080  | 8.82      | 406.7             | 0.0                | 1105.0             |
| 91.75     | Top - Section 2 | 1.00 | 1.24 | 42.093   | 46.30      | 438.05     | 0.730 | 0.000          | 1.75           | 5.963   | 4.35      | 201.6             | 0.0                | 545.3              |
| 95.00     |                 | 1.00 | 1.25 | 42.403   | 46.64      | 440.88     | 0.730 | 0.000          | 3.25           | 10.940  | 7.99      | 372.5             | 0.0                | 466.8              |
| 100.00    |                 | 1.00 | 1.27 | 42.863   | 47.15      | 432.20     | 0.730 | 0.000          | 5.00           | 16.486  | 12.03     | 567.4             | 0.0                | 703.3              |
| 105.00    |                 | 1.00 | 1.28 | 43.306   | 47.64      | 423.30     | 0.730 | 0.000          | 5.00           | 16.069  | 11.73     | 558.8             | 0.0                | 685.4              |
| 110.00    |                 | 1.00 | 1.29 | 43.732   | 48.10      | 414.20     | 0.730 | 0.000          | 5.00           | 15.653  | 11.43     | 549.7             | 0.0                | 667.4              |
| 115.00    |                 | 1.00 | 1.30 | 44.143   | 48.56      | 404.92     | 0.730 | 0.000          | 5.00           | 15.236  | 11.12     | 540.1             | 0.0                | 649.5              |
| 120.00    |                 | 1.00 | 1.32 | 44.540   | 48.99      | 395.45     | 0.730 | 0.000          | 5.00           | 14.819  | 10.82     | 530.0             | 0.0                | 631.5              |
| 125.00    |                 | 1.00 | 1.33 | 44.925   | 49.42      | 385.83     | 0.730 | 0.000          | 5.00           | 14.402  | 10.51     | 519.6             | 0.0                | 613.6              |
| 130.00    |                 | 1.00 | 1.34 | 45.297   | 49.83      | 376.05     | 0.730 | 0.000          | 5.00           | 13.986  | 10.21     | 508.7             | 0.0                | 595.6              |
| 131.25    | Bot - Section 4 | 1.00 | 1.34 | 45.388   | 49.93      | 373.58     | 0.730 | 0.000          | 1.25           | 3.431   | 2.50      | 125.1             | 0.0                | 146.1              |
| 135.00    |                 | 1.00 | 1.35 | 45.658   | 50.22      | 366.12     | 0.730 | 0.000          | 3.75           | 10.296  | 7.52      | 377.5             | 0.0                | 724.9              |
| 135.50    | Top - Section 3 | 1.00 | 1.35 | 45.694   | 50.26      | 365.12     | 0.730 | 0.000          | 0.50           | 1.355   | 0.99      | 49.7              | 0.0                | 95.4               |
| 137.00    | Appurtenance(s) | 1.00 | 1.35 | 45.800   | 50.38      | 367.92     | 0.730 | 0.000          | 1.50           | 4.040   | 2.95      | 148.6             | 0.0                | 115.1              |
| 140.00    |                 | 1.00 | 1.36 | 46.009   | 50.61      | 361.88     | 0.730 | 0.000          | 3.00           | 7.968   | 5.82      | 294.4             | 0.0                | 227.0              |
| 145.00    |                 | 1.00 | 1.37 | 46.351   | 50.99      | 351.71     | 0.730 | 0.000          | 5.00           | 12.947  | 9.45      | 481.9             | 0.0                | 368.8              |
| 147.00    | Appurtenance(s) | 1.00 | 1.37 | 46.484   | 51.13      | 347.61     | 0.730 | 0.000          | 2.00           | 5.062   | 3.70      | 188.9             | 0.0                | 144.2              |
| 150.00    |                 | 1.00 | 1.38 | 46.683   | 51.35      | 341.42     | 0.730 | 0.000          | 3.00           | 7.468   | 5.45      | 279.9             | 0.0                | 212.6              |
| 155.00    |                 | 1.00 | 1.39 | 47.006   | 51.71      | 331.01     | 0.730 | 0.000          | 5.00           | 12.113  | 8.84      | 457.2             | 0.0                | 344.8              |
| 157.00    | Appurtenance(s) | 1.00 | 1.39 | 47.133   | 51.85      | 326.82     | 0.730 | 0.000          | 2.00           | 4.729   | 3.45      | 179.0             | 0.0                | 134.6              |
| 160.00    |                 | 1.00 | 1.40 | 47.321   | 52.05      | 320.49     | 0.730 | 0.000          | 3.00           | 6.968   | 5.09      | 264.8             | 0.0                | 198.3              |
| 165.00    |                 | 1.00 | 1.41 | 47.629   | 52.39      | 309.87     | 0.730 | 0.000          | 5.00           | 11.280  | 8.23      | 431.4             | 0.0                | 320.9              |
| 167.00    | Appurtenance(s) | 1.00 | 1.41 | 47.750   | 52.52      | 305.59     | 0.730 | 0.000          | 2.00           | 4.395   | 3.21      | 168.5             | 0.0                | 125.0              |
| 170.00    |                 | 1.00 | 1.42 | 47.929   | 52.72      | 299.14     | 0.730 | 0.000          | 3.00           | 6.468   | 4.72      | 248.9             | 0.0                | 183.9              |
| 175.00    |                 | 1.00 | 1.42 | 48.222   | 53.04      | 288.32     | 0.730 | 0.000          | 5.00           | 10.446  | 7.63      | 404.5             | 0.0                | 296.9              |
| 176.00    | Appurtenance(s) | 1.00 | 1.43 | 48.280   | 53.11      | 286.14     | 0.730 | 0.000          | 1.00           | 2.039   | 1.49      | 79.1              | 0.0                | 58.0               |

## Wind Loading - Shaft

|                                 |                                   |            |
|---------------------------------|-----------------------------------|------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022 |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |            |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |            |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |            |
| <b>Gh:</b> 1.1                  | <b>Struct Class:</b> II           | Page: 20   |



|                |               |                 |                 |
|----------------|---------------|-----------------|-----------------|
| <b>Totals:</b> | <b>176.00</b> | <b>18,950.6</b> | <b>30,791.6</b> |
|----------------|---------------|-----------------|-----------------|

## Discrete Appurtenance Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

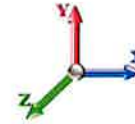
12/15/2022

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**Load Case:** 0.9D + 1.0W 119 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.00



**Iterations** 26

| 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   | 176.00    | KRY 112 89/4          | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 0.98            | 41.58          | 0.000          | 1.000         | 52.10        | 0.00          | 52.10         |
| 2   | 176.00    | MHA FE15501P7775      | 6   | 48.338   | 53.172     | 0.49               | 0.75 | 2.72            | 59.40          | 0.000          | 1.000         | 144.64       | 0.00          | 144.64        |
| 3   | 176.00    | RMQP-496-HK           | 1   | 48.338   | 53.172     | 1.00               | 1.00 | 46.00           | 2204.10        | 0.000          | 1.000         | 2445.89      | 0.00          | 2445.89       |
| 4   | 176.00    | KRY 112 489/2         | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 0.98            | 41.58          | 0.000          | 1.000         | 52.10        | 0.00          | 52.10         |
| 5   | 176.00    | Lightning Rod         | 1   | 48.481   | 53.329     | 1.00               | 1.00 | 1.05            | 31.50          | 0.000          | 3.500         | 56.00        | 0.00          | 195.98        |
| 6   | 176.00    | AIR 6419 B41          | 3   | 48.338   | 53.172     | 0.52               | 0.75 | 10.28           | 359.64         | 0.000          | 1.000         | 546.86       | 0.00          | 546.86        |
| 7   | 176.00    | APXVAALL24_43-U-NA20  | 3   | 48.338   | 53.172     | 0.55               | 0.75 | 33.24           | 331.56         | 0.000          | 1.000         | 1767.65      | 0.00          | 1767.65       |
| 8   | 176.00    | 4449 B71 + B85        | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 2.97            | 197.64         | 0.000          | 1.000         | 157.91       | 0.00          | 157.91        |
| 9   | 176.00    | 4460 B25 + B66        | 3   | 48.338   | 53.172     | 0.50               | 0.75 | 2.47            | 194.40         | 0.000          | 1.000         | 131.46       | 0.00          | 131.46        |
| 10  | 167.00    | B5/B13 RRH ORAN       | 3   | 47.750   | 52.525     | 0.50               | 0.75 | 2.82            | 189.81         | 0.000          | 0.000         | 148.07       | 0.00          | 0.00          |
| 11  | 167.00    | B2/B66A RRH ORAN      | 3   | 47.750   | 52.525     | 0.50               | 0.75 | 2.82            | 227.88         | 0.000          | 0.000         | 148.07       | 0.00          | 0.00          |
| 12  | 167.00    | Samsung MT6407-77A    | 3   | 47.750   | 52.525     | 0.52               | 0.75 | 7.39            | 214.38         | 0.000          | 0.000         | 387.99       | 0.00          | 0.00          |
| 13  | 167.00    | CBRS RRH - RT4401-48A | 3   | 47.750   | 52.525     | 0.50               | 0.75 | 1.49            | 50.22          | 0.000          | 0.000         | 78.39        | 0.00          | 0.00          |
| 14  | 167.00    | Commscope             | 3   | 47.750   | 52.525     | 0.64               | 0.75 | 15.66           | 136.89         | 0.000          | 0.000         | 822.71       | 0.00          | 0.00          |
| 15  | 167.00    | Commscope             | 3   | 47.750   | 52.525     | 0.62               | 0.75 | 15.09           | 117.99         | 0.000          | 0.000         | 792.56       | 0.00          | 0.00          |
| 16  | 167.00    | LPA-80063-4CF-EDIN-5  | 2   | 47.750   | 52.525     | 0.84               | 0.90 | 10.30           | 36.00          | 0.000          | 0.000         | 540.75       | 0.00          | 0.00          |
| 17  | 167.00    | Raycap                | 2   | 47.750   | 52.525     | 0.81               | 0.90 | 6.12            | 57.60          | 0.000          | 0.000         | 321.64       | 0.00          | 0.00          |
| 18  | 167.00    | KICKER KIT            | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 5.33            | 131.40         | 0.000          | 0.000         | 279.96       | 0.00          | 0.00          |
| 19  | 167.00    | MONOPOLE COLLAR       | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 2.50            | 135.54         | 0.000          | 0.000         | 131.31       | 0.00          | 0.00          |
| 20  | 167.00    | SUPPORT RAIL CORNER   | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 8.75            | 387.00         | 0.000          | 0.000         | 459.59       | 0.00          | 0.00          |
| 21  | 167.00    | APL868013             | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 2.86            | 5.67           | 0.000          | 0.000         | 150.22       | 0.00          | 0.00          |
| 22  | 167.00    | Low Profile           | 1   | 47.750   | 52.525     | 1.00               | 1.00 | 22.00           | 1350.00        | 0.000          | 0.000         | 1155.54      | 0.00          | 0.00          |
| 23  | 157.00    | Sitepro PRK-SFS-H-L   | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 6.70            | 207.00         | 0.000          | 0.000         | 347.37       | 0.00          | 0.00          |
| 24  | 157.00    | Sitepro HRK14-U       | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 8.13            | 272.12         | 0.000          | 0.000         | 421.51       | 0.00          | 0.00          |
| 25  | 157.00    | Sitepro PRK-1245L     | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 9.50            | 418.42         | 0.000          | 0.000         | 492.54       | 0.00          | 0.00          |
| 26  | 157.00    | ALU 800 Mhz           | 6   | 47.133   | 51.846     | 0.54               | 0.80 | 8.01            | 286.20         | 0.000          | 0.000         | 415.18       | 0.00          | 0.00          |
| 27  | 157.00    | Low Profile Platform  | 1   | 47.133   | 51.846     | 1.00               | 1.00 | 22.00           | 1350.00        | 0.000          | 0.000         | 1140.62      | 0.00          | 0.00          |
| 28  | 157.00    | ALU 1900 Mhz          | 3   | 47.133   | 51.846     | 0.54               | 0.80 | 4.45            | 162.00         | 0.000          | 0.000         | 230.93       | 0.00          | 0.00          |
| 29  | 157.00    | Commscope             | 3   | 47.133   | 51.846     | 0.60               | 0.80 | 22.09           | 208.98         | 0.000          | 0.000         | 1145.08      | 0.00          | 0.00          |
| 30  | 157.00    | ALU TD-RRH8x20-25     | 3   | 47.133   | 51.846     | 0.54               | 0.80 | 6.51            | 189.00         | 0.000          | 0.000         | 337.64       | 0.00          | 0.00          |
| 31  | 157.00    | RFS APXVTM14-C-I20    | 3   | 47.133   | 51.846     | 0.62               | 0.80 | 11.72           | 151.74         | 0.000          | 0.000         | 607.45       | 0.00          | 0.00          |
| 32  | 147.00    | RDIDC-9181-PF-48      | 1   | 46.484   | 51.133     | 1.00               | 1.00 | 2.01            | 19.71          | 0.000          | 0.000         | 102.78       | 0.00          | 0.00          |
| 33  | 147.00    | TA08025-B604          | 3   | 46.484   | 51.133     | 0.50               | 0.75 | 2.95            | 172.53         | 0.000          | 0.000         | 151.08       | 0.00          | 0.00          |
| 34  | 147.00    | TA08025-B605          | 3   | 46.484   | 51.133     | 0.50               | 0.75 | 2.95            | 202.50         | 0.000          | 0.000         | 151.08       | 0.00          | 0.00          |
| 35  | 147.00    | MC-PK8-DSH            | 1   | 46.484   | 51.133     | 1.00               | 1.00 | 37.59           | 1554.30        | 0.000          | 0.000         | 1922.08      | 0.00          | 0.00          |
| 36  | 147.00    | MX08FRO665-21         | 3   | 46.484   | 51.133     | 0.55               | 0.75 | 20.80           | 174.15         | 0.000          | 0.000         | 1063.35      | 0.00          | 0.00          |
| 37  | 137.00    | B2 B66A 8843          | 3   | 45.800   | 50.380     | 0.50               | 0.75 | 2.47            | 189.00         | 0.000          | 0.000         | 124.55       | 0.00          | 0.00          |
| 38  | 137.00    | 4449 B5/B12           | 3   | 45.800   | 50.380     | 0.50               | 0.75 | 2.97            | 191.70         | 0.000          | 0.000         | 149.62       | 0.00          | 0.00          |
| 39  | 137.00    | HPA-65R-BUU-H6        | 3   | 45.800   | 50.380     | 0.64               | 0.75 | 18.47           | 137.70         | 0.000          | 0.000         | 930.76       | 0.00          | 0.00          |
| 40  | 137.00    | 7020                  | 12  | 45.800   | 50.380     | 0.50               | 0.75 | 2.41            | 23.76          | 0.000          | 0.000         | 121.52       | 0.00          | 0.00          |
| 41  | 137.00    | DMP65R-BU6DA          | 3   | 45.800   | 50.380     | 0.54               | 0.75 | 20.59           | 214.38         | 0.000          | 0.000         | 1037.33      | 0.00          | 0.00          |
| 42  | 137.00    | HRK14                 | 1   | 45.800   | 50.380     | 1.00               | 1.00 | 8.13            | 272.12         | 0.000          | 0.000         | 409.59       | 0.00          | 0.00          |
| 43  | 137.00    | LP Platform-Round     | 1   | 45.800   | 50.380     | 1.00               | 1.00 | 22.00           | 1350.00        | 0.000          | 0.000         | 1108.36      | 0.00          | 0.00          |
| 44  | 137.00    | Smart Bias T 1001940  | 3   | 45.800   | 50.380     | 0.50               | 0.75 | 0.14            | 5.40           | 7.041          | 0.000         | 6.84         | 48.12         | 0.00          |
| 45  | 137.00    | DC6-48-60-18-8F       | 1   | 45.800   | 50.380     | 1.00               | 1.00 | 1.47            | 29.52          | 0.000          | 0.000         | 74.06        | 0.00          | 0.00          |
| 46  | 137.00    | 7770.00               | 3   | 45.800   | 50.380     | 0.55               | 0.75 | 9.03            | 94.50          | 0.000          | 0.000         | 455.12       | 0.00          | 0.00          |
| 47  | 137.00    | LGP21401              | 6   | 45.800   | 50.380     | 0.50               | 0.75 | 3.89            | 102.60         | 0.000          | 0.000         | 195.95       | 0.00          | 0.00          |

## Discrete Appurtenance Forces

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|                |        |          |  |   |        |        |      |      |      |       |       |                  |                  |        |      |
|----------------|--------|----------|--|---|--------|--------|------|------|------|-------|-------|------------------|------------------|--------|------|
| 48             | 137.00 | LGP21903 |  | 6 | 45.800 | 50.380 | 0.50 | 0.75 | 0.81 | 27.00 | 4.341 | 0.000            | 41.01            | 178.01 | 0.00 |
| <b>Totals:</b> |        |          |  |   |        |        |      |      |      |       |       | <b>14,508.12</b> | <b>23,954.78</b> |        |      |

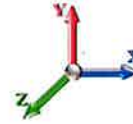
## Total Applied Force Summary

|                                 |                                   |                 |
|---------------------------------|-----------------------------------|-----------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022      |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                 |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                 |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                 |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Page:</b> 23 |
|                                 | <b>Struct Class:</b> II           |                 |



**Load Case:** 0.9D + 1.0W 119 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.00



**Iterations** 26

| Elev<br>(ft) | Description      | Lateral<br>FX (-)<br>(lb) | Axial<br>FY (-)<br>(lb) | Torsion<br>MY<br>(lb-ft) | Moment<br>MZ<br>(lb-ft) |
|--------------|------------------|---------------------------|-------------------------|--------------------------|-------------------------|
| 0.00         |                  | 0.00                      | 0.00                    | 0.00                     | 0.00                    |
| 5.00         |                  | 548.26                    | 1533.98                 | 0.00                     | 0.00                    |
| 10.00        |                  | 538.62                    | 1510.04                 | 0.00                     | 0.00                    |
| 15.00        |                  | 528.99                    | 1486.10                 | 0.00                     | 0.00                    |
| 20.00        |                  | 551.06                    | 1462.17                 | 0.00                     | 0.00                    |
| 25.00        |                  | 566.85                    | 1438.23                 | 0.00                     | 0.00                    |
| 30.00        |                  | 577.89                    | 1414.29                 | 0.00                     | 0.00                    |
| 35.00        |                  | 585.46                    | 1390.35                 | 0.00                     | 0.00                    |
| 40.00        |                  | 590.32                    | 1366.41                 | 0.00                     | 0.00                    |
| 42.75        |                  | 324.14                    | 741.32                  | 0.00                     | 0.00                    |
| 45.00        |                  | 270.20                    | 1063.71                 | 0.00                     | 0.00                    |
| 49.00        |                  | 482.88                    | 1868.60                 | 0.00                     | 0.00                    |
| 50.00        |                  | 119.99                    | 237.65                  | 0.00                     | 0.00                    |
| 55.00        |                  | 604.54                    | 1175.70                 | 0.00                     | 0.00                    |
| 60.00        |                  | 602.83                    | 1154.76                 | 0.00                     | 0.00                    |
| 65.00        |                  | 599.98                    | 1133.81                 | 0.00                     | 0.00                    |
| 70.00        |                  | 596.10                    | 1112.87                 | 0.00                     | 0.00                    |
| 75.00        |                  | 591.32                    | 1091.92                 | 0.00                     | 0.00                    |
| 80.00        |                  | 585.73                    | 1070.97                 | 0.00                     | 0.00                    |
| 85.00        |                  | 579.39                    | 1050.03                 | 0.00                     | 0.00                    |
| 86.50        |                  | 171.74                    | 310.92                  | 0.00                     | 0.00                    |
| 90.00        |                  | 406.66                    | 1233.73                 | 0.00                     | 0.00                    |
| 91.75        |                  | 201.57                    | 609.72                  | 0.00                     | 0.00                    |
| 95.00        |                  | 372.48                    | 586.34                  | 0.00                     | 0.00                    |
| 100.00       |                  | 567.44                    | 887.25                  | 0.00                     | 0.00                    |
| 105.00       |                  | 558.80                    | 869.30                  | 0.00                     | 0.00                    |
| 110.00       |                  | 549.67                    | 851.34                  | 0.00                     | 0.00                    |
| 115.00       |                  | 540.06                    | 833.39                  | 0.00                     | 0.00                    |
| 120.00       |                  | 530.02                    | 815.44                  | 0.00                     | 0.00                    |
| 125.00       |                  | 519.56                    | 797.48                  | 0.00                     | 0.00                    |
| 130.00       |                  | 508.70                    | 779.53                  | 0.00                     | 0.00                    |
| 131.25       |                  | 125.06                    | 192.08                  | 0.00                     | 0.00                    |
| 135.00       |                  | 377.49                    | 862.90                  | 0.00                     | 0.00                    |
| 135.50       |                  | 49.72                     | 113.78                  | 0.00                     | 0.00                    |
| 137.00       | (45) attachments | 4803.29                   | 2807.98                 | 226.14                   | 0.00                    |
| 140.00       |                  | 294.39                    | 301.07                  | 0.00                     | 0.00                    |
| 145.00       |                  | 481.87                    | 492.20                  | 0.00                     | 0.00                    |
| 147.00       | (11) attachments | 3579.32                   | 2316.72                 | 0.00                     | 0.00                    |
| 150.00       |                  | 279.94                    | 284.00                  | 0.00                     | 0.00                    |
| 155.00       |                  | 457.22                    | 463.77                  | 0.00                     | 0.00                    |
| 157.00       | (22) attachments | 5317.27                   | 3427.62                 | 0.00                     | 0.00                    |
| 160.00       |                  | 264.77                    | 262.51                  | 0.00                     | 0.00                    |
| 165.00       |                  | 431.40                    | 427.95                  | 0.00                     | 0.00                    |
| 167.00       | (27) attachments | 5585.31                   | 3208.21                 | 0.00                     | 0.00                    |
| 170.00       |                  | 248.92                    | 224.39                  | 0.00                     | 0.00                    |
| 175.00       |                  | 404.50                    | 364.41                  | 0.00                     | 0.00                    |
| 176.00       | (26) attachments | 5433.66                   | 3532.85                 | 0.00                     | 5494.59                 |

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |

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|                |                  |                  |               |                 |
|----------------|------------------|------------------|---------------|-----------------|
| <b>Totals:</b> | <b>42,905.39</b> | <b>51,159.77</b> | <b>226.14</b> | <b>5,494.59</b> |
|----------------|------------------|------------------|---------------|-----------------|



## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

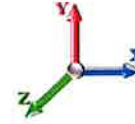
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**Load Case:** 0.9D + 1.0W 119 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.00



