



Northeast Site Solutions  
Victoria