**Iterations** 26

| 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          | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 1.23           |
| 5.00          | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 4.68           |
| 10.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 1.23           |
| 10.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 4.68           |
| 15.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 1.23           |
| 15.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 28.787   | 0.00     | 4.68           |
| 20.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 30.544   | 0.00     | 1.23           |
| 20.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 30.544   | 0.00     | 4.68           |
| 25.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 32.013   | 0.00     | 1.23           |
| 25.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 32.013   | 0.00     | 4.68           |
| 30.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 33.266   | 0.00     | 1.23           |
| 30.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 33.266   | 0.00     | 4.68           |
| 35.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.020 | 0.000            | 34.363   | 0.00     | 1.23           |
| 35.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.020 | 0.000            | 34.363   | 0.00     | 4.68           |
| 40.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.020 | 0.000            | 35.343   | 0.00     | 1.23           |
| 40.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.020 | 0.000            | 35.343   | 0.00     | 4.68           |
| 42.75         | Safety Cable        | Yes          | 2.75        | 0.000 | 0.38               | 0.09        | 0.00        | 0.021 | 0.000            | 35.841   | 0.00     | 0.68           |
| 42.75         | Step bolts (ladder) | Yes          | 2.75        | 0.000 | 0.63               | 0.14        | 0.00        | 0.021 | 0.000            | 35.841   | 0.00     | 2.57           |
| 45.00         | Safety Cable        | Yes          | 2.25        | 0.000 | 0.38               | 0.07        | 0.00        | 0.021 | 0.000            | 36.231   | 0.00     | 0.55           |
| 45.00         | Step bolts (ladder) | Yes          | 2.25        | 0.000 | 0.63               | 0.12        | 0.00        | 0.021 | 0.000            | 36.231   | 0.00     | 2.11           |
| 49.00         | Safety Cable        | Yes          | 4.00        | 0.000 | 0.38               | 0.13        | 0.00        | 0.021 | 0.000            | 36.886   | 0.00     | 0.98           |
| 49.00         | Step bolts (ladder) | Yes          | 4.00        | 0.000 | 0.63               | 0.21        | 0.00        | 0.021 | 0.000            | 36.886   | 0.00     | 3.74           |
| 50.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.03        | 0.00        | 0.021 | 0.000            | 37.043   | 0.00     | 0.25           |
| 50.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.05        | 0.00        | 0.021 | 0.000            | 37.043   | 0.00     | 0.94           |
| 55.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.021 | 0.000            | 37.794   | 0.00     | 1.23           |
| 55.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.021 | 0.000            | 37.794   | 0.00     | 4.68           |
| 60.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.022 | 0.000            | 38.493   | 0.00     | 1.23           |
| 60.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.022 | 0.000            | 38.493   | 0.00     | 4.68           |
| 65.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.022 | 0.000            | 39.147   | 0.00     | 1.23           |
| 65.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.022 | 0.000            | 39.147   | 0.00     | 4.68           |
| 70.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.023 | 0.000            | 39.762   | 0.00     | 1.23           |
| 70.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.023 | 0.000            | 39.762   | 0.00     | 4.68           |
| 75.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.023 | 0.000            | 40.344   | 0.00     | 1.23           |
| 75.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.023 | 0.000            | 40.344   | 0.00     | 4.68           |
| 80.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.024 | 0.000            | 40.896   | 0.00     | 1.23           |
| 80.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.024 | 0.000            | 40.896   | 0.00     | 4.68           |
| 85.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.024 | 0.000            | 41.421   | 0.00     | 1.23           |
| 85.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.024 | 0.000            | 41.421   | 0.00     | 4.68           |
| 86.50         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.05        | 0.00        | 0.025 | 0.000            | 41.574   | 0.00     | 0.37           |
| 86.50         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.08        | 0.00        | 0.025 | 0.000            | 41.574   | 0.00     | 1.40           |
| 90.00         | Safety Cable        | Yes          | 3.50        | 0.000 | 0.38               | 0.11        | 0.00        | 0.025 | 0.000            | 41.923   | 0.00     | 0.86           |
| 90.00         | Step bolts (ladder) | Yes          | 3.50        | 0.000 | 0.63               | 0.18        | 0.00        | 0.025 | 0.000            | 41.923   | 0.00     | 3.28           |
| 91.75         | Safety Cable        | Yes          | 1.75        | 0.000 | 0.38               | 0.06        | 0.00        | 0.025 | 0.000            | 42.093   | 0.00     | 0.43           |
| 91.75         | Step bolts (ladder) | Yes          | 1.75        | 0.000 | 0.63               | 0.09        | 0.00        | 0.025 | 0.000            | 42.093   | 0.00     | 1.64           |
| 95.00         | Safety Cable        | Yes          | 3.25        | 0.000 | 0.38               | 0.10        | 0.00        | 0.025 | 0.000            | 42.403   | 0.00     | 0.80           |
| 95.00         | Step bolts (ladder) | Yes          | 3.25        | 0.000 | 0.63               | 0.17        | 0.00        | 0.025 | 0.000            | 42.403   | 0.00     | 3.04           |
| 100.00        | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.026 | 0.000            | 42.863   | 0.00     | 1.23           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

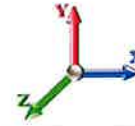
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**Load Case:** 0.9D + 1.0W 119 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.00



**Iterations** 26

| 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) |
|----------------|---------------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 100.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.026 | 0.000            | 42.863   | 0.00       | 4.68           |
| 105.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.026 | 0.000            | 43.306   | 0.00       | 1.23           |
| 105.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.026 | 0.000            | 43.306   | 0.00       | 4.68           |
| 110.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.027 | 0.000            | 43.732   | 0.00       | 1.23           |
| 110.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.027 | 0.000            | 43.732   | 0.00       | 4.68           |
| 115.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.028 | 0.000            | 44.143   | 0.00       | 1.23           |
| 115.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.028 | 0.000            | 44.143   | 0.00       | 4.68           |
| 120.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.028 | 0.000            | 44.540   | 0.00       | 1.23           |
| 120.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.028 | 0.000            | 44.540   | 0.00       | 4.68           |
| 125.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.029 | 0.000            | 44.925   | 0.00       | 1.23           |
| 125.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.029 | 0.000            | 44.925   | 0.00       | 4.68           |
| 130.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.030 | 0.000            | 45.297   | 0.00       | 1.23           |
| 130.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.030 | 0.000            | 45.297   | 0.00       | 4.68           |
| 131.25         | Safety Cable        | Yes          | 1.25        | 0.000 | 0.38               | 0.04        | 0.00        | 0.031 | 0.000            | 45.388   | 0.00       | 0.31           |
| 131.25         | Step bolts (ladder) | Yes          | 1.25        | 0.000 | 0.63               | 0.07        | 0.00        | 0.031 | 0.000            | 45.388   | 0.00       | 1.17           |
| 135.00         | Safety Cable        | Yes          | 3.75        | 0.000 | 0.38               | 0.12        | 0.00        | 0.031 | 0.000            | 45.658   | 0.00       | 0.92           |
| 135.00         | Step bolts (ladder) | Yes          | 3.75        | 0.000 | 0.63               | 0.20        | 0.00        | 0.031 | 0.000            | 45.658   | 0.00       | 3.51           |
| 135.50         | Safety Cable        | Yes          | 0.50        | 0.000 | 0.38               | 0.02        | 0.00        | 0.032 | 0.000            | 45.694   | 0.00       | 0.12           |
| 135.50         | Step bolts (ladder) | Yes          | 0.50        | 0.000 | 0.63               | 0.03        | 0.00        | 0.032 | 0.000            | 45.694   | 0.00       | 0.47           |
| 137.00         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.05        | 0.00        | 0.031 | 0.000            | 45.800   | 0.00       | 0.37           |
| 137.00         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.08        | 0.00        | 0.031 | 0.000            | 45.800   | 0.00       | 1.40           |
| 140.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.032 | 0.000            | 46.009   | 0.00       | 0.74           |
| 140.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.032 | 0.000            | 46.009   | 0.00       | 2.81           |
| 145.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.033 | 0.000            | 46.351   | 0.00       | 1.23           |
| 145.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.033 | 0.000            | 46.351   | 0.00       | 4.68           |
| 147.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.033 | 0.000            | 46.484   | 0.00       | 0.49           |
| 147.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.033 | 0.000            | 46.484   | 0.00       | 1.87           |
| 150.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.034 | 0.000            | 46.683   | 0.00       | 0.74           |
| 150.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.034 | 0.000            | 46.683   | 0.00       | 2.81           |
| 155.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.035 | 0.000            | 47.006   | 0.00       | 1.23           |
| 155.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.035 | 0.000            | 47.006   | 0.00       | 4.68           |
| 157.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.036 | 0.000            | 47.133   | 0.00       | 0.49           |
| 157.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.036 | 0.000            | 47.133   | 0.00       | 1.87           |
| 160.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.036 | 0.000            | 47.321   | 0.00       | 0.74           |
| 160.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.036 | 0.000            | 47.321   | 0.00       | 2.81           |
| 165.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.037 | 0.000            | 47.629   | 0.00       | 1.23           |
| 165.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.037 | 0.000            | 47.629   | 0.00       | 4.68           |
| 167.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.038 | 0.000            | 47.750   | 0.00       | 0.49           |
| 167.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.038 | 0.000            | 47.750   | 0.00       | 1.87           |
| 170.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.039 | 0.000            | 47.929   | 0.00       | 0.74           |
| 170.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.039 | 0.000            | 47.929   | 0.00       | 2.81           |
| 175.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.040 | 0.000            | 48.222   | 0.00       | 1.23           |
| 175.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.040 | 0.000            | 48.222   | 0.00       | 4.68           |
| 176.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.03        | 0.00        | 0.041 | 0.000            | 48.280   | 0.00       | 0.25           |
| 176.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.05        | 0.00        | 0.041 | 0.000            | 48.280   | 0.00       | 0.94           |
| <b>Totals:</b> |                     |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>208.0</b>   |

## Calculated Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

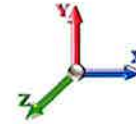
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**Load Case:** 0.9D + 1.0W 119 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.00



**Iterations** 26

| 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          | -51.07           | -43.01           | -0.22               | -5686.5         | -0.01           | 5686.59                    | 6372.54       | 1561.04       | 7259.46          | 7341.49          | 0.00               | 0.000               | 0.000                | 0.783        |
| 5.00          | -49.37           | -42.65           | -0.22               | -5471.5         | -0.01           | 5471.56                    | 6292.68       | 1533.60       | 7006.53          | 7120.95          | 0.12               | -0.225              | 0.000                | 0.777        |
| 10.00         | -47.70           | -42.29           | -0.22               | -5258.3         | -0.01           | 5258.31                    | 6211.66       | 1506.17       | 6758.08          | 6902.39          | 0.48               | -0.453              | 0.000                | 0.770        |
| 15.00         | -46.05           | -41.94           | -0.22               | -5046.8         | -0.01           | 5046.84                    | 6129.50       | 1478.73       | 6514.12          | 6685.89          | 1.08               | -0.684              | 0.000                | 0.763        |
| 20.00         | -44.42           | -41.55           | -0.22               | -4837.1         | -0.01           | 4837.15                    | 6046.18       | 1451.30       | 6274.65          | 6471.51          | 1.92               | -0.918              | 0.000                | 0.756        |
| 25.00         | -42.82           | -41.14           | -0.22               | -4629.4         | -0.01           | 4629.40                    | 5961.72       | 1423.86       | 6039.66          | 6259.33          | 3.01               | -1.155              | 0.000                | 0.748        |
| 30.00         | -41.25           | -40.70           | -0.22               | -4423.7         | -0.01           | 4423.72                    | 5876.11       | 1396.43       | 5809.15          | 6049.42          | 4.35               | -1.396              | 0.000                | 0.739        |
| 35.00         | -39.70           | -40.25           | -0.22               | -4220.2         | -0.01           | 4220.22                    | 5789.35       | 1368.99       | 5583.13          | 5841.84          | 5.94               | -1.639              | 0.000                | 0.730        |
| 40.00         | -38.22           | -39.75           | -0.22               | -4018.9         | -0.01           | 4018.97                    | 5679.25       | 1341.56       | 5361.59          | 5614.75          | 7.79               | -1.885              | 0.000                | 0.723        |
| 42.75         | -37.41           | -39.48           | -0.22               | -3909.6         | -0.01           | 3909.68                    | 5615.38       | 1326.47       | 5241.66          | 5488.51          | 8.91               | -2.024              | 0.000                | 0.720        |
| 45.00         | -36.24           | -39.27           | -0.22               | -3820.8         | -0.01           | 3820.85                    | 5563.11       | 1314.12       | 5144.54          | 5386.29          | 9.89               | -2.138              | 0.000                | 0.717        |
| 49.00         | -34.31           | -38.79           | -0.22               | -3663.7         | -0.01           | 3663.77                    | 4756.80       | 1153.50       | 4530.03          | 4626.40          | 11.77              | -2.340              | 0.000                | 0.800        |
| 50.00         | -33.97           | -38.76           | -0.22               | -3624.9         | -0.01           | 3624.98                    | 4742.51       | 1148.70       | 4492.40          | 4593.12          | 12.27              | -2.392              | 0.000                | 0.798        |
| 55.00         | -32.64           | -38.26           | -0.22               | -3431.2         | -0.01           | 3431.20                    | 4670.33       | 1124.69       | 4306.59          | 4427.82          | 14.92              | -2.665              | 0.000                | 0.783        |
| 60.00         | -31.33           | -37.75           | -0.22               | -3239.9         | -0.01           | 3239.90                    | 4597.00       | 1100.68       | 4124.71          | 4264.39          | 17.85              | -2.940              | 0.000                | 0.768        |
| 65.00         | -30.05           | -37.24           | -0.22               | -3051.1         | -0.01           | 3051.15                    | 4522.52       | 1076.68       | 3946.75          | 4102.93          | 21.08              | -3.217              | 0.000                | 0.751        |
| 70.00         | -28.80           | -36.72           | -0.22               | -2864.9         | -0.01           | 2864.96                    | 4446.89       | 1052.67       | 3772.72          | 3943.48          | 24.60              | -3.495              | 0.000                | 0.734        |
| 75.00         | -27.57           | -36.19           | -0.22               | -2681.3         | -0.01           | 2681.38                    | 4354.69       | 1028.67       | 3602.61          | 3772.77          | 28.40              | -3.774              | 0.000                | 0.718        |
| 80.00         | -26.37           | -35.66           | -0.22               | -2500.4         | -0.01           | 2500.42                    | 4253.06       | 1004.66       | 3436.42          | 3597.85          | 32.50              | -4.053              | 0.000                | 0.702        |
| 85.00         | -25.25           | -35.09           | -0.22               | -2322.0         | -0.01           | 2322.09                    | 4151.43       | 980.65        | 3274.16          | 3427.08          | 36.90              | -4.332              | 0.000                | 0.685        |
| 86.50         | -24.87           | -34.96           | -0.22               | -2269.4         | -0.01           | 2269.46                    | 4120.95       | 973.45        | 3226.24          | 3376.66          | 38.27              | -4.418              | 0.000                | 0.679        |
| 90.00         | -23.58           | -34.51           | -0.22               | -2147.1         | -0.01           | 2147.11                    | 4049.81       | 956.65        | 3115.82          | 3260.47          | 41.58              | -4.615              | 0.000                | 0.666        |
| 91.75         | -22.91           | -34.32           | -0.22               | -2086.7         | -0.01           | 2086.71                    | 3441.70       | 829.75        | 2734.72          | 2808.64          | 43.29              | -4.714              | 0.000                | 0.751        |
| 95.00         | -22.21           | -33.99           | -0.22               | -1975.1         | -0.01           | 1975.17                    | 3401.05       | 816.38        | 2647.27          | 2730.31          | 46.56              | -4.896              | 0.000                | 0.732        |
| 100.00        | -21.20           | -33.46           | -0.22               | -1805.2         | -0.01           | 1805.20                    | 3337.56       | 795.80        | 2515.51          | 2611.16          | 51.84              | -5.195              | 0.000                | 0.699        |
| 105.00        | -20.22           | -32.93           | -0.22               | -1637.9         | -0.01           | 1637.90                    | 3272.92       | 775.23        | 2387.10          | 2493.74          | 57.43              | -5.490              | 0.000                | 0.665        |
| 110.00        | -19.27           | -32.39           | -0.22               | -1473.2         | -0.01           | 1473.26                    | 3194.68       | 754.65        | 2262.06          | 2368.87          | 63.33              | -5.778              | 0.000                | 0.630        |
| 115.00        | -18.34           | -31.86           | -0.22               | -1311.3         | -0.02           | 1311.30                    | 3107.57       | 734.07        | 2140.39          | 2240.81          | 69.52              | -6.057              | 0.000                | 0.593        |
| 120.00        | -17.45           | -31.32           | -0.22               | -1152.0         | -0.02           | 1152.01                    | 3020.47       | 713.50        | 2022.08          | 2116.30          | 75.99              | -6.325              | -0.001               | 0.552        |
| 125.00        | -16.58           | -30.79           | -0.22               | -995.40         | -0.02           | 995.40                     | 2933.36       | 692.92        | 1907.13          | 1995.35          | 82.74              | -6.580              | -0.001               | 0.506        |
| 130.00        | -15.79           | -30.23           | -0.23               | -841.46         | -0.02           | 841.46                     | 2846.25       | 672.34        | 1795.55          | 1877.96          | 89.75              | -6.818              | -0.001               | 0.456        |
| 131.25        | -15.55           | -30.12           | -0.23               | -803.67         | -0.02           | 803.67                     | 2824.47       | 667.20        | 1768.17          | 1849.17          | 91.54              | -6.876              | -0.001               | 0.442        |
| 135.00        | -14.70           | -29.66           | -0.23               | -690.73         | -0.02           | 690.73                     | 2759.14       | 651.77        | 1687.32          | 1764.13          | 96.99              | -7.039              | -0.001               | 0.399        |
| 135.50        | -14.57           | -29.61           | -0.23               | -675.90         | -0.02           | 675.90                     | 1734.08       | 441.84        | 1163.16          | 1132.07          | 97.73              | -7.060              | -0.001               | 0.610        |
| 137.00        | -12.33           | -24.52           | 0.00                | -631.49         | 0.01            | 631.49                     | 1723.43       | 437.73        | 1141.60          | 1114.56          | 99.95              | -7.122              | -0.001               | 0.577        |
| 140.00        | -11.98           | -24.23           | 0.00                | -557.94         | 0.01            | 557.94                     | 1701.83       | 429.50        | 1099.07          | 1079.73          | 104.47             | -7.285              | -0.001               | 0.527        |
| 145.00        | -11.49           | -23.72           | 0.00                | -436.78         | 0.01            | 436.78                     | 1664.90       | 415.78        | 1029.98          | 1022.29          | 112.21             | -7.526              | -0.001               | 0.437        |
| 147.00        | -9.62            | -19.89           | 0.00                | -389.34         | 0.00            | 389.34                     | 1649.80       | 410.29        | 1002.98          | 999.54           | 115.38             | -7.614              | -0.001               | 0.398        |
| 150.00        | -9.33            | -19.60           | 0.00                | -329.68         | 0.00            | 329.68                     | 1626.81       | 402.06        | 963.14           | 965.67           | 120.19             | -7.733              | -0.001               | 0.350        |
| 155.00        | -8.90            | -19.10           | 0.00                | -231.70         | 0.00            | 231.70                     | 1587.58       | 388.34        | 898.54           | 909.96           | 128.35             | -7.899              | -0.001               | 0.263        |
| 157.00        | -6.22            | -13.36           | 0.00                | -193.51         | 0.00            | 193.51                     | 1571.57       | 382.86        | 873.33           | 887.94           | 131.67             | -7.955              | -0.001               | 0.223        |
| 160.00        | -5.98            | -13.07           | 0.00                | -153.42         | 0.00            | 153.42                     | 1547.20       | 374.63        | 836.18           | 855.21           | 136.67             | -8.026              | -0.001               | 0.184        |
| 165.00        | -5.61            | -12.59           | 0.00                | -88.05          | 0.00            | 88.05                      | 1505.67       | 360.91        | 776.07           | 801.50           | 145.10             | -8.114              | -0.001               | 0.115        |
| 167.00        | -3.22            | -6.61            | 0.00                | -62.87          | 0.00            | 62.87                      | 1488.74       | 355.42        | 752.65           | 780.32           | 148.50             | -8.138              | -0.001               | 0.083        |
| 170.00        | -3.03            | -6.33            | 0.00                | -43.04          | 0.00            | 43.04                      | 1462.99       | 347.19        | 718.19           | 748.90           | 153.60             | -8.165              | -0.001               | 0.060        |
| 175.00        | -2.72            | -5.88            | 0.00                | -11.38          | 0.00            | 11.38                      | 1411.70       | 333.47        | 662.56           | 693.80           | 162.14             | -8.190              | -0.001               | 0.019        |
| 176.00        | 0.00             | -5.43            | 0.00                | -5.49           | 0.00            | 5.49                       | 1400.09       | 330.73        | 651.70           | 682.38           | 163.85             | -8.192              | -0.001               | 0.008        |

## Calculated Forces

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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## Wind Loading - Shaft

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

12/15/2022

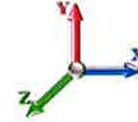
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 26

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



| 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 | 5.082    | 5.59       | 0.00       | 1.200 | 0.000          | 0.00           | 0.000   | 0.00      | 0.0               | 0.0                | 0.0                |
| 5.00                   |             | 1.00 | 0.85 | 5.082    | 5.59       | 0.00       | 1.200 | 1.242          | 5.00           | 24.753  | 29.70     | 166.1             | 442.0              | 2242.1             |
| 10.00                  |             | 1.00 | 0.85 | 5.082    | 5.59       | 0.00       | 1.200 | 1.331          | 5.00           | 24.410  | 29.29     | 163.8             | 466.2              | 2234.4             |
| 15.00                  |             | 1.00 | 0.85 | 5.082    | 5.59       | 0.00       | 1.200 | 1.386          | 5.00           | 24.039  | 28.85     | 161.3             | 477.5              | 2213.7             |
| 20.00                  |             | 1.00 | 0.90 | 5.392    | 5.93       | 0.00       | 1.200 | 1.427          | 5.00           | 23.656  | 28.39     | 168.4             | 482.9              | 2187.3             |
| 25.00                  |             | 1.00 | 0.95 | 5.652    | 6.22       | 0.00       | 1.200 | 1.459          | 5.00           | 23.266  | 27.92     | 173.6             | 485.1              | 2157.5             |
| 30.00                  |             | 1.00 | 0.98 | 5.873    | 6.46       | 0.00       | 1.200 | 1.486          | 5.00           | 22.872  | 27.45     | 177.3             | 485.1              | 2125.6             |
| 35.00                  |             | 1.00 | 1.01 | 6.067    | 6.67       | 0.00       | 1.200 | 1.509          | 5.00           | 22.474  | 26.97     | 180.0             | 483.6              | 2092.1             |
| 40.00                  |             | 1.00 | 1.04 | 6.240    | 6.86       | 0.00       | 1.200 | 1.529          | 5.00           | 22.074  | 26.49     | 181.8             | 480.8              | 2057.5             |
| 42.75 Bot - Section 2  |             | 1.00 | 1.06 | 6.327    | 6.96       | 0.00       | 1.200 | 1.539          | 2.75           | 11.968  | 14.36     | 100.0             | 263.4              | 1116.9             |
| 45.00                  |             | 1.00 | 1.07 | 6.396    | 7.04       | 0.00       | 1.200 | 1.547          | 2.25           | 9.868   | 11.84     | 83.3              | 218.5              | 1526.4             |
| 49.00 Top - Section 1  |             | 1.00 | 1.09 | 6.512    | 7.16       | 0.00       | 1.200 | 1.560          | 4.00           | 17.343  | 20.81     | 149.1             | 385.7              | 2681.0             |
| 50.00                  |             | 1.00 | 1.09 | 6.540    | 7.19       | 0.00       | 1.200 | 1.564          | 1.00           | 4.295   | 5.15      | 37.1              | 96.3               | 364.1              |
| 55.00                  |             | 1.00 | 1.12 | 6.672    | 7.34       | 0.00       | 1.200 | 1.579          | 5.00           | 21.235  | 25.48     | 187.0             | 476.3              | 1798.6             |
| 60.00                  |             | 1.00 | 1.14 | 6.796    | 7.48       | 0.00       | 1.200 | 1.592          | 5.00           | 20.830  | 25.00     | 186.8             | 470.7              | 1765.2             |
| 65.00                  |             | 1.00 | 1.16 | 6.911    | 7.60       | 0.00       | 1.200 | 1.605          | 5.00           | 20.424  | 24.51     | 186.3             | 464.7              | 1731.2             |
| 70.00                  |             | 1.00 | 1.17 | 7.020    | 7.72       | 0.00       | 1.200 | 1.617          | 5.00           | 20.017  | 24.02     | 185.5             | 458.3              | 1696.9             |
| 75.00                  |             | 1.00 | 1.19 | 7.122    | 7.83       | 0.00       | 1.200 | 1.628          | 5.00           | 19.610  | 23.53     | 184.4             | 451.6              | 1662.2             |
| 80.00                  |             | 1.00 | 1.21 | 7.220    | 7.94       | 0.00       | 1.200 | 1.639          | 5.00           | 19.202  | 23.04     | 183.0             | 444.5              | 1627.2             |
| 85.00                  |             | 1.00 | 1.22 | 7.313    | 8.04       | 0.00       | 1.200 | 1.649          | 5.00           | 18.793  | 22.55     | 181.4             | 437.1              | 1591.9             |
| 86.50 Bot - Section 3  |             | 1.00 | 1.23 | 7.340    | 8.07       | 0.00       | 1.200 | 1.652          | 1.50           | 5.557   | 6.67      | 53.8              | 130.5              | 471.4              |
| 90.00                  |             | 1.00 | 1.24 | 7.401    | 8.14       | 0.00       | 1.200 | 1.658          | 3.50           | 13.047  | 15.66     | 127.5             | 306.1              | 1779.4             |
| 91.75 Top - Section 2  |             | 1.00 | 1.24 | 7.431    | 8.17       | 0.00       | 1.200 | 1.662          | 1.75           | 6.448   | 7.74      | 63.2              | 152.1              | 879.2              |
| 95.00                  |             | 1.00 | 1.25 | 7.486    | 8.23       | 0.00       | 1.200 | 1.667          | 3.25           | 11.843  | 14.21     | 117.0             | 279.1              | 901.5              |
| 100.00                 |             | 1.00 | 1.27 | 7.567    | 8.32       | 0.00       | 1.200 | 1.676          | 5.00           | 17.883  | 21.46     | 178.6             | 421.4              | 1359.1             |
| 105.00                 |             | 1.00 | 1.28 | 7.645    | 8.41       | 0.00       | 1.200 | 1.684          | 5.00           | 17.473  | 20.97     | 176.3             | 413.1              | 1327.0             |
| 110.00                 |             | 1.00 | 1.29 | 7.720    | 8.49       | 0.00       | 1.200 | 1.692          | 5.00           | 17.063  | 20.48     | 173.9             | 404.7              | 1294.6             |
| 115.00                 |             | 1.00 | 1.30 | 7.793    | 8.57       | 0.00       | 1.200 | 1.699          | 5.00           | 16.652  | 19.98     | 171.3             | 396.1              | 1262.0             |
| 120.00                 |             | 1.00 | 1.32 | 7.863    | 8.65       | 0.00       | 1.200 | 1.707          | 5.00           | 16.241  | 19.49     | 168.6             | 387.3              | 1229.3             |
| 125.00                 |             | 1.00 | 1.33 | 7.931    | 8.72       | 0.00       | 1.200 | 1.714          | 5.00           | 15.830  | 19.00     | 165.7             | 378.4              | 1196.5             |
| 130.00                 |             | 1.00 | 1.34 | 7.997    | 8.80       | 0.00       | 1.200 | 1.720          | 5.00           | 15.419  | 18.50     | 162.8             | 369.3              | 1163.5             |
| 131.25 Bot - Section 4 |             | 1.00 | 1.34 | 8.013    | 8.81       | 0.00       | 1.200 | 1.722          | 1.25           | 3.790   | 4.55      | 40.1              | 91.8               | 286.6              |
| 135.00                 |             | 1.00 | 1.35 | 8.061    | 8.87       | 0.00       | 1.200 | 1.727          | 3.75           | 11.375  | 13.65     | 121.0             | 274.2              | 1240.8             |
| 135.50 Top - Section 3 |             | 1.00 | 1.35 | 8.067    | 8.87       | 0.00       | 1.200 | 1.728          | 0.50           | 1.499   | 1.80      | 16.0              | 36.5               | 163.6              |
| 137.00 Appurtenance(s) |             | 1.00 | 1.35 | 8.086    | 8.89       | 0.00       | 1.200 | 1.729          | 1.50           | 4.473   | 5.37      | 47.7              | 108.6              | 262.0              |
| 140.00                 |             | 1.00 | 1.36 | 8.123    | 8.93       | 0.00       | 1.200 | 1.733          | 3.00           | 8.835   | 10.60     | 94.7              | 213.8              | 516.4              |
| 145.00                 |             | 1.00 | 1.37 | 8.183    | 9.00       | 0.00       | 1.200 | 1.739          | 5.00           | 14.396  | 17.28     | 155.5             | 346.8              | 838.5              |
| 147.00 Appurtenance(s) |             | 1.00 | 1.37 | 8.206    | 9.03       | 0.00       | 1.200 | 1.742          | 2.00           | 5.643   | 6.77      | 61.1              | 137.2              | 329.4              |
| 150.00                 |             | 1.00 | 1.38 | 8.241    | 9.07       | 0.00       | 1.200 | 1.745          | 3.00           | 8.341   | 10.01     | 90.7              | 202.4              | 485.9              |
| 155.00                 |             | 1.00 | 1.39 | 8.298    | 9.13       | 0.00       | 1.200 | 1.751          | 5.00           | 13.572  | 16.29     | 148.7             | 327.7              | 787.4              |
| 157.00 Appurtenance(s) |             | 1.00 | 1.39 | 8.321    | 9.15       | 0.00       | 1.200 | 1.753          | 2.00           | 5.313   | 6.38      | 58.4              | 129.5              | 308.9              |
| 160.00                 |             | 1.00 | 1.40 | 8.354    | 9.19       | 0.00       | 1.200 | 1.757          | 3.00           | 7.846   | 9.42      | 86.5              | 190.8              | 455.1              |
| 165.00                 |             | 1.00 | 1.41 | 8.408    | 9.25       | 0.00       | 1.200 | 1.762          | 5.00           | 12.748  | 15.30     | 141.5             | 308.1              | 735.9              |
| 167.00 Appurtenance(s) |             | 1.00 | 1.41 | 8.430    | 9.27       | 0.00       | 1.200 | 1.764          | 2.00           | 4.983   | 5.98      | 55.4              | 121.6              | 288.3              |
| 170.00                 |             | 1.00 | 1.42 | 8.461    | 9.31       | 0.00       | 1.200 | 1.767          | 3.00           | 7.351   | 8.82      | 82.1              | 178.9              | 424.1              |
| 175.00                 |             | 1.00 | 1.42 | 8.513    | 9.36       | 0.00       | 1.200 | 1.772          | 5.00           | 11.923  | 14.31     | 134.0             | 288.1              | 684.1              |
| 176.00 Appurtenance(s) |             | 1.00 | 1.43 | 8.523    | 9.38       | 0.00       | 1.200 | 1.773          | 1.00           | 2.335   | 2.80      | 26.3              | 57.2               | 134.5              |

**Wind Loading - Shaft**

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|                |               |                |                 |
|----------------|---------------|----------------|-----------------|
| <b>Totals:</b> | <b>176.00</b> | <b>5,954.5</b> | <b>55,677.0</b> |
|----------------|---------------|----------------|-----------------|

## Discrete Appurtenance Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

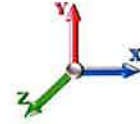
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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   | 176.00    | KRY 112 89/4          | 3   | 8.534    | 9.387      | 0.50               | 0.75 | 1.92            | 94.15          | 0.000          | 1.000         | 18.00        | 0.00          | 18.00         |
| 2   | 176.00    | MHA FE15501P77/75     | 6   | 8.534    | 9.387      | 0.49               | 0.75 | 4.82            | 163.66         | 0.000          | 1.000         | 45.22        | 0.00          | 45.22         |
| 3   | 176.00    | RMQP-496-HK           | 1   | 8.534    | 9.387      | 1.00               | 1.00 | 78.63           | 4754.54        | 0.000          | 1.000         | 738.09       | 0.00          | 738.09        |
| 4   | 176.00    | KRY 112 489/2         | 3   | 8.534    | 9.387      | 0.50               | 0.75 | 1.92            | 94.15          | 0.000          | 1.000         | 18.00        | 0.00          | 18.00         |
| 5   | 176.00    | Lightning Rod         | 1   | 8.559    | 9.415      | 1.00               | 1.00 | 3.46            | 64.92          | 0.000          | 3.500         | 32.59        | 0.00          | 114.07        |
| 6   | 176.00    | AIR 6419 B41          | 3   | 8.534    | 9.387      | 0.52               | 0.75 | 12.00           | 981.28         | 0.000          | 1.000         | 112.63       | 0.00          | 112.63        |
| 7   | 176.00    | APXVAALL24_43-U-NA20  | 3   | 8.534    | 9.387      | 0.55               | 0.75 | 36.42           | 1748.49        | 0.000          | 1.000         | 341.85       | 0.00          | 341.85        |
| 8   | 176.00    | 4449 B71 + B85        | 3   | 8.534    | 9.387      | 0.50               | 0.75 | 3.84            | 264.34         | 0.000          | 1.000         | 36.06        | 0.00          | 36.06         |
| 9   | 176.00    | 4460 B25 + B66        | 3   | 8.534    | 9.387      | 0.50               | 0.75 | 3.23            | 366.00         | 0.000          | 1.000         | 30.35        | 0.00          | 30.35         |
| 10  | 167.00    | B5/B13 RRH ORAN       | 3   | 8.430    | 9.273      | 0.50               | 0.75 | 3.69            | 463.99         | 0.000          | 0.000         | 34.25        | 0.00          | 0.00          |
| 11  | 167.00    | B2/B66A RRH ORAN      | 3   | 8.430    | 9.273      | 0.50               | 0.75 | 3.69            | 536.60         | 0.000          | 0.000         | 34.25        | 0.00          | 0.00          |
| 12  | 167.00    | Samsung MT6407-77A    | 3   | 8.430    | 9.273      | 0.52               | 0.75 | 8.90            | 649.16         | 0.000          | 0.000         | 82.48        | 0.00          | 0.00          |
| 13  | 167.00    | CBRS RRH - RT4401-48A | 3   | 8.430    | 9.273      | 0.50               | 0.75 | 2.13            | 132.34         | 0.000          | 0.000         | 19.80        | 0.00          | 0.00          |
| 14  | 167.00    | Commscope             | 3   | 8.430    | 9.273      | 0.64               | 0.75 | 18.18           | 801.32         | 0.000          | 0.000         | 168.55       | 0.00          | 0.00          |
| 15  | 167.00    | Commscope             | 3   | 8.430    | 9.273      | 0.62               | 0.75 | 17.53           | 769.93         | 0.000          | 0.000         | 162.55       | 0.00          | 0.00          |
| 16  | 167.00    | LPA-80063-4CF-EDIN-5  | 2   | 8.430    | 9.273      | 0.84               | 0.90 | 13.50           | 313.03         | 0.000          | 0.000         | 125.17       | 0.00          | 0.00          |
| 17  | 167.00    | Raycap                | 2   | 8.430    | 9.273      | 0.81               | 0.90 | 7.46            | 332.74         | 0.000          | 0.000         | 69.20        | 0.00          | 0.00          |
| 18  | 167.00    | KICKER KIT            | 1   | 8.430    | 9.273      | 1.00               | 1.00 | 10.97           | 317.24         | 0.000          | 0.000         | 101.74       | 0.00          | 0.00          |
| 19  | 167.00    | MONOPOLE COLLAR       | 1   | 8.430    | 9.273      | 1.00               | 1.00 | 5.15            | 326.95         | 0.000          | 0.000         | 47.72        | 0.00          | 0.00          |
| 20  | 167.00    | SUPPORT RAIL CORNER   | 1   | 8.430    | 9.273      | 1.00               | 1.00 | 17.39           | 1461.81        | 0.000          | 0.000         | 161.29       | 0.00          | 0.00          |
| 21  | 167.00    | APL868013             | 1   | 8.430    | 9.273      | 1.00               | 1.00 | 3.74            | 116.32         | 0.000          | 0.000         | 34.64        | 0.00          | 0.00          |
| 22  | 167.00    | Low Profile           | 1   | 8.430    | 9.273      | 1.00               | 1.00 | 39.85           | 2823.04        | 0.000          | 0.000         | 369.54       | 0.00          | 0.00          |
| 23  | 157.00    | Sitepro PRK-SFS-H-L   | 1   | 8.321    | 9.153      | 1.00               | 1.00 | 13.75           | 497.59         | 0.000          | 0.000         | 125.83       | 0.00          | 0.00          |
| 24  | 157.00    | Sitepro HRK14-U       | 1   | 8.321    | 9.153      | 1.00               | 1.00 | 16.11           | 1025.66        | 0.000          | 0.000         | 147.47       | 0.00          | 0.00          |
| 25  | 157.00    | Sitepro PRK-1245L     | 1   | 8.321    | 9.153      | 1.00               | 1.00 | 19.49           | 788.83         | 0.000          | 0.000         | 178.42       | 0.00          | 0.00          |
| 26  | 157.00    | ALU 800 Mhz           | 6   | 8.321    | 9.153      | 0.54               | 0.80 | 11.70           | 700.79         | 0.000          | 0.000         | 107.12       | 0.00          | 0.00          |
| 27  | 157.00    | Low Profile Platform  | 1   | 8.321    | 9.153      | 1.00               | 1.00 | 39.74           | 2814.90        | 0.000          | 0.000         | 363.76       | 0.00          | 0.00          |
| 28  | 157.00    | ALU 1900 Mhz          | 3   | 8.321    | 9.153      | 0.54               | 0.80 | 6.50            | 395.75         | 0.000          | 0.000         | 59.52        | 0.00          | 0.00          |
| 29  | 157.00    | Commscope             | 3   | 8.321    | 9.153      | 0.60               | 0.80 | 24.72           | 941.83         | 0.000          | 0.000         | 226.25       | 0.00          | 0.00          |
| 30  | 157.00    | ALU TD-RRH8x20-25     | 3   | 8.321    | 9.153      | 0.54               | 0.80 | 7.83            | 585.22         | 0.000          | 0.000         | 71.64        | 0.00          | 0.00          |
| 31  | 157.00    | RFS APXVTM14-C-I20    | 3   | 8.321    | 9.153      | 0.62               | 0.80 | 13.78           | 686.20         | 0.000          | 0.000         | 126.16       | 0.00          | 0.00          |
| 32  | 147.00    | RDIDC-9181-PF-48      | 1   | 8.206    | 9.027      | 1.00               | 1.00 | 2.58            | 66.72          | 0.000          | 0.000         | 23.26        | 0.00          | 0.00          |
| 33  | 147.00    | TA08025-B604          | 3   | 8.206    | 9.027      | 0.50               | 0.75 | 3.80            | 345.32         | 0.000          | 0.000         | 34.29        | 0.00          | 0.00          |
| 34  | 147.00    | TA08025-B605          | 3   | 8.206    | 9.027      | 0.50               | 0.75 | 3.80            | 388.80         | 0.000          | 0.000         | 34.29        | 0.00          | 0.00          |
| 35  | 147.00    | MC-PK8-DSH            | 1   | 8.206    | 9.027      | 1.00               | 1.00 | 84.73           | 3383.83        | 0.000          | 0.000         | 764.85       | 0.00          | 0.00          |
| 36  | 147.00    | MX08FRO665-21         | 3   | 8.206    | 9.027      | 0.55               | 0.75 | 23.23           | 901.45         | 0.000          | 0.000         | 209.70       | 0.00          | 0.00          |
| 37  | 137.00    | B2 B66A 8843          | 3   | 8.086    | 8.894      | 0.50               | 0.75 | 3.24            | 354.80         | 0.000          | 0.000         | 28.85        | 0.00          | 0.00          |
| 38  | 137.00    | 4449 B5/B12           | 3   | 8.086    | 8.894      | 0.50               | 0.75 | 3.79            | 373.50         | 0.000          | 0.000         | 33.69        | 0.00          | 0.00          |
| 39  | 137.00    | HPA-65R-BUU-H6        | 3   | 8.086    | 8.894      | 0.64               | 0.75 | 21.06           | 920.11         | 0.000          | 0.000         | 187.34       | 0.00          | 0.00          |
| 40  | 137.00    | 7020                  | 12  | 8.086    | 8.894      | 0.50               | 0.75 | 5.31            | 118.51         | 0.000          | 0.000         | 47.19        | 0.00          | 0.00          |
| 41  | 137.00    | DMP65R-BU6DA          | 3   | 8.086    | 8.894      | 0.54               | 0.75 | 22.94           | 959.60         | 0.000          | 0.000         | 204.04       | 0.00          | 0.00          |
| 42  | 137.00    | HRK14                 | 1   | 8.086    | 8.894      | 1.00               | 1.00 | 16.00           | 1020.78        | 0.000          | 0.000         | 142.34       | 0.00          | 0.00          |
| 43  | 137.00    | LP Platform-Round     | 1   | 8.086    | 8.894      | 1.00               | 1.00 | 39.50           | 2797.10        | 0.000          | 0.000         | 351.34       | 0.00          | 0.00          |
| 44  | 137.00    | Smart Bias T 1001940  | 3   | 8.086    | 8.894      | 0.50               | 0.75 | 0.49            | 6.24           | 7.041          | 0.000         | 4.32         | 30.43         | 0.00          |
| 45  | 137.00    | DC6-48-60-18-8F       | 1   | 8.086    | 8.894      | 1.00               | 1.00 | 2.16            | 85.85          | 0.000          | 0.000         | 19.24        | 0.00          | 0.00          |
| 46  | 137.00    | 7770.00               | 3   | 8.086    | 8.894      | 0.55               | 0.75 | 10.77           | 527.04         | 0.000          | 0.000         | 95.76        | 0.00          | 0.00          |
| 47  | 137.00    | LGP21401              | 6   | 8.086    | 8.894      | 0.50               | 0.75 | 6.39            | 323.91         | 0.000          | 0.000         | 56.80        | 0.00          | 0.00          |

## Discrete Appurtenance Forces

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |
|                                 |                                   | <b>Page:</b> 32         |



|                |        |          |   |       |       |      |      |      |       |       |                  |                 |       |      |
|----------------|--------|----------|---|-------|-------|------|------|------|-------|-------|------------------|-----------------|-------|------|
| 48             | 137.00 | LGP21903 | 6 | 8.086 | 8.894 | 0.50 | 0.75 | 2.00 | 64.15 | 4.341 | 0.000            | 17.81           | 77.30 | 0.00 |
| <b>Totals:</b> |        |          |   |       |       |      |      |      |       |       | <b>38,650.48</b> | <b>6,445.25</b> |       |      |



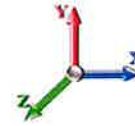
## Total Applied Force Summary

|                                 |                                   |                 |
|---------------------------------|-----------------------------------|-----------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022      |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                 |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                 |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                 |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Page:</b> 33 |
|                                 | <b>Struct Class:</b> II           |                 |



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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      |                  | 166.05              | 2511.21           | 0.00               | 0.00              |
| 10.00     |                  | 163.75              | 2506.68           | 0.00               | 0.00              |
| 15.00     |                  | 161.26              | 2488.02           | 0.00               | 0.00              |
| 20.00     |                  | 168.38              | 2463.13           | 0.00               | 0.00              |
| 25.00     |                  | 173.57              | 2434.65           | 0.00               | 0.00              |
| 30.00     |                  | 177.31              | 2403.81           | 0.00               | 0.00              |
| 35.00     |                  | 179.97              | 2371.26           | 0.00               | 0.00              |
| 40.00     |                  | 181.81              | 2337.43           | 0.00               | 0.00              |
| 42.75     |                  | 99.96               | 1271.16           | 0.00               | 0.00              |
| 45.00     |                  | 83.31               | 1652.77           | 0.00               | 0.00              |
| 49.00     |                  | 149.08              | 2906.04           | 0.00               | 0.00              |
| 50.00     |                  | 37.07               | 420.36            | 0.00               | 0.00              |
| 55.00     |                  | 187.03              | 2080.68           | 0.00               | 0.00              |
| 60.00     |                  | 186.85              | 2047.80           | 0.00               | 0.00              |
| 65.00     |                  | 186.32              | 2014.43           | 0.00               | 0.00              |
| 70.00     |                  | 185.48              | 1980.61           | 0.00               | 0.00              |
| 75.00     |                  | 184.36              | 1946.40           | 0.00               | 0.00              |
| 80.00     |                  | 183.00              | 1911.85           | 0.00               | 0.00              |
| 85.00     |                  | 181.40              | 1876.99           | 0.00               | 0.00              |
| 86.50     |                  | 53.84               | 557.01            | 0.00               | 0.00              |
| 90.00     |                  | 127.47              | 1979.25           | 0.00               | 0.00              |
| 91.75     |                  | 63.25               | 979.19            | 0.00               | 0.00              |
| 95.00     |                  | 117.02              | 1087.35           | 0.00               | 0.00              |
| 100.00    |                  | 178.62              | 1645.43           | 0.00               | 0.00              |
| 105.00    |                  | 176.33              | 1613.61           | 0.00               | 0.00              |
| 110.00    |                  | 173.88              | 1581.59           | 0.00               | 0.00              |
| 115.00    |                  | 171.30              | 1549.39           | 0.00               | 0.00              |
| 120.00    |                  | 168.58              | 1517.01           | 0.00               | 0.00              |
| 125.00    |                  | 165.73              | 1484.47           | 0.00               | 0.00              |
| 130.00    |                  | 162.76              | 1451.78           | 0.00               | 0.00              |
| 131.25    |                  | 40.09               | 358.65            | 0.00               | 0.00              |
| 135.00    |                  | 121.03              | 1457.22           | 0.00               | 0.00              |
| 135.50    |                  | 15.96               | 192.51            | 0.00               | 0.00              |
| 137.00    | (45) attachments | 1236.44             | 7900.25           | 107.73             | 0.00              |
| 140.00    |                  | 94.72               | 641.37            | 0.00               | 0.00              |
| 145.00    |                  | 155.50              | 1047.05           | 0.00               | 0.00              |
| 147.00    | (11) attachments | 1127.51             | 5498.99           | 0.00               | 0.00              |
| 150.00    |                  | 90.73               | 607.58            | 0.00               | 0.00              |
| 155.00    |                  | 148.67              | 990.50            | 0.00               | 0.00              |
| 157.00    | (22) attachments | 1464.54             | 8826.98           | 0.00               | 0.00              |
| 160.00    |                  | 86.52               | 567.62            | 0.00               | 0.00              |
| 165.00    |                  | 141.49              | 923.68            | 0.00               | 0.00              |
| 167.00    | (27) attachments | 1466.63             | 9407.92           | 0.00               | 0.00              |
| 170.00    |                  | 82.11               | 505.23            | 0.00               | 0.00              |
| 175.00    |                  | 133.98              | 819.50            | 0.00               | 0.00              |
| 176.00    | (26) attachments | 1399.07             | 8693.13           | 0.00               | 1454.28           |

### Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |

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|                |           |                |        |          |
|----------------|-----------|----------------|--------|----------|
| <b>Totals:</b> | 12,399.74 | 103,509.5<br>5 | 107.73 | 1,454.28 |
|----------------|-----------|----------------|--------|----------|

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

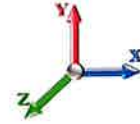
12/15/2022

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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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          | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.19        | 0.00        | 0.018 | 0.000            | 5.082    | 0.00     | 12.93          |
| 5.00          | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.30        | 0.00        | 0.018 | 0.000            | 5.082    | 0.00     | 18.85          |
| 10.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.27        | 0.00        | 0.018 | 0.000            | 5.082    | 0.00     | 14.46          |
| 10.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.37        | 0.00        | 0.018 | 0.000            | 5.082    | 0.00     | 20.46          |
| 15.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.31        | 0.00        | 0.018 | 0.000            | 5.082    | 0.00     | 15.46          |
| 15.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.42        | 0.00        | 0.018 | 0.000            | 5.082    | 0.00     | 21.51          |
| 20.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.35        | 0.00        | 0.019 | 0.000            | 5.392    | 0.00     | 16.21          |
| 20.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.45        | 0.00        | 0.019 | 0.000            | 5.392    | 0.00     | 22.31          |
| 25.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.37        | 0.00        | 0.019 | 0.000            | 5.652    | 0.00     | 16.83          |
| 25.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.48        | 0.00        | 0.019 | 0.000            | 5.652    | 0.00     | 22.95          |
| 30.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.40        | 0.00        | 0.019 | 0.000            | 5.873    | 0.00     | 17.35          |
| 30.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.50        | 0.00        | 0.019 | 0.000            | 5.873    | 0.00     | 23.50          |
| 35.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.42        | 0.00        | 0.020 | 0.000            | 6.067    | 0.00     | 17.80          |
| 35.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.52        | 0.00        | 0.020 | 0.000            | 6.067    | 0.00     | 23.98          |
| 40.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.43        | 0.00        | 0.020 | 0.000            | 6.240    | 0.00     | 18.21          |
| 40.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.54        | 0.00        | 0.020 | 0.000            | 6.240    | 0.00     | 24.40          |
| 42.75         | Safety Cable        | Yes          | 2.75        | 0.000 | 0.38               | 0.79        | 0.00        | 0.021 | 0.000            | 6.327    | 0.00     | 10.13          |
| 42.75         | Step bolts (ladder) | Yes          | 2.75        | 0.000 | 0.63               | 0.85        | 0.00        | 0.021 | 0.000            | 6.327    | 0.00     | 13.54          |
| 45.00         | Safety Cable        | Yes          | 2.25        | 0.000 | 0.38               | 0.65        | 0.00        | 0.021 | 0.000            | 6.396    | 0.00     | 8.36           |
| 45.00         | Step bolts (ladder) | Yes          | 2.25        | 0.000 | 0.63               | 0.70        | 0.00        | 0.021 | 0.000            | 6.396    | 0.00     | 11.15          |
| 49.00         | Safety Cable        | Yes          | 4.00        | 0.000 | 0.38               | 1.17        | 0.00        | 0.021 | 0.000            | 6.512    | 0.00     | 15.08          |
| 49.00         | Step bolts (ladder) | Yes          | 4.00        | 0.000 | 0.63               | 1.25        | 0.00        | 0.021 | 0.000            | 6.512    | 0.00     | 20.06          |
| 50.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.29        | 0.00        | 0.021 | 0.000            | 6.540    | 0.00     | 3.78           |
| 50.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.31        | 0.00        | 0.021 | 0.000            | 6.540    | 0.00     | 5.03           |
| 55.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.47        | 0.00        | 0.021 | 0.000            | 6.672    | 0.00     | 19.22          |
| 55.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.58        | 0.00        | 0.021 | 0.000            | 6.672    | 0.00     | 25.46          |
| 60.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.49        | 0.00        | 0.022 | 0.000            | 6.796    | 0.00     | 19.51          |
| 60.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.59        | 0.00        | 0.022 | 0.000            | 6.796    | 0.00     | 25.76          |
| 65.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.50        | 0.00        | 0.022 | 0.000            | 6.911    | 0.00     | 19.78          |
| 65.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.60        | 0.00        | 0.022 | 0.000            | 6.911    | 0.00     | 26.04          |
| 70.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.51        | 0.00        | 0.023 | 0.000            | 7.020    | 0.00     | 20.03          |
| 70.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.61        | 0.00        | 0.023 | 0.000            | 7.020    | 0.00     | 26.31          |
| 75.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.52        | 0.00        | 0.023 | 0.000            | 7.122    | 0.00     | 20.27          |
| 75.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.62        | 0.00        | 0.023 | 0.000            | 7.122    | 0.00     | 26.56          |
| 80.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.52        | 0.00        | 0.024 | 0.000            | 7.220    | 0.00     | 20.49          |
| 80.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.63        | 0.00        | 0.024 | 0.000            | 7.220    | 0.00     | 26.79          |
| 85.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.53        | 0.00        | 0.024 | 0.000            | 7.313    | 0.00     | 20.71          |
| 85.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.64        | 0.00        | 0.024 | 0.000            | 7.313    | 0.00     | 27.02          |
| 86.50         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.46        | 0.00        | 0.025 | 0.000            | 7.340    | 0.00     | 6.23           |
| 86.50         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.49        | 0.00        | 0.025 | 0.000            | 7.340    | 0.00     | 8.13           |
| 90.00         | Safety Cable        | Yes          | 3.50        | 0.000 | 0.38               | 1.08        | 0.00        | 0.025 | 0.000            | 7.401    | 0.00     | 14.64          |
| 90.00         | Step bolts (ladder) | Yes          | 3.50        | 0.000 | 0.63               | 1.15        | 0.00        | 0.025 | 0.000            | 7.401    | 0.00     | 19.06          |
| 91.75         | Safety Cable        | Yes          | 1.75        | 0.000 | 0.38               | 0.54        | 0.00        | 0.025 | 0.000            | 7.431    | 0.00     | 7.34           |
| 91.75         | Step bolts (ladder) | Yes          | 1.75        | 0.000 | 0.63               | 0.58        | 0.00        | 0.025 | 0.000            | 7.431    | 0.00     | 9.56           |
| 95.00         | Safety Cable        | Yes          | 3.25        | 0.000 | 0.38               | 1.01        | 0.00        | 0.025 | 0.000            | 7.486    | 0.00     | 13.72          |
| 95.00         | Step bolts (ladder) | Yes          | 3.25        | 0.000 | 0.63               | 1.07        | 0.00        | 0.025 | 0.000            | 7.486    | 0.00     | 17.83          |
| 100.00        | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.55        | 0.00        | 0.026 | 0.000            | 7.567    | 0.00     | 21.30          |

## Linear Appurtenance Segment Forces (Factored)

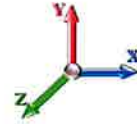
|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 26

| 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) |
|----------------|---------------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 100.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.66        | 0.00        | 0.026 | 0.000            | 7.567    | 0.00       | 27.63          |
| 105.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.56        | 0.00        | 0.026 | 0.000            | 7.645    | 0.00       | 21.48          |
| 105.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.67        | 0.00        | 0.026 | 0.000            | 7.645    | 0.00       | 27.82          |
| 110.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.57        | 0.00        | 0.027 | 0.000            | 7.720    | 0.00       | 21.65          |
| 110.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.67        | 0.00        | 0.027 | 0.000            | 7.720    | 0.00       | 28.00          |
| 115.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.57        | 0.00        | 0.028 | 0.000            | 7.793    | 0.00       | 21.82          |
| 115.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.68        | 0.00        | 0.028 | 0.000            | 7.793    | 0.00       | 28.18          |
| 120.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.58        | 0.00        | 0.028 | 0.000            | 7.863    | 0.00       | 21.98          |
| 120.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.68        | 0.00        | 0.028 | 0.000            | 7.863    | 0.00       | 28.34          |
| 125.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.59        | 0.00        | 0.029 | 0.000            | 7.931    | 0.00       | 22.14          |
| 125.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.69        | 0.00        | 0.029 | 0.000            | 7.931    | 0.00       | 28.51          |
| 130.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.59        | 0.00        | 0.030 | 0.000            | 7.997    | 0.00       | 22.29          |
| 130.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.70        | 0.00        | 0.030 | 0.000            | 7.997    | 0.00       | 28.67          |
| 131.25         | Safety Cable        | Yes          | 1.25        | 0.000 | 0.38               | 0.40        | 0.00        | 0.031 | 0.000            | 8.013    | 0.00       | 5.58           |
| 131.25         | Step bolts (ladder) | Yes          | 1.25        | 0.000 | 0.63               | 0.42        | 0.00        | 0.031 | 0.000            | 8.013    | 0.00       | 7.18           |
| 135.00         | Safety Cable        | Yes          | 3.75        | 0.000 | 0.38               | 1.20        | 0.00        | 0.031 | 0.000            | 8.061    | 0.00       | 16.82          |
| 135.00         | Step bolts (ladder) | Yes          | 3.75        | 0.000 | 0.63               | 1.28        | 0.00        | 0.031 | 0.000            | 8.061    | 0.00       | 21.61          |
| 135.50         | Safety Cable        | Yes          | 0.50        | 0.000 | 0.38               | 0.16        | 0.00        | 0.032 | 0.000            | 8.067    | 0.00       | 2.24           |
| 135.50         | Step bolts (ladder) | Yes          | 0.50        | 0.000 | 0.63               | 0.17        | 0.00        | 0.032 | 0.000            | 8.067    | 0.00       | 2.88           |
| 137.00         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.48        | 0.00        | 0.031 | 0.000            | 8.086    | 0.00       | 6.75           |
| 137.00         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.51        | 0.00        | 0.031 | 0.000            | 8.086    | 0.00       | 8.66           |
| 140.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.96        | 0.00        | 0.032 | 0.000            | 8.123    | 0.00       | 13.54          |
| 140.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 1.02        | 0.00        | 0.032 | 0.000            | 8.123    | 0.00       | 17.38          |
| 145.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.61        | 0.00        | 0.033 | 0.000            | 8.183    | 0.00       | 22.71          |
| 145.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.71        | 0.00        | 0.033 | 0.000            | 8.183    | 0.00       | 29.11          |
| 147.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.64        | 0.00        | 0.033 | 0.000            | 8.206    | 0.00       | 9.11           |
| 147.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.69        | 0.00        | 0.033 | 0.000            | 8.206    | 0.00       | 11.67          |
| 150.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.97        | 0.00        | 0.034 | 0.000            | 8.241    | 0.00       | 13.71          |
| 150.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 1.03        | 0.00        | 0.034 | 0.000            | 8.241    | 0.00       | 17.55          |
| 155.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.62        | 0.00        | 0.035 | 0.000            | 8.298    | 0.00       | 22.98          |
| 155.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.72        | 0.00        | 0.035 | 0.000            | 8.298    | 0.00       | 29.39          |
| 157.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.65        | 0.00        | 0.036 | 0.000            | 8.321    | 0.00       | 9.21           |
| 157.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.69        | 0.00        | 0.036 | 0.000            | 8.321    | 0.00       | 11.78          |
| 160.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.97        | 0.00        | 0.036 | 0.000            | 8.354    | 0.00       | 13.86          |
| 160.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 1.04        | 0.00        | 0.036 | 0.000            | 8.354    | 0.00       | 17.71          |
| 165.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.63        | 0.00        | 0.037 | 0.000            | 8.408    | 0.00       | 23.23          |
| 165.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.73        | 0.00        | 0.037 | 0.000            | 8.408    | 0.00       | 29.65          |
| 167.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.65        | 0.00        | 0.038 | 0.000            | 8.430    | 0.00       | 9.31           |
| 167.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.69        | 0.00        | 0.038 | 0.000            | 8.430    | 0.00       | 11.88          |
| 170.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.98        | 0.00        | 0.039 | 0.000            | 8.461    | 0.00       | 14.01          |
| 170.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 1.04        | 0.00        | 0.039 | 0.000            | 8.461    | 0.00       | 17.87          |
| 175.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 1.64        | 0.00        | 0.040 | 0.000            | 8.513    | 0.00       | 23.47          |
| 175.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 1.74        | 0.00        | 0.040 | 0.000            | 8.513    | 0.00       | 29.90          |
| 176.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.33        | 0.00        | 0.041 | 0.000            | 8.523    | 0.00       | 4.70           |
| 176.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.35        | 0.00        | 0.041 | 0.000            | 8.523    | 0.00       | 5.98           |
| <b>Totals:</b> |                     |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>1,646.0</b> |



## Calculated Forces

**Structure:** CT02216-S-SBA

**Site Name:** Glastonbury

**Height:** 176.00 (ft)

**Base Elev:** 0.000 (ft)

**Gh:** 1.1

**Topography:** 1

**Code:** TIA-222-H

**Exposure:** C

**Crest Height:** 0.00

**Site Class:** D - Stiff Soil

**Struct Class:** II

12/15/2022

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## Seismic Segment Forces (Factored)

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

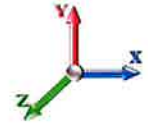
**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II  
**Topography:** 1

12/15/2022

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|  |      |                                 |      |  |
|--|------|---------------------------------|------|--|
| <b>Load Case:</b> 1.2D + 1.0Ev + 1.0Eh |      |                                 |      | <b>Iterations</b> 23                                 |
| <b>Gust Response Factor</b>            | 1.10 | <b>Sds</b>                      | 0.22 | <b>Ss</b> 0.20                                       |
| <b>Dead Load Factor</b>                | 1.20 | <b>Seismic Load Factor</b>      | 1.00 | <b>S1</b> 0.06                                       |
| <b>Wind Load Factor</b>                | 0.00 | <b>Structure Frequency (f1)</b> | 0.26 | <b>SA</b> 0.02 <b>Seismic Importance Factor</b> 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          |                 | 1745.2  | 2.50    | 75.58            | 0.01            |         |
| 10.00         |                 | 1718.7  | 7.50    | 74.43            | 0.07            |         |
| 15.00         |                 | 1692.1  | 12.50   | 73.28            | 0.20            |         |
| 20.00         |                 | 1665.5  | 17.50   | 72.13            | 0.38            |         |
| 25.00         |                 | 1638.9  | 22.50   | 70.98            | 0.61            |         |
| 30.00         |                 | 1612.3  | 27.50   | 69.82            | 0.89            |         |
| 35.00         |                 | 1585.7  | 32.50   | 68.67            | 1.20            |         |
| 40.00         |                 | 1559.1  | 37.50   | 67.52            | 1.54            |         |
| 42.75         | Bot - Section 2 | 846.17  | 41.38   | 36.64            | 0.55            |         |
| 45.00         |                 | 1200.2  | 43.88   | 51.98            | 1.25            |         |
| 49.00         | Top - Section 1 | 2108.9  | 47.00   | 91.33            | 4.43            |         |
| 50.00         |                 | 272.23  | 49.50   | 11.79            | 0.08            |         |
| 55.00         |                 | 1347.2  | 52.50   | 58.34            | 2.26            |         |
| 60.00         |                 | 1323.9  | 57.50   | 57.34            | 2.61            |         |
| 65.00         |                 | 1300.6  | 62.50   | 56.33            | 2.98            |         |
| 70.00         |                 | 1277.3  | 67.50   | 55.32            | 3.35            |         |
| 75.00         |                 | 1254.1  | 72.50   | 54.31            | 3.73            |         |
| 80.00         |                 | 1230.8  | 77.50   | 53.30            | 4.10            |         |
| 85.00         |                 | 1207.5  | 82.50   | 52.30            | 4.48            |         |
| 86.50         | Bot - Section 3 | 357.73  | 85.75   | 15.49            | 0.42            |         |
| 90.00         |                 | 1399.4  | 88.25   | 60.60            | 6.88            |         |
| 91.75         | Top - Section 2 | 691.77  | 90.88   | 29.96            | 1.78            |         |
| 95.00         |                 | 678.06  | 93.38   | 29.36            | 1.81            |         |
| 100.00        |                 | 1026.7  | 97.50   | 44.46            | 4.52            |         |
| 105.00        |                 | 1006.7  | 102.50  | 43.60            | 4.80            |         |
| 110.00        |                 | 986.81  | 107.50  | 42.74            | 5.08            |         |
| 115.00        |                 | 966.86  | 112.50  | 41.87            | 5.34            |         |
| 120.00        |                 | 946.91  | 117.50  | 41.01            | 5.58            |         |
| 125.00        |                 | 926.96  | 122.50  | 40.14            | 5.82            |         |
| 130.00        |                 | 907.02  | 127.50  | 39.28            | 6.03            |         |
| 131.25        | Bot - Section 4 | 223.64  | 130.63  | 9.68             | 0.38            |         |
| 135.00        |                 | 989.43  | 133.13  | 42.85            | 7.83            |         |
| 135.50        | Top - Section 3 | 130.51  | 135.25  | 5.65             | 0.14            |         |
| 137.00        | Appurtenance(s) | 3132.2  | 136.25  | 135.65           | 82.15           |         |
| 140.00        |                 | 350.98  | 138.50  | 15.20            | 1.07            |         |
| 145.00        |                 | 574.33  | 142.50  | 24.87            | 3.02            |         |
| 147.00        | Appurtenance(s) | 2585.1  | 146.00  | 111.95           | 64.25           |         |
| 150.00        |                 | 331.42  | 148.50  | 14.35            | 1.09            |         |
| 155.00        |                 | 541.73  | 152.50  | 23.46            | 3.08            |         |
| 157.00        | Appurtenance(s) | 3819.0  | 156.00  | 165.39           | 160.10          |         |
| 160.00        |                 | 305.96  | 158.50  | 13.25            | 1.06            |         |
| 165.00        |                 | 499.29  | 162.50  | 21.62            | 2.97            |         |
| 167.00        | Appurtenance(s) | 3574.1  | 166.00  | 154.79           | 158.78          |         |
| 170.00        |                 | 258.32  | 168.50  | 11.19            | 0.85            |         |
| 175.00        |                 | 419.89  | 172.50  | 18.18            | 2.37            |         |

## Seismic Segment Forces (Factored)

|                                 |                                   |            |
|---------------------------------|-----------------------------------|------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022 |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |            |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |            |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |            |
| <b>Gh:</b> 1.1                  | <b>Struct Class:</b> II           | Page: 40   |



|                |                 |                 |        |                |               |                             |
|----------------|-----------------|-----------------|--------|----------------|---------------|-----------------------------|
| 176.00         | Appurtenance(s) | <u>3928.3</u>   | 175.50 | <u>170.13</u>  | <u>214.39</u> |                             |
| <b>Totals:</b> |                 | <b>58,146.4</b> |        | <b>2,518.1</b> | <b>786.3</b>  | <b>Total Wind: 42,905.4</b> |



## Calculated Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

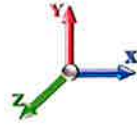
**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

12/15/2022

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|  |  |      |                                 |                            |      |            |      |            |                                  |                   |           |           |      |
|--|--|------|---------------------------------|----------------------------|------|------------|------|------------|----------------------------------|-------------------|-----------|-----------|------|
| <b>Load Case:</b> 1.2D + 1.0Ev + 1.0Eh |  |      |                                 |                            |      |            |      |            |                                  | <b>Iterations</b> | 23        |           |      |
| <b>Gust Response Factor</b>            |  |      |                                 |                            | 1.10 | <b>Sds</b> |      |            |                                  |                   | 0.22      | <b>Ss</b> | 0.20 |
| <b>Dead Load Factor</b>                |  |      | 1.20                            | <b>Seismic Load Factor</b> |      |            | 1.00 | <b>Sd1</b> |                                  | 0.09              | <b>S1</b> | 0.06      |      |
| <b>Wind Load Factor</b>                |  | 0.00 | <b>Structure Frequency (f1)</b> |                            | 0.26 | <b>SA</b>  |      | 0.02       | <b>Seismic Importance Factor</b> |                   |           | 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          | -70.73           | -0.79            | 0.00                | -130.59         | 0.00            | 130.59                     | 6372.54       | 1561.04       | 7259.46          | 7341.49          | 0.00               | 0.00                | 0.00                 | 0.029        |
| 5.00          | -68.61           | -0.79            | 0.00                | -126.65         | 0.00            | 126.65                     | 6292.68       | 1533.60       | 7006.53          | 7120.95          | 0.00               | -0.01               | -0.01                | 0.029        |
| 10.00         | -66.52           | -0.80            | 0.00                | -122.67         | 0.00            | 122.67                     | 6211.66       | 1506.17       | 6758.08          | 6902.39          | 0.01               | -0.01               | -0.01                | 0.028        |
| 15.00         | -64.47           | -0.81            | 0.00                | -118.67         | 0.00            | 118.67                     | 6129.50       | 1478.73       | 6514.12          | 6685.89          | 0.02               | -0.02               | -0.02                | 0.028        |
| 20.00         | -62.45           | -0.81            | 0.00                | -114.64         | 0.00            | 114.64                     | 6046.18       | 1451.30       | 6274.65          | 6471.51          | 0.04               | -0.02               | -0.02                | 0.028        |
| 25.00         | -60.46           | -0.82            | 0.00                | -110.58         | 0.00            | 110.58                     | 5961.72       | 1423.86       | 6039.66          | 6259.33          | 0.07               | -0.03               | -0.03                | 0.028        |
| 30.00         | -58.50           | -0.82            | 0.00                | -106.50         | 0.00            | 106.50                     | 5876.11       | 1396.43       | 5809.15          | 6049.42          | 0.10               | -0.03               | -0.03                | 0.028        |
| 35.00         | -56.58           | -0.82            | 0.00                | -102.40         | 0.00            | 102.40                     | 5789.35       | 1368.99       | 5583.13          | 5841.84          | 0.14               | -0.04               | -0.04                | 0.027        |
| 40.00         | -54.69           | -0.82            | 0.00                | -98.28          | 0.00            | 98.28                      | 5679.25       | 1341.56       | 5361.59          | 5614.75          | 0.18               | -0.04               | -0.04                | 0.027        |
| 42.75         | -53.66           | -0.83            | 0.00                | -96.02          | 0.00            | 96.02                      | 5615.38       | 1326.47       | 5241.66          | 5488.51          | 0.21               | -0.05               | -0.05                | 0.027        |
| 45.00         | -52.19           | -0.83            | 0.00                | -94.16          | 0.00            | 94.16                      | 5563.11       | 1314.12       | 5144.54          | 5386.29          | 0.23               | -0.05               | -0.05                | 0.027        |
| 49.00         | -49.61           | -0.82            | 0.00                | -90.85          | 0.00            | 90.85                      | 4756.80       | 1153.50       | 4530.03          | 4626.40          | 0.28               | -0.06               | -0.06                | 0.030        |
| 50.00         | -49.28           | -0.83            | 0.00                | -90.02          | 0.00            | 90.02                      | 4742.51       | 1148.70       | 4492.40          | 4593.12          | 0.29               | -0.06               | -0.06                | 0.030        |
| 55.00         | -47.66           | -0.83            | 0.00                | -85.89          | 0.00            | 85.89                      | 4670.33       | 1124.69       | 4306.59          | 4427.82          | 0.35               | -0.06               | -0.06                | 0.030        |
| 60.00         | -46.06           | -0.83            | 0.00                | -81.75          | 0.00            | 81.75                      | 4597.00       | 1100.68       | 4124.71          | 4264.39          | 0.42               | -0.07               | -0.07                | 0.029        |
| 65.00         | -44.49           | -0.83            | 0.00                | -77.60          | 0.00            | 77.60                      | 4522.52       | 1076.68       | 3946.75          | 4102.93          | 0.50               | -0.08               | -0.08                | 0.029        |
| 70.00         | -42.95           | -0.83            | 0.00                | -73.45          | 0.00            | 73.45                      | 4446.89       | 1052.67       | 3772.72          | 3943.48          | 0.59               | -0.09               | -0.09                | 0.028        |
| 75.00         | -41.44           | -0.83            | 0.00                | -69.31          | 0.00            | 69.31                      | 4354.69       | 1028.67       | 3602.61          | 3772.77          | 0.68               | -0.09               | -0.09                | 0.028        |
| 80.00         | -39.96           | -0.83            | 0.00                | -65.16          | 0.00            | 65.16                      | 4253.06       | 1004.66       | 3436.42          | 3597.85          | 0.78               | -0.10               | -0.10                | 0.028        |
| 85.00         | -38.51           | -0.82            | 0.00                | -61.03          | 0.00            | 61.03                      | 4151.43       | 980.65        | 3274.16          | 3427.08          | 0.89               | -0.11               | -0.11                | 0.027        |
| 86.50         | -38.08           | -0.82            | 0.00                | -59.79          | 0.00            | 59.79                      | 4120.95       | 973.45        | 3226.24          | 3376.66          | 0.92               | -0.11               | -0.11                | 0.027        |
| 90.00         | -36.37           | -0.82            | 0.00                | -56.90          | 0.00            | 56.90                      | 4049.81       | 956.65        | 3115.82          | 3260.47          | 1.00               | -0.11               | -0.11                | 0.026        |
| 91.75         | -35.53           | -0.82            | 0.00                | -55.47          | 0.00            | 55.47                      | 3441.70       | 829.75        | 2734.72          | 2808.64          | 1.05               | -0.12               | -0.12                | 0.030        |
| 95.00         | -34.72           | -0.82            | 0.00                | -52.82          | 0.00            | 52.82                      | 3401.05       | 816.38        | 2647.27          | 2730.31          | 1.13               | -0.12               | -0.12                | 0.030        |
| 100.00        | -33.49           | -0.81            | 0.00                | -48.74          | 0.00            | 48.74                      | 3337.56       | 795.80        | 2515.51          | 2611.16          | 1.26               | -0.13               | -0.13                | 0.029        |
| 105.00        | -32.29           | -0.81            | 0.00                | -44.67          | 0.00            | 44.67                      | 3272.92       | 775.23        | 2387.10          | 2493.74          | 1.40               | -0.14               | -0.14                | 0.028        |
| 110.00        | -31.11           | -0.81            | 0.00                | -40.62          | 0.00            | 40.62                      | 3194.68       | 754.65        | 2262.06          | 2368.87          | 1.55               | -0.15               | -0.15                | 0.027        |
| 115.00        | -29.96           | -0.80            | 0.00                | -36.59          | 0.00            | 36.59                      | 3107.57       | 734.07        | 2140.39          | 2240.81          | 1.70               | -0.15               | -0.15                | 0.026        |
| 120.00        | -28.83           | -0.80            | 0.00                | -32.57          | 0.00            | 32.57                      | 3020.47       | 713.50        | 2022.08          | 2116.30          | 1.87               | -0.16               | -0.16                | 0.025        |
| 125.00        | -27.72           | -0.79            | 0.00                | -28.58          | 0.00            | 28.58                      | 2933.36       | 692.92        | 1907.13          | 1995.35          | 2.04               | -0.17               | -0.17                | 0.024        |
| 130.00        | -26.65           | -0.78            | 0.00                | -24.62          | 0.00            | 24.62                      | 2846.25       | 672.34        | 1795.55          | 1877.96          | 2.22               | -0.18               | -0.18                | 0.022        |
| 131.25        | -26.38           | -0.79            | 0.00                | -23.64          | 0.00            | 23.64                      | 2824.47       | 667.20        | 1768.17          | 1849.17          | 2.27               | -0.18               | -0.18                | 0.022        |
| 135.00        | -25.19           | -0.77            | 0.00                | -20.70          | 0.00            | 20.70                      | 2759.14       | 651.77        | 1687.32          | 1764.13          | 2.41               | -0.18               | -0.18                | 0.021        |
| 135.50        | -25.03           | -0.77            | 0.00                | -20.31          | 0.00            | 20.31                      | 1734.08       | 441.84        | 1163.16          | 1132.07          | 2.43               | -0.18               | -0.18                | 0.032        |
| 137.00        | -21.15           | -0.68            | 0.00                | -19.15          | 0.00            | 19.15                      | 1723.43       | 437.73        | 1141.60          | 1114.56          | 2.49               | -0.18               | -0.18                | 0.029        |
| 140.00        | -20.73           | -0.68            | 0.00                | -17.11          | 0.00            | 17.11                      | 1701.83       | 429.50        | 1099.07          | 1079.73          | 2.60               | -0.19               | -0.19                | 0.028        |
| 145.00        | -20.05           | -0.68            | 0.00                | -13.70          | 0.00            | 13.70                      | 1664.90       | 415.78        | 1029.98          | 1022.29          | 2.80               | -0.20               | -0.20                | 0.025        |
| 147.00        | -16.85           | -0.60            | 0.00                | -12.34          | 0.00            | 12.34                      | 1649.80       | 410.29        | 1002.98          | 999.54           | 2.89               | -0.20               | -0.20                | 0.023        |
| 150.00        | -16.46           | -0.60            | 0.00                | -10.53          | 0.00            | 10.53                      | 1626.81       | 402.06        | 963.14           | 965.67           | 3.01               | -0.20               | -0.20                | 0.021        |
| 155.00        | -15.82           | -0.60            | 0.00                | -7.52           | 0.00            | 7.52                       | 1587.58       | 388.34        | 898.54           | 909.96           | 3.23               | -0.21               | -0.21                | 0.018        |
| 157.00        | -11.08           | -0.42            | 0.00                | -6.32           | 0.00            | 6.32                       | 1571.57       | 382.86        | 873.33           | 887.94           | 3.32               | -0.21               | -0.21                | 0.014        |
| 160.00        | -10.72           | -0.42            | 0.00                | -5.06           | 0.00            | 5.06                       | 1547.20       | 374.63        | 836.18           | 855.21           | 3.45               | -0.21               | -0.21                | 0.013        |
| 165.00        | -10.13           | -0.41            | 0.00                | -2.96           | 0.00            | 2.96                       | 1505.67       | 360.91        | 776.07           | 801.50           | 3.68               | -0.22               | -0.22                | 0.010        |
| 167.00        | -5.69            | -0.24            | 0.00                | -2.14           | 0.00            | 2.14                       | 1488.74       | 355.42        | 752.65           | 780.32           | 3.77               | -0.22               | -0.22                | 0.007        |
| 170.00        | -5.38            | -0.24            | 0.00                | -1.42           | 0.00            | 1.42                       | 1462.99       | 347.19        | 718.19           | 748.90           | 3.90               | -0.22               | -0.22                | 0.006        |
| 175.00        | -4.88            | -0.23            | 0.00                | -0.23           | 0.00            | 0.23                       | 1411.70       | 333.47        | 662.56           | 693.80           | 4.13               | -0.22               | -0.22                | 0.004        |
| 176.00        | 0.00             | -0.21            | 0.00                | 0.00            | 0.00            | 0.00                       | 1400.09       | 330.73        | 651.70           | 682.38           | 4.18               | -0.22               | -0.22                | 0.000        |

## Calculated Forces

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |

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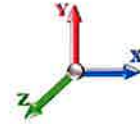
## Seismic Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|  |      |                                 |      |                                       |
|--|------|---------------------------------|------|---------------------------------------|
| <b>Load Case:</b> 0.9D + 1.0Ev + 1.0Eh |      |                                 |      | <b>Iterations</b> 23                  |
| <b>Gust Response Factor</b>            | 1.10 | <b>Sds</b>                      | 0.22 | <b>Ss</b> 0.20                        |
| <b>Dead Load Factor</b>                | 0.90 | <b>Seismic Load Factor</b>      | 1.00 | <b>S1</b> 0.06                        |
| <b>Wind Load Factor</b>                | 0.00 | <b>Structure Frequency (f1)</b> | 0.26 | <b>SA</b> 0.02                        |
|  |      |                                 |      | <b>Seismic Importance Factor</b> 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          |                 | 1683.9  | 2.50    | 72.93            | 0.01            |         |
| 10.00         |                 | 1657.3  | 7.50    | 71.78            | 0.07            |         |
| 15.00         |                 | 1630.7  | 12.50   | 70.62            | 0.19            |         |
| 20.00         |                 | 1604.1  | 17.50   | 69.47            | 0.36            |         |
| 25.00         |                 | 1577.5  | 22.50   | 68.32            | 0.58            |         |
| 30.00         |                 | 1551.0  | 27.50   | 67.17            | 0.84            |         |
| 35.00         |                 | 1524.4  | 32.50   | 66.02            | 1.13            |         |
| 40.00         |                 | 1497.8  | 37.50   | 64.86            | 1.45            |         |
| 42.75         | Bot - Section 2 | 812.45  | 41.38   | 35.18            | 0.52            |         |
| 45.00         |                 | 1172.7  | 43.88   | 50.79            | 1.22            |         |
| 49.00         | Top - Section 1 | 2059.8  | 47.00   | 89.21            | 4.32            |         |
| 50.00         |                 | 259.97  | 49.50   | 11.26            | 0.08            |         |
| 55.00         |                 | 1285.9  | 52.50   | 55.69            | 2.10            |         |
| 60.00         |                 | 1262.6  | 57.50   | 54.68            | 2.43            |         |
| 65.00         |                 | 1239.3  | 62.50   | 53.67            | 2.76            |         |
| 70.00         |                 | 1216.0  | 67.50   | 52.66            | 3.10            |         |
| 75.00         |                 | 1192.8  | 72.50   | 51.66            | 3.44            |         |
| 80.00         |                 | 1169.5  | 77.50   | 50.65            | 3.78            |         |
| 85.00         |                 | 1146.2  | 82.50   | 49.64            | 4.12            |         |
| 86.50         | Bot - Section 3 | 339.34  | 85.75   | 14.70            | 0.39            |         |
| 90.00         |                 | 1356.5  | 88.25   | 58.75            | 6.60            |         |
| 91.75         | Top - Section 2 | 670.31  | 90.88   | 29.03            | 1.71            |         |
| 95.00         |                 | 638.20  | 93.38   | 27.64            | 1.63            |         |
| 100.00        |                 | 965.39  | 97.50   | 41.81            | 4.08            |         |
| 105.00        |                 | 945.45  | 102.50  | 40.94            | 4.32            |         |
| 110.00        |                 | 925.50  | 107.50  | 40.08            | 4.56            |         |
| 115.00        |                 | 905.55  | 112.50  | 39.22            | 4.78            |         |
| 120.00        |                 | 885.60  | 117.50  | 38.35            | 4.99            |         |
| 125.00        |                 | 865.65  | 122.50  | 37.49            | 5.18            |         |
| 130.00        |                 | 845.71  | 127.50  | 36.62            | 5.35            |         |
| 131.25        | Bot - Section 4 | 208.31  | 130.63  | 9.02             | 0.34            |         |
| 135.00        |                 | 943.45  | 133.13  | 40.86            | 7.26            |         |
| 135.50        | Top - Section 3 | 124.38  | 135.25  | 5.39             | 0.13            |         |
| 137.00        | Appurtenance(s) | 3113.8  | 136.25  | 134.85           | 82.87           |         |
| 140.00        |                 | 326.29  | 138.50  | 14.13            | 0.94            |         |
| 145.00        |                 | 533.18  | 142.50  | 23.09            | 2.66            |         |
| 147.00        | Appurtenance(s) | 2568.6  | 146.00  | 111.24           | 64.75           |         |
| 150.00        |                 | 307.63  | 148.50  | 13.32            | 0.96            |         |
| 155.00        |                 | 502.08  | 152.50  | 21.74            | 2.70            |         |
| 157.00        | Appurtenance(s) | 3803.1  | 156.00  | 164.70           | 162.05          |         |
| 160.00        |                 | 284.54  | 158.50  | 12.32            | 0.94            |         |
| 165.00        |                 | 463.60  | 162.50  | 20.08            | 2.61            |         |
| 167.00        | Appurtenance(s) | 3559.9  | 166.00  | 154.17           | 160.77          |         |
| 170.00        |                 | 244.83  | 168.50  | 10.60            | 0.78            |         |
| 175.00        |                 | 397.40  | 172.50  | 17.21            | 2.16            |         |

## Seismic Segment Forces (Factored)

|                                 |                                   |                 |
|---------------------------------|-----------------------------------|-----------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022      |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                 |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                 |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                 |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Page:</b> 44 |
|                                 | <b>Struct Class:</b> II           |                 |



|        |                 |                 |        |                |               |                                    |
|--------|-----------------|-----------------|--------|----------------|---------------|------------------------------------|
| 176.00 | Appurtenance(s) | <u>3923.8</u>   | 175.50 | <u>169.93</u>  | <u>218.33</u> |                                    |
|        | <b>Totals:</b>  | <b>56,193.1</b> |        | <b>2,433.5</b> | <b>786.3</b>  | <b>Total Wind: <u>42,905.4</u></b> |

## Calculated Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

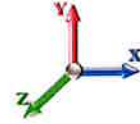
**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

12/15/2022

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|  |  |           |                                 |                   |                                  |  |      |
|--|--|-----------|---------------------------------|-------------------|----------------------------------|--|------|
| <b>Load Case:</b> 0.9D + 1.0Ev + 1.0Eh |  |           |                                 | <b>Iterations</b> | 23                               |  |      |
| <b>Gust Response Factor</b>            |  | 1.10      | <b>Sds</b>                      |                   | 0.22                             |  |      |
| <b>Dead Load Factor</b>                |  | 0.90      | <b>Seismic Load Factor</b>      |                   | 1.00                             |  |      |
| <b>Wind Load Factor</b>                |  | 0.00      | <b>Structure Frequency (f1)</b> |                   | 0.26                             |  |      |
|  |  | <b>SA</b> |                                 | 0.02              | <b>Seismic Importance Factor</b> |  | 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          | -53.59           | -0.79            | 0.00                | -128.65         | 0.00            | 128.65                     | 6372.54       | 1561.04       | 7259.46          | 7341.49          | 0.00               | 0.00                | 0.00                 | 0.026        |
| 5.00          | -51.99           | -0.79            | 0.00                | -124.71         | 0.00            | 124.71                     | 6292.68       | 1533.60       | 7006.53          | 7120.95          | 0.00               | -0.01               | -0.01                | 0.026        |
| 10.00         | -50.40           | -0.80            | 0.00                | -120.75         | 0.00            | 120.75                     | 6211.66       | 1506.17       | 6758.08          | 6902.39          | 0.01               | -0.01               | -0.01                | 0.026        |
| 15.00         | -48.85           | -0.80            | 0.00                | -116.76         | 0.00            | 116.76                     | 6129.50       | 1478.73       | 6514.12          | 6685.89          | 0.02               | -0.02               | -0.02                | 0.025        |
| 20.00         | -47.32           | -0.80            | 0.00                | -112.76         | 0.00            | 112.76                     | 6046.18       | 1451.30       | 6274.65          | 6471.51          | 0.04               | -0.02               | -0.02                | 0.025        |
| 25.00         | -45.81           | -0.81            | 0.00                | -108.73         | 0.00            | 108.73                     | 5961.72       | 1423.86       | 6039.66          | 6259.33          | 0.07               | -0.03               | -0.03                | 0.025        |
| 30.00         | -44.33           | -0.81            | 0.00                | -104.69         | 0.00            | 104.69                     | 5876.11       | 1396.43       | 5809.15          | 6049.42          | 0.10               | -0.03               | -0.03                | 0.025        |
| 35.00         | -42.87           | -0.81            | 0.00                | -100.64         | 0.00            | 100.64                     | 5789.35       | 1368.99       | 5583.13          | 5841.84          | 0.14               | -0.04               | -0.04                | 0.025        |
| 40.00         | -41.44           | -0.81            | 0.00                | -96.57          | 0.00            | 96.57                      | 5679.25       | 1341.56       | 5361.59          | 5614.75          | 0.18               | -0.04               | -0.04                | 0.024        |
| 42.75         | -40.66           | -0.82            | 0.00                | -94.34          | 0.00            | 94.34                      | 5615.38       | 1326.47       | 5241.66          | 5488.51          | 0.21               | -0.05               | -0.05                | 0.024        |
| 45.00         | -39.55           | -0.82            | 0.00                | -92.50          | 0.00            | 92.50                      | 5563.11       | 1314.12       | 5144.54          | 5386.29          | 0.23               | -0.05               | -0.05                | 0.024        |
| 49.00         | -37.59           | -0.81            | 0.00                | -89.24          | 0.00            | 89.24                      | 4756.80       | 1153.50       | 4530.03          | 4626.40          | 0.27               | -0.05               | -0.05                | 0.027        |
| 50.00         | -37.34           | -0.81            | 0.00                | -88.43          | 0.00            | 88.43                      | 4742.51       | 1148.70       | 4492.40          | 4593.12          | 0.28               | -0.06               | -0.06                | 0.027        |
| 55.00         | -36.11           | -0.81            | 0.00                | -84.36          | 0.00            | 84.36                      | 4670.33       | 1124.69       | 4306.59          | 4427.82          | 0.35               | -0.06               | -0.06                | 0.027        |
| 60.00         | -34.90           | -0.81            | 0.00                | -80.29          | 0.00            | 80.29                      | 4597.00       | 1100.68       | 4124.71          | 4264.39          | 0.42               | -0.07               | -0.07                | 0.026        |
| 65.00         | -33.71           | -0.81            | 0.00                | -76.21          | 0.00            | 76.21                      | 4522.52       | 1076.68       | 3946.75          | 4102.93          | 0.49               | -0.08               | -0.08                | 0.026        |
| 70.00         | -32.55           | -0.81            | 0.00                | -72.14          | 0.00            | 72.14                      | 4446.89       | 1052.67       | 3772.72          | 3943.48          | 0.58               | -0.08               | -0.08                | 0.026        |
| 75.00         | -31.40           | -0.81            | 0.00                | -68.07          | 0.00            | 68.07                      | 4354.69       | 1028.67       | 3602.61          | 3772.77          | 0.67               | -0.09               | -0.09                | 0.025        |
| 80.00         | -30.28           | -0.81            | 0.00                | -64.00          | 0.00            | 64.00                      | 4253.06       | 1004.66       | 3436.42          | 3597.85          | 0.77               | -0.10               | -0.10                | 0.025        |
| 85.00         | -29.18           | -0.81            | 0.00                | -59.95          | 0.00            | 59.95                      | 4151.43       | 980.65        | 3274.16          | 3427.08          | 0.87               | -0.10               | -0.10                | 0.025        |
| 86.50         | -28.86           | -0.81            | 0.00                | -58.74          | 0.00            | 58.74                      | 4120.95       | 973.45        | 3226.24          | 3376.66          | 0.91               | -0.11               | -0.11                | 0.024        |
| 90.00         | -27.56           | -0.80            | 0.00                | -55.91          | 0.00            | 55.91                      | 4049.81       | 956.65        | 3115.82          | 3260.47          | 0.99               | -0.11               | -0.11                | 0.024        |
| 91.75         | -26.93           | -0.80            | 0.00                | -54.51          | 0.00            | 54.51                      | 3441.70       | 829.75        | 2734.72          | 2808.64          | 1.03               | -0.11               | -0.11                | 0.027        |
| 95.00         | -26.31           | -0.80            | 0.00                | -51.91          | 0.00            | 51.91                      | 3401.05       | 816.38        | 2647.27          | 2730.31          | 1.11               | -0.12               | -0.12                | 0.027        |
| 100.00        | -25.38           | -0.80            | 0.00                | -47.91          | 0.00            | 47.91                      | 3337.56       | 795.80        | 2515.51          | 2611.16          | 1.24               | -0.13               | -0.13                | 0.026        |
| 105.00        | -24.47           | -0.79            | 0.00                | -43.93          | 0.00            | 43.93                      | 3272.92       | 775.23        | 2387.10          | 2493.74          | 1.38               | -0.14               | -0.14                | 0.025        |
| 110.00        | -23.58           | -0.79            | 0.00                | -39.96          | 0.00            | 39.96                      | 3194.68       | 754.65        | 2262.06          | 2368.87          | 1.52               | -0.14               | -0.14                | 0.024        |
| 115.00        | -22.71           | -0.79            | 0.00                | -36.00          | 0.00            | 36.00                      | 3107.57       | 734.07        | 2140.39          | 2240.81          | 1.68               | -0.15               | -0.15                | 0.023        |
| 120.00        | -21.85           | -0.78            | 0.00                | -32.07          | 0.00            | 32.07                      | 3020.47       | 713.50        | 2022.08          | 2116.30          | 1.84               | -0.16               | -0.16                | 0.022        |
| 125.00        | -21.02           | -0.78            | 0.00                | -28.16          | 0.00            | 28.16                      | 2933.36       | 692.92        | 1907.13          | 1995.35          | 2.01               | -0.17               | -0.17                | 0.021        |
| 130.00        | -20.20           | -0.77            | 0.00                | -24.28          | 0.00            | 24.28                      | 2846.25       | 672.34        | 1795.55          | 1877.96          | 2.18               | -0.17               | -0.17                | 0.020        |
| 131.25        | -20.00           | -0.77            | 0.00                | -23.31          | 0.00            | 23.31                      | 2824.47       | 667.20        | 1768.17          | 1849.17          | 2.23               | -0.17               | -0.17                | 0.020        |
| 135.00        | -19.10           | -0.76            | 0.00                | -20.42          | 0.00            | 20.42                      | 2759.14       | 651.77        | 1687.32          | 1764.13          | 2.37               | -0.18               | -0.18                | 0.018        |
| 135.50        | -18.98           | -0.76            | 0.00                | -20.04          | 0.00            | 20.04                      | 1734.08       | 441.84        | 1163.16          | 1132.07          | 2.39               | -0.18               | -0.18                | 0.029        |
| 137.00        | -16.04           | -0.67            | 0.00                | -18.90          | 0.00            | 18.90                      | 1723.43       | 437.73        | 1141.60          | 1114.56          | 2.44               | -0.18               | -0.18                | 0.026        |
| 140.00        | -15.72           | -0.67            | 0.00                | -16.89          | 0.00            | 16.89                      | 1701.83       | 429.50        | 1099.07          | 1079.73          | 2.56               | -0.19               | -0.19                | 0.025        |
| 145.00        | -15.21           | -0.67            | 0.00                | -13.53          | 0.00            | 13.53                      | 1664.90       | 415.78        | 1029.98          | 1022.29          | 2.76               | -0.19               | -0.19                | 0.022        |
| 147.00        | -12.78           | -0.60            | 0.00                | -12.20          | 0.00            | 12.20                      | 1649.80       | 410.29        | 1002.98          | 999.54           | 2.84               | -0.20               | -0.20                | 0.020        |
| 150.00        | -12.48           | -0.59            | 0.00                | -10.41          | 0.00            | 10.41                      | 1626.81       | 402.06        | 963.14           | 965.67           | 2.96               | -0.20               | -0.20                | 0.018        |
| 155.00        | -11.99           | -0.59            | 0.00                | -7.44           | 0.00            | 7.44                       | 1587.58       | 388.34        | 898.54           | 909.96           | 3.18               | -0.21               | -0.21                | 0.016        |
| 157.00        | -8.40            | -0.42            | 0.00                | -6.26           | 0.00            | 6.26                       | 1571.57       | 382.86        | 873.33           | 887.94           | 3.26               | -0.21               | -0.21                | 0.012        |
| 160.00        | -8.13            | -0.41            | 0.00                | -5.01           | 0.00            | 5.01                       | 1547.20       | 374.63        | 836.18           | 855.21           | 3.39               | -0.21               | -0.21                | 0.011        |
| 165.00        | -7.68            | -0.41            | 0.00                | -2.94           | 0.00            | 2.94                       | 1505.67       | 360.91        | 776.07           | 801.50           | 3.61               | -0.21               | -0.21                | 0.009        |
| 167.00        | -4.32            | -0.24            | 0.00                | -2.12           | 0.00            | 2.12                       | 1488.74       | 355.42        | 752.65           | 780.32           | 3.70               | -0.21               | -0.21                | 0.006        |
| 170.00        | -4.08            | -0.24            | 0.00                | -1.41           | 0.00            | 1.41                       | 1462.99       | 347.19        | 718.19           | 748.90           | 3.84               | -0.21               | -0.21                | 0.005        |
| 175.00        | -3.70            | -0.23            | 0.00                | -0.23           | 0.00            | 0.23                       | 1411.70       | 333.47        | 662.56           | 693.80           | 4.06               | -0.21               | -0.21                | 0.003        |
| 176.00        | 0.00             | -0.22            | 0.00                | 0.00            | 0.00            | 0.00                       | 1400.09       | 330.73        | 651.70           | 682.38           | 4.11               | -0.21               | -0.21                | 0.000        |

## Calculated Forces

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |

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## Wind Loading - Shaft

**Structure:** CT02216-S-SBA

**Code:** TIA-222-H

12/15/2022

**Site Name:** Glastonbury

**Exposure:** C

**Height:** 176.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

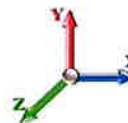
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



**Iterations** 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 | 6.548    | 7.20       | 262.50     | 0.730 | 0.000          | 0.00           | 0.000   | 0.00      | 0.0               | 0.0                | 0.0                |
| 5.00      |                 | 1.00 | 0.85 | 6.548    | 7.20       | 257.92     | 0.730 | 0.000          | 5.00           | 23.718  | 17.31     | 124.7             | 0.0                | 1500.1             |
| 10.00     |                 | 1.00 | 0.85 | 6.548    | 7.20       | 253.35     | 0.730 | 0.000          | 5.00           | 23.301  | 17.01     | 122.5             | 0.0                | 1473.5             |
| 15.00     |                 | 1.00 | 0.85 | 6.548    | 7.20       | 248.78     | 0.730 | 0.000          | 5.00           | 22.884  | 16.71     | 120.3             | 0.0                | 1446.9             |
| 20.00     |                 | 1.00 | 0.90 | 6.948    | 7.64       | 251.55     | 0.730 | 0.000          | 5.00           | 22.467  | 16.40     | 125.3             | 0.0                | 1420.3             |
| 25.00     |                 | 1.00 | 0.95 | 7.282    | 8.01       | 252.70     | 0.730 | 0.000          | 5.00           | 22.050  | 16.10     | 128.9             | 0.0                | 1393.7             |
| 30.00     |                 | 1.00 | 0.98 | 7.567    | 8.32       | 252.69     | 0.730 | 0.000          | 5.00           | 21.634  | 15.79     | 131.4             | 0.0                | 1367.1             |
| 35.00     |                 | 1.00 | 1.01 | 7.816    | 8.60       | 251.82     | 0.730 | 0.000          | 5.00           | 21.217  | 15.49     | 133.2             | 0.0                | 1340.5             |
| 40.00     |                 | 1.00 | 1.04 | 8.039    | 8.84       | 250.32     | 0.730 | 0.000          | 5.00           | 20.800  | 15.18     | 134.3             | 0.0                | 1313.9             |
| 42.75     | Bot - Section 2 | 1.00 | 1.06 | 8.152    | 8.97       | 249.27     | 0.730 | 0.000          | 2.75           | 11.262  | 8.22      | 73.7              | 0.0                | 711.3              |
| 45.00     |                 | 1.00 | 1.07 | 8.241    | 9.07       | 248.31     | 0.730 | 0.000          | 2.25           | 9.288   | 6.78      | 61.5              | 0.0                | 1089.9             |
| 49.00     | Top - Section 1 | 1.00 | 1.09 | 8.390    | 9.23       | 246.41     | 0.730 | 0.000          | 4.00           | 16.303  | 11.90     | 109.8             | 0.0                | 1912.7             |
| 50.00     |                 | 1.00 | 1.09 | 8.426    | 9.27       | 250.50     | 0.730 | 0.000          | 1.00           | 4.034   | 2.94      | 27.3              | 0.0                | 223.2              |
| 55.00     |                 | 1.00 | 1.12 | 8.597    | 9.46       | 247.79     | 0.730 | 0.000          | 5.00           | 19.920  | 14.54     | 137.5             | 0.0                | 1102.0             |
| 60.00     |                 | 1.00 | 1.14 | 8.756    | 9.63       | 244.78     | 0.730 | 0.000          | 5.00           | 19.503  | 14.24     | 137.1             | 0.0                | 1078.7             |
| 65.00     |                 | 1.00 | 1.16 | 8.904    | 9.79       | 241.52     | 0.730 | 0.000          | 5.00           | 19.086  | 13.93     | 136.5             | 0.0                | 1055.4             |
| 70.00     |                 | 1.00 | 1.17 | 9.044    | 9.95       | 238.04     | 0.730 | 0.000          | 5.00           | 18.670  | 13.63     | 135.6             | 0.0                | 1032.2             |
| 75.00     |                 | 1.00 | 1.19 | 9.177    | 10.09      | 234.36     | 0.730 | 0.000          | 5.00           | 18.253  | 13.32     | 134.5             | 0.0                | 1008.9             |
| 80.00     |                 | 1.00 | 1.21 | 9.302    | 10.23      | 230.51     | 0.730 | 0.000          | 5.00           | 17.836  | 13.02     | 133.2             | 0.0                | 985.6              |
| 85.00     |                 | 1.00 | 1.22 | 9.422    | 10.36      | 226.50     | 0.730 | 0.000          | 5.00           | 17.419  | 12.72     | 131.8             | 0.0                | 962.3              |
| 86.50     | Bot - Section 3 | 1.00 | 1.23 | 9.456    | 10.40      | 225.27     | 0.730 | 0.000          | 1.50           | 5.145   | 3.76      | 39.1              | 0.0                | 284.2              |
| 90.00     |                 | 1.00 | 1.24 | 9.536    | 10.49      | 222.35     | 0.730 | 0.000          | 3.50           | 12.080  | 8.82      | 92.5              | 0.0                | 1227.8             |
| 91.75     | Top - Section 2 | 1.00 | 1.24 | 9.574    | 10.53      | 220.86     | 0.730 | 0.000          | 1.75           | 5.963   | 4.35      | 45.8              | 0.0                | 605.9              |
| 95.00     |                 | 1.00 | 1.25 | 9.645    | 10.61      | 222.29     | 0.730 | 0.000          | 3.25           | 10.940  | 7.99      | 84.7              | 0.0                | 518.7              |
| 100.00    |                 | 1.00 | 1.27 | 9.750    | 10.72      | 217.92     | 0.730 | 0.000          | 5.00           | 16.486  | 12.03     | 129.1             | 0.0                | 781.5              |
| 105.00    |                 | 1.00 | 1.28 | 9.850    | 10.84      | 213.43     | 0.730 | 0.000          | 5.00           | 16.069  | 11.73     | 127.1             | 0.0                | 761.5              |
| 110.00    |                 | 1.00 | 1.29 | 9.947    | 10.94      | 208.84     | 0.730 | 0.000          | 5.00           | 15.653  | 11.43     | 125.0             | 0.0                | 741.6              |
| 115.00    |                 | 1.00 | 1.30 | 10.041   | 11.04      | 204.16     | 0.730 | 0.000          | 5.00           | 15.236  | 11.12     | 122.8             | 0.0                | 721.6              |
| 120.00    |                 | 1.00 | 1.32 | 10.131   | 11.14      | 199.39     | 0.730 | 0.000          | 5.00           | 14.819  | 10.82     | 120.6             | 0.0                | 701.7              |
| 125.00    |                 | 1.00 | 1.33 | 10.219   | 11.24      | 194.53     | 0.730 | 0.000          | 5.00           | 14.402  | 10.51     | 118.2             | 0.0                | 681.7              |
| 130.00    |                 | 1.00 | 1.34 | 10.303   | 11.33      | 189.60     | 0.730 | 0.000          | 5.00           | 13.986  | 10.21     | 115.7             | 0.0                | 661.8              |
| 131.25    | Bot - Section 4 | 1.00 | 1.34 | 10.324   | 11.36      | 188.36     | 0.730 | 0.000          | 1.25           | 3.431   | 2.50      | 28.4              | 0.0                | 162.3              |
| 135.00    |                 | 1.00 | 1.35 | 10.385   | 11.42      | 184.60     | 0.730 | 0.000          | 3.75           | 10.296  | 7.52      | 85.9              | 0.0                | 805.5              |
| 135.50    | Top - Section 3 | 1.00 | 1.35 | 10.394   | 11.43      | 184.10     | 0.730 | 0.000          | 0.50           | 1.355   | 0.99      | 11.3              | 0.0                | 106.0              |
| 137.00    | Appurtenance(s) | 1.00 | 1.35 | 10.418   | 11.46      | 185.51     | 0.730 | 0.000          | 1.50           | 4.040   | 2.95      | 33.8              | 0.0                | 127.9              |
| 140.00    |                 | 1.00 | 1.36 | 10.465   | 11.51      | 182.46     | 0.730 | 0.000          | 3.00           | 7.968   | 5.82      | 67.0              | 0.0                | 252.2              |
| 145.00    |                 | 1.00 | 1.37 | 10.543   | 11.60      | 177.33     | 0.730 | 0.000          | 5.00           | 12.947  | 9.45      | 109.6             | 0.0                | 409.7              |
| 147.00    | Appurtenance(s) | 1.00 | 1.37 | 10.573   | 11.63      | 175.27     | 0.730 | 0.000          | 2.00           | 5.062   | 3.70      | 43.0              | 0.0                | 160.2              |
| 150.00    |                 | 1.00 | 1.38 | 10.618   | 11.68      | 172.15     | 0.730 | 0.000          | 3.00           | 7.468   | 5.45      | 63.7              | 0.0                | 236.3              |
| 155.00    |                 | 1.00 | 1.39 | 10.692   | 11.76      | 166.90     | 0.730 | 0.000          | 5.00           | 12.113  | 8.84      | 104.0             | 0.0                | 383.1              |
| 157.00    | Appurtenance(s) | 1.00 | 1.39 | 10.721   | 11.79      | 164.78     | 0.730 | 0.000          | 2.00           | 4.729   | 3.45      | 40.7              | 0.0                | 149.5              |
| 160.00    |                 | 1.00 | 1.40 | 10.764   | 11.84      | 161.59     | 0.730 | 0.000          | 3.00           | 6.968   | 5.09      | 60.2              | 0.0                | 220.3              |
| 165.00    |                 | 1.00 | 1.41 | 10.834   | 11.92      | 156.24     | 0.730 | 0.000          | 5.00           | 11.280  | 8.23      | 98.1              | 0.0                | 356.5              |
| 167.00    | Appurtenance(s) | 1.00 | 1.41 | 10.861   | 11.95      | 154.08     | 0.730 | 0.000          | 2.00           | 4.395   | 3.21      | 38.3              | 0.0                | 138.9              |
| 170.00    |                 | 1.00 | 1.42 | 10.902   | 11.99      | 150.83     | 0.730 | 0.000          | 3.00           | 6.468   | 4.72      | 56.6              | 0.0                | 204.3              |
| 175.00    |                 | 1.00 | 1.42 | 10.969   | 12.07      | 145.37     | 0.730 | 0.000          | 5.00           | 10.446  | 7.63      | 92.0              | 0.0                | 329.9              |
| 176.00    | Appurtenance(s) | 1.00 | 1.43 | 10.982   | 12.08      | 144.27     | 0.730 | 0.000          | 1.00           | 2.039   | 1.49      | 18.0              | 0.0                | 64.4               |

## Wind Loading - Shaft

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|                |               |                |                 |
|----------------|---------------|----------------|-----------------|
| <b>Totals:</b> | <b>176.00</b> | <b>4,310.5</b> | <b>34,212.9</b> |
|----------------|---------------|----------------|-----------------|



## Discrete Appurtenance Forces

**Structure:** CT02216-S-SBA  
**Site Name:** Glastonbury  
**Height:** 176.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** TIA-222-H  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

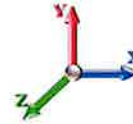
12/15/2022



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**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   | 176.00    | KRY 112 89/4          | 3   | 10.995   | 12.094     | 0.50               | 0.75 | 0.98            | 46.20          | 0.000          | 1.000         | 11.85        | 0.00          | 11.85         |
| 2   | 176.00    | MHA FE15501P77/75     | 6   | 10.995   | 12.094     | 0.49               | 0.75 | 2.72            | 66.00          | 0.000          | 1.000         | 32.90        | 0.00          | 32.90         |
| 3   | 176.00    | RMQP-496-HK           | 1   | 10.995   | 12.094     | 1.00               | 1.00 | 46.00           | 2449.00        | 0.000          | 1.000         | 556.34       | 0.00          | 556.34        |
| 4   | 176.00    | KRY 112 489/2         | 3   | 10.995   | 12.094     | 0.50               | 0.75 | 0.98            | 46.20          | 0.000          | 1.000         | 11.85        | 0.00          | 11.85         |
| 5   | 176.00    | Lightning Rod         | 1   | 11.027   | 12.130     | 1.00               | 1.00 | 1.05            | 35.00          | 0.000          | 3.500         | 12.74        | 0.00          | 44.58         |
| 6   | 176.00    | AIR 6419 B41          | 3   | 10.995   | 12.094     | 0.52               | 0.75 | 10.28           | 399.60         | 0.000          | 1.000         | 124.39       | 0.00          | 124.39        |
| 7   | 176.00    | APXVAALL24 43-U-NA20  | 3   | 10.995   | 12.094     | 0.55               | 0.75 | 33.24           | 368.40         | 0.000          | 1.000         | 402.07       | 0.00          | 402.07        |
| 8   | 176.00    | 4449 B71 + B85        | 3   | 10.995   | 12.094     | 0.50               | 0.75 | 2.97            | 219.60         | 0.000          | 1.000         | 35.92        | 0.00          | 35.92         |
| 9   | 176.00    | 4460 B25 + B66        | 3   | 10.995   | 12.094     | 0.50               | 0.75 | 2.47            | 216.00         | 0.000          | 1.000         | 29.90        | 0.00          | 29.90         |
| 10  | 167.00    | B5/B13 RRH ORAN       | 3   | 10.861   | 11.947     | 0.50               | 0.75 | 2.82            | 210.90         | 0.000          | 0.000         | 33.68        | 0.00          | 0.00          |
| 11  | 167.00    | B2/B66A RRH ORAN      | 3   | 10.861   | 11.947     | 0.50               | 0.75 | 2.82            | 253.20         | 0.000          | 0.000         | 33.68        | 0.00          | 0.00          |
| 12  | 167.00    | Samsung MT6407-77A    | 3   | 10.861   | 11.947     | 0.52               | 0.75 | 7.39            | 238.20         | 0.000          | 0.000         | 88.25        | 0.00          | 0.00          |
| 13  | 167.00    | CBRS RRH - RT4401-48A | 3   | 10.861   | 11.947     | 0.50               | 0.75 | 1.49            | 55.80          | 0.000          | 0.000         | 17.83        | 0.00          | 0.00          |
| 14  | 167.00    | Commscope             | 3   | 10.861   | 11.947     | 0.64               | 0.75 | 15.66           | 152.10         | 0.000          | 0.000         | 187.13       | 0.00          | 0.00          |
| 15  | 167.00    | Commscope             | 3   | 10.861   | 11.947     | 0.62               | 0.75 | 15.09           | 131.10         | 0.000          | 0.000         | 180.28       | 0.00          | 0.00          |
| 16  | 167.00    | LPA-80063-4CF-EDIN-5  | 2   | 10.861   | 11.947     | 0.84               | 0.90 | 10.30           | 40.00          | 0.000          | 0.000         | 123.00       | 0.00          | 0.00          |
| 17  | 167.00    | Raycap                | 2   | 10.861   | 11.947     | 0.81               | 0.90 | 6.12            | 64.00          | 0.000          | 0.000         | 73.16        | 0.00          | 0.00          |
| 18  | 167.00    | KICKER KIT            | 1   | 10.861   | 11.947     | 1.00               | 1.00 | 5.33            | 146.00         | 0.000          | 0.000         | 63.68        | 0.00          | 0.00          |
| 19  | 167.00    | MONOPOLE COLLAR       | 1   | 10.861   | 11.947     | 1.00               | 1.00 | 2.50            | 150.60         | 0.000          | 0.000         | 29.87        | 0.00          | 0.00          |
| 20  | 167.00    | SUPPORT RAIL CORNER   | 1   | 10.861   | 11.947     | 1.00               | 1.00 | 8.75            | 430.00         | 0.000          | 0.000         | 104.54       | 0.00          | 0.00          |
| 21  | 167.00    | APL868013             | 1   | 10.861   | 11.947     | 1.00               | 1.00 | 2.86            | 6.30           | 0.000          | 0.000         | 34.17        | 0.00          | 0.00          |
| 22  | 167.00    | Low Profile           | 1   | 10.861   | 11.947     | 1.00               | 1.00 | 22.00           | 1500.00        | 0.000          | 0.000         | 262.84       | 0.00          | 0.00          |
| 23  | 157.00    | Sitepro PRK-SFS-H-L   | 1   | 10.721   | 11.793     | 1.00               | 1.00 | 6.70            | 230.00         | 0.000          | 0.000         | 79.01        | 0.00          | 0.00          |
| 24  | 157.00    | Sitepro HRK14-U       | 1   | 10.721   | 11.793     | 1.00               | 1.00 | 8.13            | 302.36         | 0.000          | 0.000         | 95.88        | 0.00          | 0.00          |
| 25  | 157.00    | Sitepro PRK-1245L     | 1   | 10.721   | 11.793     | 1.00               | 1.00 | 9.50            | 464.91         | 0.000          | 0.000         | 112.03       | 0.00          | 0.00          |
| 26  | 157.00    | ALU 800 Mhz           | 6   | 10.721   | 11.793     | 0.54               | 0.80 | 8.01            | 318.00         | 0.000          | 0.000         | 94.44        | 0.00          | 0.00          |
| 27  | 157.00    | Low Profile Platform  | 1   | 10.721   | 11.793     | 1.00               | 1.00 | 22.00           | 1500.00        | 0.000          | 0.000         | 259.44       | 0.00          | 0.00          |
| 28  | 157.00    | ALU 1900 Mhz          | 3   | 10.721   | 11.793     | 0.54               | 0.80 | 4.45            | 180.00         | 0.000          | 0.000         | 52.53        | 0.00          | 0.00          |
| 29  | 157.00    | Commscope             | 3   | 10.721   | 11.793     | 0.60               | 0.80 | 22.09           | 232.20         | 0.000          | 0.000         | 260.46       | 0.00          | 0.00          |
| 30  | 157.00    | ALU TD-RRHx20-25      | 3   | 10.721   | 11.793     | 0.54               | 0.80 | 6.51            | 210.00         | 0.000          | 0.000         | 76.80        | 0.00          | 0.00          |
| 31  | 157.00    | RFS APXVTM14-C-I20    | 3   | 10.721   | 11.793     | 0.62               | 0.80 | 11.72           | 168.60         | 0.000          | 0.000         | 138.17       | 0.00          | 0.00          |
| 32  | 147.00    | RDIDC-9181-PF-48      | 1   | 10.573   | 11.631     | 1.00               | 1.00 | 2.01            | 21.90          | 0.000          | 0.000         | 23.38        | 0.00          | 0.00          |
| 33  | 147.00    | TA08025-B604          | 3   | 10.573   | 11.631     | 0.50               | 0.75 | 2.95            | 191.70         | 0.000          | 0.000         | 34.37        | 0.00          | 0.00          |
| 34  | 147.00    | TA08025-B605          | 3   | 10.573   | 11.631     | 0.50               | 0.75 | 2.95            | 225.00         | 0.000          | 0.000         | 34.37        | 0.00          | 0.00          |
| 35  | 147.00    | MC-PK8-DSH            | 1   | 10.573   | 11.631     | 1.00               | 1.00 | 37.59           | 1727.00        | 0.000          | 0.000         | 437.20       | 0.00          | 0.00          |
| 36  | 147.00    | MX08FRO665-21         | 3   | 10.573   | 11.631     | 0.55               | 0.75 | 20.80           | 193.50         | 0.000          | 0.000         | 241.87       | 0.00          | 0.00          |
| 37  | 137.00    | B2 B66A 8843          | 3   | 10.418   | 11.459     | 0.50               | 0.75 | 2.47            | 210.00         | 0.000          | 0.000         | 28.33        | 0.00          | 0.00          |
| 38  | 137.00    | 4449 B5/B12           | 3   | 10.418   | 11.459     | 0.50               | 0.75 | 2.97            | 213.00         | 0.000          | 0.000         | 34.03        | 0.00          | 0.00          |
| 39  | 137.00    | HPA-65R-BUU-H6        | 3   | 10.418   | 11.459     | 0.64               | 0.75 | 18.47           | 153.00         | 0.000          | 0.000         | 211.71       | 0.00          | 0.00          |
| 40  | 137.00    | 7020                  | 12  | 10.418   | 11.459     | 0.50               | 0.75 | 2.41            | 26.40          | 0.000          | 0.000         | 27.64        | 0.00          | 0.00          |
| 41  | 137.00    | DMP65R-BU6DA          | 3   | 10.418   | 11.459     | 0.54               | 0.75 | 20.59           | 238.20         | 0.000          | 0.000         | 235.95       | 0.00          | 0.00          |
| 42  | 137.00    | HRK14                 | 1   | 10.418   | 11.459     | 1.00               | 1.00 | 8.13            | 302.36         | 0.000          | 0.000         | 93.16        | 0.00          | 0.00          |
| 43  | 137.00    | LP Platform-Round     | 1   | 10.418   | 11.459     | 1.00               | 1.00 | 22.00           | 1500.00        | 0.000          | 0.000         | 252.11       | 0.00          | 0.00          |
| 44  | 137.00    | Smart Bias T 1001940  | 3   | 10.418   | 11.459     | 0.50               | 0.75 | 0.14            | 6.00           | 7.041          | 0.000         | 1.55         | 10.95         | 0.00          |
| 45  | 137.00    | DC6-48-60-18-8F       | 1   | 10.418   | 11.459     | 1.00               | 1.00 | 1.47            | 32.80          | 0.000          | 0.000         | 16.85        | 0.00          | 0.00          |
| 46  | 137.00    | 7770.00               | 3   | 10.418   | 11.459     | 0.55               | 0.75 | 9.03            | 105.00         | 0.000          | 0.000         | 103.52       | 0.00          | 0.00          |
| 47  | 137.00    | LGP21401              | 6   | 10.418   | 11.459     | 0.50               | 0.75 | 3.89            | 114.00         | 0.000          | 0.000         | 44.57        | 0.00          | 0.00          |

## Discrete Appurtenance Forces

**Structure:** CT02216-S-SBA

**Code:** TIA-222-H

12/15/2022

**Site Name:** Glastonbury

**Exposure:** C

**Height:** 176.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

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|                |                 |   |        |        |      |      |      |       |       |       |                  |                 |      |
|----------------|-----------------|---|--------|--------|------|------|------|-------|-------|-------|------------------|-----------------|------|
| 48             | 137.00 LGP21903 | 6 | 10.418 | 11.459 | 0.50 | 0.75 | 0.81 | 30.00 | 4.341 | 0.000 | 9.33             | 40.49           | 0.00 |
| <b>Totals:</b> |                 |   |        |        |      |      |      |       |       |       | <b>16,120.13</b> | <b>5,448.74</b> |      |

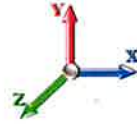
## Total Applied Force Summary

|                                 |                                   |                 |
|---------------------------------|-----------------------------------|-----------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022      |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                 |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                 |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                 |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Page:</b> 51 |
|                                 | <b>Struct Class:</b> II           |                 |



**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 25

| Elev<br>(ft) | Description      | Lateral<br>FX (-)<br>(lb) | Axial<br>FY (-)<br>(lb) | Torsion<br>MY<br>(lb-ft) | Moment<br>MZ<br>(lb-ft) |
|--------------|------------------|---------------------------|-------------------------|--------------------------|-------------------------|
| 0.00         |                  | 0.00                      | 0.00                    | 0.00                     | 0.00                    |
| 5.00         |                  | 124.71                    | 1704.42                 | 0.00                     | 0.00                    |
| 10.00        |                  | 122.51                    | 1677.82                 | 0.00                     | 0.00                    |
| 15.00        |                  | 120.32                    | 1651.23                 | 0.00                     | 0.00                    |
| 20.00        |                  | 125.34                    | 1624.63                 | 0.00                     | 0.00                    |
| 25.00        |                  | 128.93                    | 1598.03                 | 0.00                     | 0.00                    |
| 30.00        |                  | 131.45                    | 1571.43                 | 0.00                     | 0.00                    |
| 35.00        |                  | 133.17                    | 1544.84                 | 0.00                     | 0.00                    |
| 40.00        |                  | 134.27                    | 1518.24                 | 0.00                     | 0.00                    |
| 42.75        |                  | 73.73                     | 823.69                  | 0.00                     | 0.00                    |
| 45.00        |                  | 61.46                     | 1181.90                 | 0.00                     | 0.00                    |
| 49.00        |                  | 109.83                    | 2076.22                 | 0.00                     | 0.00                    |
| 50.00        |                  | 27.29                     | 264.06                  | 0.00                     | 0.00                    |
| 55.00        |                  | 137.51                    | 1306.33                 | 0.00                     | 0.00                    |
| 60.00        |                  | 137.12                    | 1283.06                 | 0.00                     | 0.00                    |
| 65.00        |                  | 136.47                    | 1259.79                 | 0.00                     | 0.00                    |
| 70.00        |                  | 135.59                    | 1236.52                 | 0.00                     | 0.00                    |
| 75.00        |                  | 134.50                    | 1213.24                 | 0.00                     | 0.00                    |
| 80.00        |                  | 133.23                    | 1189.97                 | 0.00                     | 0.00                    |
| 85.00        |                  | 131.79                    | 1166.70                 | 0.00                     | 0.00                    |
| 86.50        |                  | 39.06                     | 345.47                  | 0.00                     | 0.00                    |
| 90.00        |                  | 92.50                     | 1370.81                 | 0.00                     | 0.00                    |
| 91.75        |                  | 45.85                     | 677.47                  | 0.00                     | 0.00                    |
| 95.00        |                  | 84.72                     | 651.49                  | 0.00                     | 0.00                    |
| 100.00       |                  | 129.07                    | 985.83                  | 0.00                     | 0.00                    |
| 105.00       |                  | 127.11                    | 965.88                  | 0.00                     | 0.00                    |
| 110.00       |                  | 125.03                    | 945.94                  | 0.00                     | 0.00                    |
| 115.00       |                  | 122.84                    | 925.99                  | 0.00                     | 0.00                    |
| 120.00       |                  | 120.56                    | 906.04                  | 0.00                     | 0.00                    |
| 125.00       |                  | 118.18                    | 886.09                  | 0.00                     | 0.00                    |
| 130.00       |                  | 115.71                    | 866.14                  | 0.00                     | 0.00                    |
| 131.25       |                  | 28.45                     | 213.42                  | 0.00                     | 0.00                    |
| 135.00       |                  | 85.86                     | 958.77                  | 0.00                     | 0.00                    |
| 135.50       |                  | 11.31                     | 126.42                  | 0.00                     | 0.00                    |
| 137.00       | (45) attachments | 1092.55                   | 3119.97                 | 51.44                    | 0.00                    |
| 140.00       |                  | 66.96                     | 334.52                  | 0.00                     | 0.00                    |
| 145.00       |                  | 109.61                    | 546.89                  | 0.00                     | 0.00                    |
| 147.00       | (11) attachments | 814.15                    | 2574.13                 | 0.00                     | 0.00                    |
| 150.00       |                  | 63.68                     | 315.56                  | 0.00                     | 0.00                    |
| 155.00       |                  | 104.00                    | 515.29                  | 0.00                     | 0.00                    |
| 157.00       | (22) attachments | 1209.46                   | 3808.46                 | 0.00                     | 0.00                    |
| 160.00       |                  | 60.22                     | 291.68                  | 0.00                     | 0.00                    |
| 165.00       |                  | 98.13                     | 475.50                  | 0.00                     | 0.00                    |
| 167.00       | (27) attachments | 1270.43                   | 3564.68                 | 0.00                     | 0.00                    |
| 170.00       |                  | 56.62                     | 249.32                  | 0.00                     | 0.00                    |
| 175.00       |                  | 92.01                     | 404.90                  | 0.00                     | 0.00                    |
| 176.00       | (26) attachments | 1235.94                   | 3925.38                 | 0.00                     | 1249.80                 |

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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|                |                 |                  |              |                 |
|----------------|-----------------|------------------|--------------|-----------------|
| <b>Totals:</b> | <b>9,759.24</b> | <b>56,844.19</b> | <b>51.44</b> | <b>1,249.80</b> |
|----------------|-----------------|------------------|--------------|-----------------|

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT02216-S-SBA

**Code:** TIA-222-H

12/15/2022

**Site Name:** Glastonbury

**Exposure:** C

**Height:** 176.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

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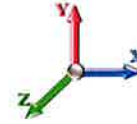


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 25

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



| Top Elev (ft) | Description         | Wind Exposed | Length (ft) | Ca    | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra    | Cf Adjust Factor | qz (psf) | F X (lb) | Dead Load (lb) |
|---------------|---------------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 5.00          | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 6.548    | 0.00     | 1.37           |
| 5.00          | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 6.548    | 0.00     | 5.20           |
| 10.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 6.548    | 0.00     | 1.37           |
| 10.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 6.548    | 0.00     | 5.20           |
| 15.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.018 | 0.000            | 6.548    | 0.00     | 1.37           |
| 15.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.018 | 0.000            | 6.548    | 0.00     | 5.20           |
| 20.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 6.948    | 0.00     | 1.37           |
| 20.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 6.948    | 0.00     | 5.20           |
| 25.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 7.282    | 0.00     | 1.37           |
| 25.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 7.282    | 0.00     | 5.20           |
| 30.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.019 | 0.000            | 7.567    | 0.00     | 1.37           |
| 30.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.019 | 0.000            | 7.567    | 0.00     | 5.20           |
| 35.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.020 | 0.000            | 7.816    | 0.00     | 1.37           |
| 35.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.020 | 0.000            | 7.816    | 0.00     | 5.20           |
| 40.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.020 | 0.000            | 8.039    | 0.00     | 1.37           |
| 40.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.020 | 0.000            | 8.039    | 0.00     | 5.20           |
| 42.75         | Safety Cable        | Yes          | 2.75        | 0.000 | 0.38               | 0.09        | 0.00        | 0.021 | 0.000            | 8.152    | 0.00     | 0.75           |
| 42.75         | Step bolts (ladder) | Yes          | 2.75        | 0.000 | 0.63               | 0.14        | 0.00        | 0.021 | 0.000            | 8.152    | 0.00     | 2.86           |
| 45.00         | Safety Cable        | Yes          | 2.25        | 0.000 | 0.38               | 0.07        | 0.00        | 0.021 | 0.000            | 8.241    | 0.00     | 0.61           |
| 45.00         | Step bolts (ladder) | Yes          | 2.25        | 0.000 | 0.63               | 0.12        | 0.00        | 0.021 | 0.000            | 8.241    | 0.00     | 2.34           |
| 49.00         | Safety Cable        | Yes          | 4.00        | 0.000 | 0.38               | 0.13        | 0.00        | 0.021 | 0.000            | 8.390    | 0.00     | 1.09           |
| 49.00         | Step bolts (ladder) | Yes          | 4.00        | 0.000 | 0.63               | 0.21        | 0.00        | 0.021 | 0.000            | 8.390    | 0.00     | 4.16           |
| 50.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.03        | 0.00        | 0.021 | 0.000            | 8.426    | 0.00     | 0.27           |
| 50.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.05        | 0.00        | 0.021 | 0.000            | 8.426    | 0.00     | 1.04           |
| 55.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.021 | 0.000            | 8.597    | 0.00     | 1.37           |
| 55.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.021 | 0.000            | 8.597    | 0.00     | 5.20           |
| 60.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.022 | 0.000            | 8.756    | 0.00     | 1.37           |
| 60.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.022 | 0.000            | 8.756    | 0.00     | 5.20           |
| 65.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.022 | 0.000            | 8.904    | 0.00     | 1.37           |
| 65.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.022 | 0.000            | 8.904    | 0.00     | 5.20           |
| 70.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.023 | 0.000            | 9.044    | 0.00     | 1.37           |
| 70.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.023 | 0.000            | 9.044    | 0.00     | 5.20           |
| 75.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.023 | 0.000            | 9.177    | 0.00     | 1.37           |
| 75.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.023 | 0.000            | 9.177    | 0.00     | 5.20           |
| 80.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.024 | 0.000            | 9.302    | 0.00     | 1.37           |
| 80.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.024 | 0.000            | 9.302    | 0.00     | 5.20           |
| 85.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.024 | 0.000            | 9.422    | 0.00     | 1.37           |
| 85.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.024 | 0.000            | 9.422    | 0.00     | 5.20           |
| 86.50         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.05        | 0.00        | 0.025 | 0.000            | 9.456    | 0.00     | 0.41           |
| 86.50         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.08        | 0.00        | 0.025 | 0.000            | 9.456    | 0.00     | 1.56           |
| 90.00         | Safety Cable        | Yes          | 3.50        | 0.000 | 0.38               | 0.11        | 0.00        | 0.025 | 0.000            | 9.536    | 0.00     | 0.96           |
| 90.00         | Step bolts (ladder) | Yes          | 3.50        | 0.000 | 0.63               | 0.18        | 0.00        | 0.025 | 0.000            | 9.536    | 0.00     | 3.64           |
| 91.75         | Safety Cable        | Yes          | 1.75        | 0.000 | 0.38               | 0.06        | 0.00        | 0.025 | 0.000            | 9.574    | 0.00     | 0.48           |
| 91.75         | Step bolts (ladder) | Yes          | 1.75        | 0.000 | 0.63               | 0.09        | 0.00        | 0.025 | 0.000            | 9.574    | 0.00     | 1.82           |
| 95.00         | Safety Cable        | Yes          | 3.25        | 0.000 | 0.38               | 0.10        | 0.00        | 0.025 | 0.000            | 9.645    | 0.00     | 0.89           |
| 95.00         | Step bolts (ladder) | Yes          | 3.25        | 0.000 | 0.63               | 0.17        | 0.00        | 0.025 | 0.000            | 9.645    | 0.00     | 3.38           |
| 100.00        | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.026 | 0.000            | 9.750    | 0.00     | 1.37           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT02216-S-SBA

**Code:** TIA-222-H

12/15/2022

**Site Name:** Glastonbury

**Exposure:** C

**Height:** 176.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

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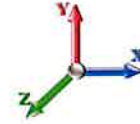


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 25


**Dead Load Factor** 1.00

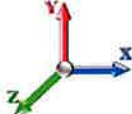
**Wind Load Factor** 1.00



| Top Elev (ft)  | Description         | Wind Exposed | Length (ft) | Ca    | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra    | Cf Adjust Factor | qz (psf) | F X (lb)   | Dead Load (lb) |
|----------------|---------------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 100.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.026 | 0.000            | 9.750    | 0.00       | 5.20           |
| 105.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.026 | 0.000            | 9.850    | 0.00       | 1.37           |
| 105.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.026 | 0.000            | 9.850    | 0.00       | 5.20           |
| 110.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.027 | 0.000            | 9.947    | 0.00       | 1.37           |
| 110.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.027 | 0.000            | 9.947    | 0.00       | 5.20           |
| 115.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.028 | 0.000            | 10.041   | 0.00       | 1.37           |
| 115.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.028 | 0.000            | 10.041   | 0.00       | 5.20           |
| 120.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.028 | 0.000            | 10.131   | 0.00       | 1.37           |
| 120.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.028 | 0.000            | 10.131   | 0.00       | 5.20           |
| 125.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.029 | 0.000            | 10.219   | 0.00       | 1.37           |
| 125.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.029 | 0.000            | 10.219   | 0.00       | 5.20           |
| 130.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.030 | 0.000            | 10.303   | 0.00       | 1.37           |
| 130.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.030 | 0.000            | 10.303   | 0.00       | 5.20           |
| 131.25         | Safety Cable        | Yes          | 1.25        | 0.000 | 0.38               | 0.04        | 0.00        | 0.031 | 0.000            | 10.324   | 0.00       | 0.34           |
| 131.25         | Step bolts (ladder) | Yes          | 1.25        | 0.000 | 0.63               | 0.07        | 0.00        | 0.031 | 0.000            | 10.324   | 0.00       | 1.30           |
| 135.00         | Safety Cable        | Yes          | 3.75        | 0.000 | 0.38               | 0.12        | 0.00        | 0.031 | 0.000            | 10.385   | 0.00       | 1.02           |
| 135.00         | Step bolts (ladder) | Yes          | 3.75        | 0.000 | 0.63               | 0.20        | 0.00        | 0.031 | 0.000            | 10.385   | 0.00       | 3.90           |
| 135.50         | Safety Cable        | Yes          | 0.50        | 0.000 | 0.38               | 0.02        | 0.00        | 0.032 | 0.000            | 10.394   | 0.00       | 0.14           |
| 135.50         | Step bolts (ladder) | Yes          | 0.50        | 0.000 | 0.63               | 0.03        | 0.00        | 0.032 | 0.000            | 10.394   | 0.00       | 0.52           |
| 137.00         | Safety Cable        | Yes          | 1.50        | 0.000 | 0.38               | 0.05        | 0.00        | 0.031 | 0.000            | 10.418   | 0.00       | 0.41           |
| 137.00         | Step bolts (ladder) | Yes          | 1.50        | 0.000 | 0.63               | 0.08        | 0.00        | 0.031 | 0.000            | 10.418   | 0.00       | 1.56           |
| 140.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.032 | 0.000            | 10.465   | 0.00       | 0.82           |
| 140.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.032 | 0.000            | 10.465   | 0.00       | 3.12           |
| 145.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.033 | 0.000            | 10.543   | 0.00       | 1.37           |
| 145.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.033 | 0.000            | 10.543   | 0.00       | 5.20           |
| 147.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.033 | 0.000            | 10.573   | 0.00       | 0.55           |
| 147.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.033 | 0.000            | 10.573   | 0.00       | 2.08           |
| 150.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.034 | 0.000            | 10.618   | 0.00       | 0.82           |
| 150.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.034 | 0.000            | 10.618   | 0.00       | 3.12           |
| 155.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.035 | 0.000            | 10.692   | 0.00       | 1.37           |
| 155.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.035 | 0.000            | 10.692   | 0.00       | 5.20           |
| 157.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.036 | 0.000            | 10.721   | 0.00       | 0.55           |
| 157.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.036 | 0.000            | 10.721   | 0.00       | 2.08           |
| 160.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.036 | 0.000            | 10.764   | 0.00       | 0.82           |
| 160.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.036 | 0.000            | 10.764   | 0.00       | 3.12           |
| 165.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.037 | 0.000            | 10.834   | 0.00       | 1.37           |
| 165.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.037 | 0.000            | 10.834   | 0.00       | 5.20           |
| 167.00         | Safety Cable        | Yes          | 2.00        | 0.000 | 0.38               | 0.06        | 0.00        | 0.038 | 0.000            | 10.861   | 0.00       | 0.55           |
| 167.00         | Step bolts (ladder) | Yes          | 2.00        | 0.000 | 0.63               | 0.10        | 0.00        | 0.038 | 0.000            | 10.861   | 0.00       | 2.08           |
| 170.00         | Safety Cable        | Yes          | 3.00        | 0.000 | 0.38               | 0.10        | 0.00        | 0.039 | 0.000            | 10.902   | 0.00       | 0.82           |
| 170.00         | Step bolts (ladder) | Yes          | 3.00        | 0.000 | 0.63               | 0.16        | 0.00        | 0.039 | 0.000            | 10.902   | 0.00       | 3.12           |
| 175.00         | Safety Cable        | Yes          | 5.00        | 0.000 | 0.38               | 0.16        | 0.00        | 0.040 | 0.000            | 10.969   | 0.00       | 1.37           |
| 175.00         | Step bolts (ladder) | Yes          | 5.00        | 0.000 | 0.63               | 0.26        | 0.00        | 0.040 | 0.000            | 10.969   | 0.00       | 5.20           |
| 176.00         | Safety Cable        | Yes          | 1.00        | 0.000 | 0.38               | 0.03        | 0.00        | 0.041 | 0.000            | 10.982   | 0.00       | 0.27           |
| 176.00         | Step bolts (ladder) | Yes          | 1.00        | 0.000 | 0.63               | 0.05        | 0.00        | 0.041 | 0.000            | 10.982   | 0.00       | 1.04           |
| <b>Totals:</b> |                     |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>231.1</b>   |

## Calculated Forces

|                                 |                                   |   |
|---------------------------------|-----------------------------------|---|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022  |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |  |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |   |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |   |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              |   |
|                                 |                                   | <b>Struct Class:</b> II   |
|                                 |                                   | Page: 55  |

|   |   |
|---|---|
| <b>Load Case:</b> 1.0D + 1.0W 60 mph Wind | <b>Iterations</b> 25  |
| <b>Dead Load Factor</b> 1.00              |  |
| <b>Wind Load Factor</b> 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          | -56.84           | -9.78            | -0.05               | -1304.8         | 0.00            | 1304.84                    | 6372.54       | 1561.04       | 7259.46          | 7341.49          | 0.00               | 0.000               | 0.000                | 0.187        |
| 5.00          | -55.13           | -9.71            | -0.05               | -1255.9         | 0.00            | 1255.92                    | 6292.68       | 1533.60       | 7006.53          | 7120.95          | 0.03               | -0.052              | 0.000                | 0.185        |
| 10.00         | -53.44           | -9.63            | -0.05               | -1207.3         | 0.00            | 1207.38                    | 6211.66       | 1506.17       | 6758.08          | 6902.39          | 0.11               | -0.104              | 0.000                | 0.184        |
| 15.00         | -51.78           | -9.56            | -0.05               | -1159.2         | 0.00            | 1159.21                    | 6129.50       | 1478.73       | 6514.12          | 6685.89          | 0.25               | -0.157              | 0.000                | 0.182        |
| 20.00         | -50.15           | -9.47            | -0.05               | -1111.4         | 0.00            | 1111.42                    | 6046.18       | 1451.30       | 6274.65          | 6471.51          | 0.44               | -0.211              | 0.000                | 0.180        |
| 25.00         | -48.54           | -9.39            | -0.05               | -1064.0         | 0.00            | 1064.05                    | 5961.72       | 1423.86       | 6039.66          | 6259.33          | 0.69               | -0.265              | 0.000                | 0.178        |
| 30.00         | -46.96           | -9.29            | -0.05               | -1017.1         | 0.00            | 1017.12                    | 5876.11       | 1396.43       | 5809.15          | 6049.42          | 1.00               | -0.321              | 0.000                | 0.176        |
| 35.00         | -45.41           | -9.19            | -0.05               | -970.66         | 0.00            | 970.66                     | 5789.35       | 1368.99       | 5583.13          | 5841.84          | 1.36               | -0.377              | 0.000                | 0.174        |
| 40.00         | -43.88           | -9.08            | -0.05               | -924.70         | 0.00            | 924.70                     | 5679.25       | 1341.56       | 5361.59          | 5614.75          | 1.79               | -0.433              | 0.000                | 0.172        |
| 42.75         | -43.06           | -9.02            | -0.05               | -899.72         | 0.00            | 899.72                     | 5615.38       | 1326.47       | 5241.66          | 5488.51          | 2.05               | -0.465              | 0.000                | 0.172        |
| 45.00         | -41.87           | -8.98            | -0.05               | -879.42         | 0.00            | 879.42                     | 5563.11       | 1314.12       | 5144.54          | 5386.29          | 2.27               | -0.491              | 0.000                | 0.171        |
| 49.00         | -39.79           | -8.87            | -0.05               | -843.50         | 0.00            | 843.50                     | 4756.80       | 1153.50       | 4530.03          | 4626.40          | 2.70               | -0.538              | 0.000                | 0.191        |
| 50.00         | -39.52           | -8.87            | -0.05               | -834.63         | 0.00            | 834.63                     | 4742.51       | 1148.70       | 4492.40          | 4593.12          | 2.82               | -0.550              | 0.000                | 0.190        |
| 55.00         | -38.21           | -8.76            | -0.05               | -790.29         | 0.00            | 790.29                     | 4670.33       | 1124.69       | 4306.59          | 4427.82          | 3.43               | -0.613              | 0.000                | 0.187        |
| 60.00         | -36.91           | -8.65            | -0.05               | -746.50         | 0.00            | 746.50                     | 4597.00       | 1100.68       | 4124.71          | 4264.39          | 4.10               | -0.676              | 0.000                | 0.183        |
| 65.00         | -35.65           | -8.54            | -0.05               | -703.26         | 0.00            | 703.26                     | 4522.52       | 1076.68       | 3946.75          | 4102.93          | 4.85               | -0.740              | 0.000                | 0.179        |
| 70.00         | -34.40           | -8.42            | -0.05               | -660.58         | 0.00            | 660.58                     | 4446.89       | 1052.67       | 3772.72          | 3943.48          | 5.65               | -0.804              | 0.000                | 0.175        |
| 75.00         | -33.18           | -8.31            | -0.05               | -618.47         | 0.00            | 618.47                     | 4354.69       | 1028.67       | 3602.61          | 3772.77          | 6.53               | -0.868              | 0.000                | 0.172        |
| 80.00         | -31.99           | -8.19            | -0.05               | -576.93         | 0.00            | 576.93                     | 4253.06       | 1004.66       | 3436.42          | 3597.85          | 7.48               | -0.933              | 0.000                | 0.168        |
| 85.00         | -30.82           | -8.06            | -0.05               | -535.98         | 0.00            | 535.98                     | 4151.43       | 980.65        | 3274.16          | 3427.08          | 8.49               | -0.997              | 0.000                | 0.164        |
| 86.50         | -30.47           | -8.03            | -0.05               | -523.88         | 0.00            | 523.88                     | 4120.95       | 973.45        | 3226.24          | 3376.66          | 8.80               | -1.017              | 0.000                | 0.163        |
| 90.00         | -29.09           | -7.93            | -0.05               | -495.76         | 0.00            | 495.76                     | 4049.81       | 956.65        | 3115.82          | 3260.47          | 9.57               | -1.062              | 0.000                | 0.159        |
| 91.75         | -28.41           | -7.89            | -0.05               | -481.88         | 0.00            | 481.88                     | 3441.70       | 829.75        | 2734.72          | 2808.64          | 9.96               | -1.085              | 0.000                | 0.180        |
| 95.00         | -27.75           | -7.82            | -0.05               | -456.23         | 0.00            | 456.23                     | 3401.05       | 816.38        | 2647.27          | 2730.31          | 10.71              | -1.127              | 0.000                | 0.175        |
| 100.00        | -26.76           | -7.71            | -0.05               | -417.12         | 0.00            | 417.12                     | 3337.56       | 795.80        | 2515.51          | 2611.16          | 11.93              | -1.196              | 0.000                | 0.168        |
| 105.00        | -25.79           | -7.59            | -0.05               | -378.59         | 0.00            | 378.59                     | 3272.92       | 775.23        | 2387.10          | 2493.74          | 13.22              | -1.264              | 0.000                | 0.160        |
| 110.00        | -24.84           | -7.47            | -0.05               | -340.66         | 0.00            | 340.66                     | 3194.68       | 754.65        | 2262.06          | 2368.87          | 14.58              | -1.331              | 0.000                | 0.152        |
| 115.00        | -23.91           | -7.35            | -0.05               | -303.31         | 0.00            | 303.31                     | 3107.57       | 734.07        | 2140.39          | 2240.81          | 16.01              | -1.396              | 0.000                | 0.143        |
| 120.00        | -23.00           | -7.23            | -0.05               | -266.55         | 0.00            | 266.55                     | 3020.47       | 713.50        | 2022.08          | 2116.30          | 17.50              | -1.458              | 0.000                | 0.134        |
| 125.00        | -22.11           | -7.11            | -0.05               | -230.39         | 0.00            | 230.39                     | 2933.36       | 692.92        | 1907.13          | 1995.35          | 19.06              | -1.517              | 0.000                | 0.123        |
| 130.00        | -21.24           | -6.99            | -0.05               | -194.82         | 0.00            | 194.82                     | 2846.25       | 672.34        | 1795.55          | 1877.96          | 20.68              | -1.572              | 0.000                | 0.111        |
| 131.25        | -21.02           | -6.96            | -0.05               | -186.09         | 0.00            | 186.09                     | 2824.47       | 667.20        | 1768.17          | 1849.17          | 21.10              | -1.585              | 0.000                | 0.108        |
| 135.00        | -20.07           | -6.86            | -0.05               | -159.98         | 0.00            | 159.98                     | 2759.14       | 651.77        | 1687.32          | 1764.13          | 22.36              | -1.623              | 0.000                | 0.098        |
| 135.50        | -19.94           | -6.85            | -0.05               | -156.55         | 0.00            | 156.55                     | 1734.08       | 441.84        | 1163.16          | 1132.07          | 22.53              | -1.628              | 0.000                | 0.150        |
| 137.00        | -16.85           | -5.67            | 0.00                | -146.29         | 0.00            | 146.29                     | 1723.43       | 437.73        | 1141.60          | 1114.56          | 23.04              | -1.642              | 0.000                | 0.141        |
| 140.00        | -16.51           | -5.61            | 0.00                | -129.27         | 0.00            | 129.27                     | 1701.83       | 429.50        | 1099.07          | 1079.73          | 24.08              | -1.680              | 0.000                | 0.130        |
| 145.00        | -15.96           | -5.49            | 0.00                | -101.23         | 0.00            | 101.23                     | 1664.90       | 415.78        | 1029.98          | 1022.29          | 25.87              | -1.736              | 0.000                | 0.109        |
| 147.00        | -13.41           | -4.61            | 0.00                | -90.24          | 0.00            | 90.24                      | 1649.80       | 410.29        | 1002.98          | 999.54           | 26.61              | -1.756              | 0.000                | 0.099        |
| 150.00        | -13.10           | -4.54            | 0.00                | -76.42          | 0.00            | 76.42                      | 1626.81       | 402.06        | 963.14           | 965.67           | 27.72              | -1.784              | 0.000                | 0.087        |
| 155.00        | -12.59           | -4.43            | 0.00                | -53.71          | 0.00            | 53.71                      | 1587.58       | 388.34        | 898.54           | 909.96           | 29.61              | -1.822              | 0.000                | 0.067        |
| 157.00        | -8.82            | -3.10            | 0.00                | -44.86          | 0.00            | 44.86                      | 1571.57       | 382.86        | 873.33           | 887.94           | 30.37              | -1.835              | 0.000                | 0.056        |
| 160.00        | -8.53            | -3.03            | 0.00                | -35.56          | 0.00            | 35.56                      | 1547.20       | 374.63        | 836.18           | 855.21           | 31.53              | -1.852              | 0.000                | 0.047        |
| 165.00        | -8.05            | -2.92            | 0.00                | -20.41          | 0.00            | 20.41                      | 1505.67       | 360.91        | 776.07           | 801.50           | 33.48              | -1.872              | 0.000                | 0.031        |
| 167.00        | -4.53            | -1.53            | 0.00                | -14.57          | 0.00            | 14.57                      | 1488.74       | 355.42        | 752.65           | 780.32           | 34.27              | -1.878              | 0.000                | 0.022        |
| 170.00        | -4.28            | -1.47            | 0.00                | -9.96           | 0.00            | 9.96                       | 1462.99       | 347.19        | 718.19           | 748.90           | 35.45              | -1.884              | 0.000                | 0.016        |
| 175.00        | -3.88            | -1.36            | 0.00                | -2.61           | 0.00            | 2.61                       | 1411.70       | 333.47        | 662.56           | 693.80           | 37.43              | -1.890              | 0.000                | 0.007        |
| 176.00        | 0.00             | -1.24            | 0.00                | -1.25           | 0.00            | 1.25                       | 1400.09       | 330.73        | 651.70           | 682.38           | 37.82              | -1.890              | 0.000                | 0.002        |

## Calculated Forces

**Structure:** CT02216-S-SBA

**Site Name:** Glastonbury

**Height:** 176.00 (ft)

**Base Elev:** 0.000 (ft)

**Gh:** 1.1

**Topography:** 1

**Code:** TIA-222-H

**Exposure:** C

**Crest Height:** 0.00

**Site Class:** D - Stiff Soil

**Struct Class:** II

12/15/2022

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## Final Analysis Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SBA | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury   | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)      | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)    | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                  | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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### Reactions

| Load Case                        | Shear<br>FX<br>(kips) | Shear<br>FZ<br>(kips) | Axial<br>FY<br>(kips) | Moment<br>MX<br>(ft-kips) | Moment<br>MY<br>(ft-kips) | Moment<br>MZ<br>(ft-kips) |
|----------------------------------|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|---------------------------|
| 1.2D + 1.0W 119 mph Wind         | 43.0                  | 0.00                  | 68.13                 | 0.01                      | 0.22                      | 5786.76                   |
| 0.9D + 1.0W 119 mph Wind         | 43.0                  | 0.00                  | 51.07                 | 0.01                      | 0.22                      | 5686.59                   |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 12.5                  | 0.00                  | 103.50                | 0.00                      | 0.11                      | 1741.22                   |
| 1.2D + 1.0Ev + 1.0Eh             | 0.8                   | 0.00                  | 70.73                 | 0.00                      | 0.00                      | 130.59                    |
| 0.9D + 1.0Ev + 1.0Eh             | 0.8                   | 0.00                  | 53.59                 | 0.00                      | 0.00                      | 128.65                    |
| 1.0D + 1.0W 60 mph Wind          | 9.8                   | 0.00                  | 56.84                 | 0.00                      | 0.05                      | 1304.84                   |

### Max Stresses

| Load Case                        | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY (-)<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Elev<br>(ft) | Stress<br>Ratio |
|----------------------------------|------------------------|------------------------|---------------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------|-----------------|
| 1.2D + 1.0W 119 mph Wind         | -46.23                 | -39.32                 | -0.22                     | -3749.1               | -0.01                 | -3749.1                          | 4756.80             | 1153.5              | 4530.03                | 4626.40                | 49.00        | 0.821           |
| 0.9D + 1.0W 119 mph Wind         | -34.31                 | -38.79                 | -0.22                     | -3663.7               | -0.01                 | -3663.7                          | 4756.80             | 1153.5              | 4530.03                | 4626.40                | 49.00        | 0.800           |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | -78.02                 | -11.69                 | -0.11                     | -1143.6               | 0.00                  | -1143.6                          | 4756.80             | 1153.5              | 4530.03                | 4626.40                | 49.00        | 0.264           |
| 1.2D + 1.0Ev + 1.0Eh             | -25.03                 | -0.77                  | 0.00                      | -20.31                | 0.00                  | -20.31                           | 1734.08             | 441.84              | 1163.16                | 1132.07                | 135.50       | 0.032           |
| 0.9D + 1.0Ev + 1.0Eh             | -18.98                 | -0.76                  | 0.00                      | -20.04                | 0.00                  | -20.04                           | 1734.08             | 441.84              | 1163.16                | 1132.07                | 135.50       | 0.029           |
| 1.0D + 1.0W 60 mph Wind          | -39.79                 | -8.87                  | -0.05                     | -843.50               | 0.00                  | -843.50                          | 4756.80             | 1153.5              | 4530.03                | 4626.40                | 49.00        | 0.191           |

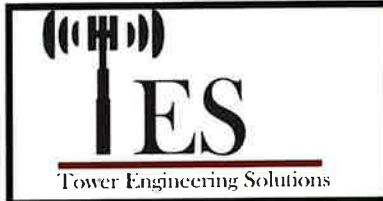
## Base Plate Summary

|                                |                                   |                         |
|--------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT02216-S-SB | <b>Code:</b> TIA-222-H            | 12/15/2022              |
| <b>Site Name:</b> Glastonbury  | <b>Exposure:</b> C                |                         |
| <b>Height:</b> 176.00 (ft)     | <b>Crest Height:</b> 0.00         |                         |
| <b>Base Elev:</b> 0.000 (ft)   | <b>Site Class:</b> D - Stiff Soil |                         |
| <b>Gh:</b> 1.1                 | <b>Topography:</b> 1              | <b>Struct Class:</b> II |



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| Reactions                       | Base Plate                         | Anchor Bolts                    |
|---------------------------------|------------------------------------|---------------------------------|
| Original Design                 | <b>Yield (ksi):</b> 50.00          | <b>Bolt Circle:</b> 64.00       |
| <b>Moment (kip-ft):</b> 5100.00 | <b>Width (in):</b> 66.00           | <b>Number Bolts:</b> 24.00      |
| <b>Axial (kip):</b> 47.00       | <b>Style:</b> Clipped              | <b>Bolt Type:</b> 2.25" 18J     |
| <b>Shear (kip):</b> 38.00       | <b>Polygon Sides:</b> 0.00         | <b>Bolt Diameter (in):</b> 2.25 |
| Analysis (1.2D + 1.0W)          | <b>Clip Length (in):</b> 16.00     | <b>Yield (ksi):</b> 75.00       |
| <b>Moment (kip-ft):</b> 5786.76 | <b>Effective Len (in):</b> 7.55    | <b>Ultimate (ksi):</b> 100.00   |
| <b>Axial (kip):</b> 68.13       | <b>Moment (kip-in):</b> 684.19     | <b>Arrangement:</b> Clustered   |
| <b>Shear (kip):</b> 43.04       | <b>Allow Stress (ksi):</b> 67.50   | <b>Cluster Dist (in):</b> 6.00  |
|                                 | <b>Applied Stress (ksi):</b> 60.08 | <b>Start Angle (deg):</b> 45.00 |
|                                 | <b>Stress Ratio:</b> 0.89          | Compression                     |
|                                 |                                    | <b>Force (kip):</b> 183.67      |
|                                 |                                    | <b>Allowable (kip):</b> 268.39  |
|                                 |                                    | <b>Ratio:</b> 0.68              |
|                                 |                                    | Tension                         |
|                                 |                                    | <b>Force (kip):</b> 178.00      |
|                                 |                                    | <b>Allowable (kip):</b> 243.75  |
|                                 |                                    | <b>Ratio:</b> 0.73              |



| Pier Foundation Design For Monopole |               |                         | Date        |
|-------------------------------------|---------------|-------------------------|-------------|
| Customer Name:                      | Verizon       | EIA/TIA Standard:       | TIA-222-H   |
| Site Name:                          |               | Structure Height (Ft.): | 176         |
| Site Number:                        | CT02216-S-SBA | Engineer Name:          | J. Tibbetts |
| Engr. Number:                       | 137200        | Engineer Login ID:      |             |

**Foundation Info Obtained from:**

|                       |
|-----------------------|
| Drawings/Calculations |
| Monopole              |
| Analysis              |

**Structure Type:**

**Analysis or Design?**

**Base Reactions (Factored):**

|                      |      |                     |        |
|----------------------|------|---------------------|--------|
| Axial Load (Kips):   | 68.1 | Shear Force (Kips): | 43.0   |
| Uplift Force (Kips): | 0.0  | Moment (Kips-ft):   | 5786.8 |

**Foundation Geometries:**

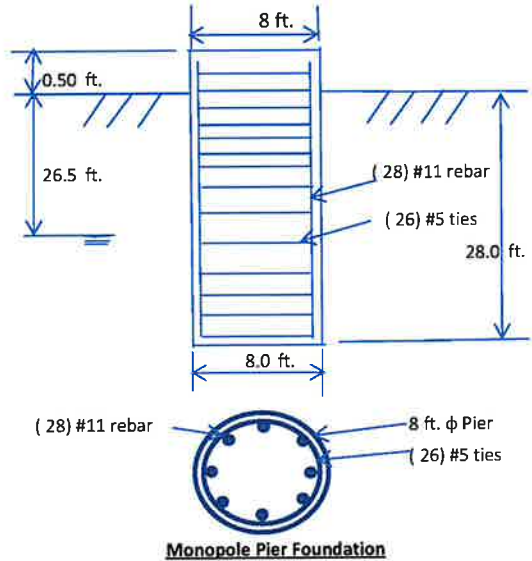
|                          |      |                          |          |
|--------------------------|------|--------------------------|----------|
| Diameter of Pier (ft.):  | 8.0  | Depth of Base B. G. S. : | 28.0 ft. |
| Pier Height A. G. (ft.): | 0.50 |                          |          |

**Material Properties and Reabr Info:**

|                          |      |                           |           |
|--------------------------|------|---------------------------|-----------|
| Concrete Strength (psi): | 3000 | Steel Elastic Modulus:    | 29000 ksi |
| Vertical bar yield (ksi) | 60   | Tie steel yield strength: | 40 ksi    |
| Vertical Rebar Size #:   | 11   | Tie / Stirrup Size #:     | 5         |
| Qty. of Vertical Rebars: | 28   | Tie Spacing:              | 18.0 in.  |
| Concrete Cover (in.):    | 4    | Concrete unit weight:     | 150.0 pcf |

**Soil Design Parameters:**

|   |             |                        |          |
|---|-------------|------------------------|----------|
| Water Table B.G.S. (ft):                | 26.5        | Unit weight of water:  | 62.4 psf |
| Ratio of Uplift/Axial Skin Friction:    | 1.0         | Pullout failure Angle: | 30 (°)   |
| Soil Frictions are to be obtained from: | Soil Report |                        |          |



**Monopole Pier Foundation**

| Depth of Layers (ft) |        | $\gamma_{soil}$<br>(pcf) | $\phi$<br>(°) | Cohesion<br>(psf) | Ultimate Skin Friction (psf) | Ultimate Bearing (psf) | Soil Types |  |  |  |  |  |
|----------------------|--------|--------------------------|---------------|-------------------|------------------------------|------------------------|------------|--|--|--|--|--|
| Top                  | Bottom |                          |               |                   |                              |                        |            |  |  |  |  |  |
| 0.0                  | 4.0    | 120                      | 34            | 0                 | 0                            | 0                      | Sand       |  |  |  |  |  |
| 4.0                  | 9.0    | 120                      | 33            | 0                 | 0                            | 0                      | Sand       |  |  |  |  |  |
| 9.0                  | 19.0   | 120                      | 34            | 0                 | 0                            | 0                      | Sand       |  |  |  |  |  |
| 19.0                 | 26.5   | 125                      | 36            | 0                 | 0                            | 0                      | Sand       |  |  |  |  |  |
| 26.5                 | 29.0   | 125                      | 36            | 0                 | 0                            | 3000                   | Sand       |  |  |  |  |  |
| 29.0                 | 34.0   |                          |               |                   |                              |                        |            |  |  |  |  |  |
|                      |        |                          |               |                   |                              |                        |            |  |  |  |  |  |
|                      |        |                          |               |                   |                              |                        |            |  |  |  |  |  |
|                      |        |                          |               |                   |                              |                        |            |  |  |  |  |  |

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

**Foundation Analysis and Design:**

|   |       |   |             |
|---|-------|---|-------------|
| Uplift Strength Reduction Factor:                         | 0.75  | Soil Bearing Strength Reduction Factor:       | 0.75        |
| Total Dry Soil Volume from Conical Failure (cu. Ft.):     | 13308 | Dry Soil Weight from Conical Failure:         | 1616 Kips   |
| Total Buoyant Soil Volume from Conical Failure (cu. Ft.): | 18    | Buoyant Soil Weight from Conical Failure (Ki) | 0 Kips      |
| Total Dry Concrete Volume (cu. Ft.):                      | 1357  | Total Dry Concrete Weight:                    | 203.6 Kips  |
| Total Buoyant Concrete Volume (cu. Ft.):                  | 75.4  | Total Buoyant Concrete Weight:                | 6.60 Kips   |
| Total Effective Concrete Weight (Kips):                   | 210.2 | Total Effective Soil Weight:                  | 1615.6 Kips |
| Total Effective Vertical Load on Base (Kips):             | 117.6 |   |             |

**Check Soil Capacities:**

|   |         |     |                                   |      |       |      |     |
|---|---------|-----|-----------------------------------|------|-------|------|-----|
| Allowable Foundation Overturning Resistance (kips-ft.):     | 14112.8 | >   | Design Factored Moment (kips-ft): | 6639 | Usage | 0.47 | OK! |
| Factor of Safety of Passive Soil Resistance against Moment: | 2.13    | OK! |                                   |      |       |      |     |

**Check the capacities of Reinforcing Concrete:**

|  |        |                                      |  |        |       |      |     |
|--|--------|--------------------------------------|--|--------|-------|------|-----|
| Strength reduction factor (Flexure and axial tension): | 0.90   | Strength reduction factor (Shear):   | 0.75                                     |        |       |      |     |
| Strength reduction factor (Axial compression):         | 0.65   | Wind Load Factor on Concrete Design: | 1.00                                     |        |       |      |     |
| <b>Reinforcing Concrete Pier:</b>                      |        |                                      |  |        | Usage |      |     |
| Vertical Steel Rebar Area (sq. in./each):              | 1.56   | Tie / Stirrup Area (sq. in./each):   | 0.31                                     |        |       |      |     |
| Calculated Moment Capacity (Mn, Kips-Ft):              | 8183.2 | >                                    | Design Factored Moment (Mu, K-Ft):       | 5933.3 |       | 0.73 | OK! |
| Calculated Shear Capacity (Kips):                      | 1274.2 | >                                    | Design Factored Shear (Kips):            | 492.8  |       | 0.39 | OK! |
| Calculated Tension Capacity (Tn, Kips):                | 2358.7 | >                                    | Design Factored Tension (Tu Kips):       | 0.0    |       | 0.00 | OK! |
| Calculated Compression Capacity (Pn, Kips):            | 9540   | >                                    | Design Factored Axial Load (Pu Kips):    | 68.1   |       | 0.01 | OK! |
| Moment & Axial Strength Combination:                   | 0.73   | OK!                                  | Max. Allowable Tie/Stirrup Spacing:      | 12.00  |       | in.  |     |
| Pier Reinforcement Ratio:                              | 0.006  |                                      | Reinforcement Ratio is satisfied per ACI |        |       |      |     |

## CUMULATIVE MPE TABLE

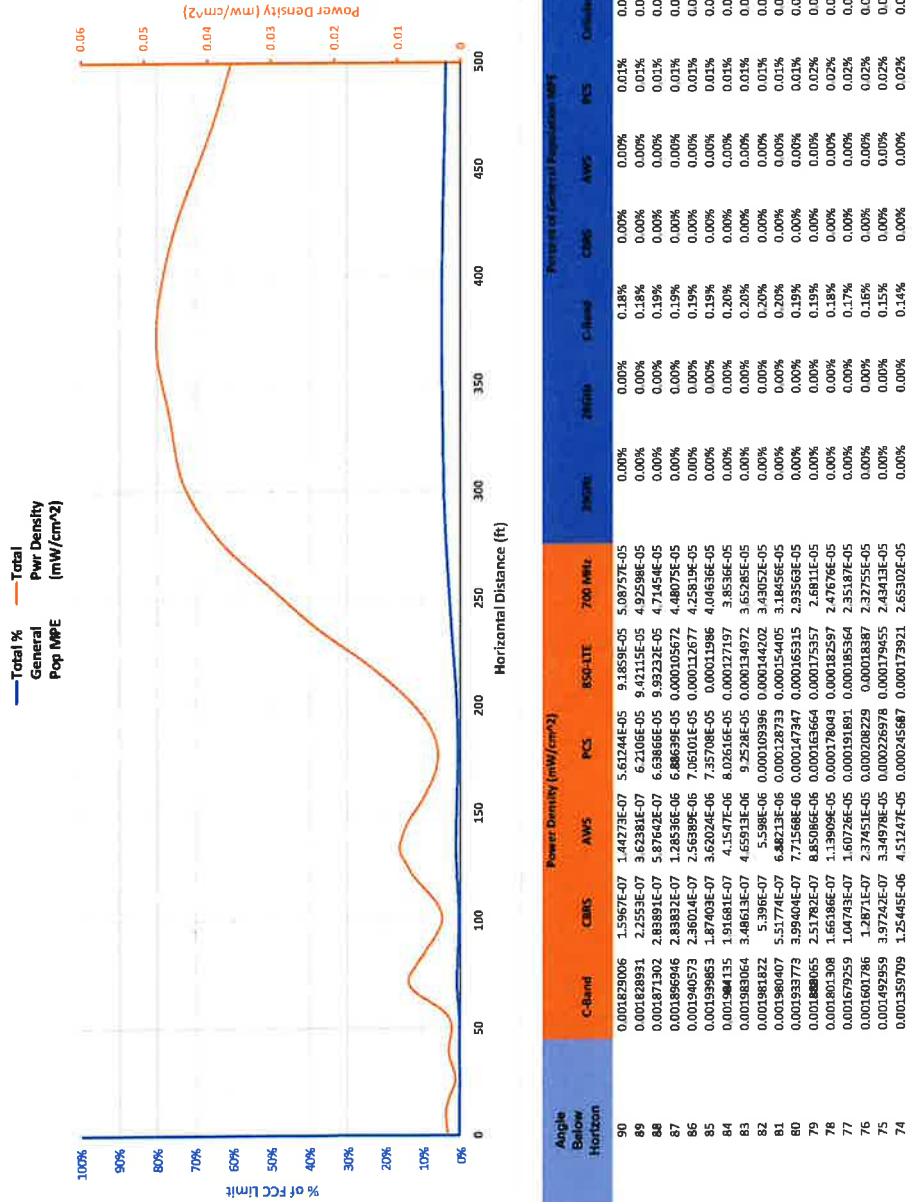
| Carrier                  | MPE %          |
|--------------------------|----------------|
| Dish                     | 1.19 %         |
| Voice Stream             | 0.23 %         |
| Metro PSC                | 0.34 %         |
| Sprint                   | 2.41 %         |
| AT&T                     | 5.60 %         |
| T-Mobile                 | 6.79 %         |
| <b>*Verizon Wireless</b> | <b>5.00 %</b>  |
| <i>Site Total</i>        | <i>21.56 %</i> |

\*See attached Verizon Wireless General Power Density table.

Note: MPE percentages for the carriers in the above table was compiled from the EBI Consulting Radio Frequency Emissions Analysis Report, dated May 10, 2022 submitted by T-Mobile on May 16, 2022 (EM-T-Mobile-054-220518).

| EAST GLASTONBURY 2 QT                     |            |       |       |       |            |            |      |  |  |
|---|------------|-------|-------|-------|------------|------------|------|--|--|
| Location                                  | 12/13/2022 |       |       |       |            |            |      |  |  |
| Date                                      |            |       |       |       |            |            |      |  |  |
| Band                                      | C-Band     | CBRS  | AWS   | PCS   | 850        | 700        |      |  |  |
| Operating Frequency (MHz)                 | 3,700      | 3,550 | 2,145 | 1,970 | 880        | 746        |      |  |  |
| General Population MPE (mW/cm²)           | 1          | 1     | 1     | 1     | 0.58666667 | 0.48733333 |      |  |  |
| ERP Per Transmitter (mW/cm²)              | 13,335     | 50    | 1,496 | 1,422 | 679        | 710        |      |  |  |
| Number of Transmitters                    | 2          | 4     | 4     | 4     | 4          | 4          |      |  |  |
| Antenna Configuration                     | 167        | 167   | 167   | 167   | 167        | 167        |      |  |  |
| Total ERP (Watts)                         | 26,670     | 200   | 5,984 | 5,685 | 2,716      | 2,840      |      |  |  |
| Maximum % of Transmitter Population Limit | 74         | 53    | 68    | 68    | 64         | 65         | 5.0% |  |  |

### RF Exposure 6ft Above Ground Level Far Field Formula (per FCC OET65)



| Angle Below Horizon | C-Band      | CBRS        | AWS         | PCS         | 850-LTE     | 700 MHz     | Total % | CSMA  | 700 MHz | Distance    | Total Pwr Density (mW/cm²) | Total % General Population |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|---------|-------|---------|-------------|----------------------------|----------------------------|
| 90                  | 0.00182006  | 1.5867E-07  | 1.4427E-07  | 5.6124E-05  | 9.1859E-05  | 5.08757E-05 | 0.02%   | 0.00% | 0.01%   | 0           | 0.002028169                | 0.21%                      |
| 89                  | 0.001828951 | 2.2555E-07  | 3.6298E-07  | 6.2206E-05  | 9.42115E-05 | 4.92598E-05 | 0.02%   | 0.00% | 0.01%   | 1.029648831 | 0.002035086                | 0.22%                      |
| 88                  | 0.001871302 | 2.8939E-07  | 5.8764E-07  | 6.3866E-05  | 9.59232E-05 | 4.77454E-05 | 0.02%   | 0.00% | 0.01%   | 2.0603254   | 0.002085029                | 0.22%                      |
| 87                  | 0.001896946 | 2.8933E-07  | 1.2853E-06  | 6.88639E-05 | 0.000105672 | 4.48075E-05 | 0.02%   | 0.00% | 0.01%   | 3.092058978 | 0.002117859                | 0.23%                      |
| 86                  | 0.001940573 | 2.36014E-07 | 2.5689E-06  | 7.05101E-05 | 0.000126777 | 4.25819E-05 | 0.02%   | 0.00% | 0.01%   | 4.125681905 | 0.002169242                | 0.23%                      |
| 85                  | 0.001939853 | 1.87403E-07 | 3.62024E-06 | 7.35708E-05 | 0.000119986 | 4.04636E-05 | 0.02%   | 0.00% | 0.01%   | 5.161831148 | 0.002177556                | 0.23%                      |
| 84                  | 0.001984135 | 1.91681E-07 | 4.1547E-06  | 8.02616E-05 | 0.000127197 | 3.8536E-05  | 0.02%   | 0.00% | 0.01%   | 6.201149481 | 0.002234477                | 0.24%                      |
| 83                  | 0.001983064 | 3.48613E-07 | 4.65913E-06 | 9.2528E-05  | 0.000134972 | 3.65285E-05 | 0.02%   | 0.00% | 0.01%   | 7.244289093 | 0.0022521                  | 0.24%                      |
| 82                  | 0.001981822 | 5.399E-07   | 5.598E-06   | 0.000109396 | 0.000144202 | 3.43057E-05 | 0.02%   | 0.00% | 0.01%   | 8.291909247 | 0.002275863                | 0.24%                      |
| 81                  | 0.001980407 | 5.51774E-07 | 6.48213E-06 | 0.000128713 | 0.000154405 | 3.18456E-05 | 0.02%   | 0.00% | 0.01%   | 9.344681979 | 0.002302825                | 0.24%                      |
| 80                  | 0.001933773 | 3.99404E-07 | 7.71568E-06 | 0.000147947 | 0.000165915 | 2.93563E-05 | 0.02%   | 0.00% | 0.01%   | 10.40329186 | 0.002389807                | 0.24%                      |
| 79                  | 0.001888065 | 2.15178E-07 | 8.85086E-06 | 0.000165664 | 0.000175357 | 2.6811E-05  | 0.02%   | 0.00% | 0.01%   | 11.46843824 | 0.002463                   | 0.24%                      |
| 78                  | 0.001801508 | 1.6588E-07  | 1.13909E-05 | 0.000178043 | 0.000182597 | 2.47676E-05 | 0.02%   | 0.00% | 0.00%   | 12.54083714 | 0.002598273                | 0.24%                      |
| 77                  | 0.001679259 | 1.04743E-07 | 1.60728E-05 | 0.000191891 | 0.000185364 | 2.3187E-05  | 0.02%   | 0.00% | 0.00%   | 13.62122328 | 0.002696209                | 0.25%                      |
| 76                  | 0.001601786 | 1.2871E-07  | 2.37451E-05 | 0.000208229 | 0.000183887 | 2.32755E-05 | 0.02%   | 0.00% | 0.00%   | 14.71085217 | 0.002804035                | 0.25%                      |
| 75                  | 0.001492959 | 3.9724E-07  | 3.34978E-05 | 0.000226978 | 0.000179455 | 2.43433E-05 | 0.02%   | 0.00% | 0.00%   | 15.80900235 | 0.002957628                | 0.25%                      |
| 74                  | 0.001359709 | 1.25445E-06 | 4.51247E-05 | 0.000245687 | 0.000173921 | 2.65302E-05 | 0.02%   | 0.00% | 0.01%   | 16.91797776 | 0.003185227                | 0.26%                      |

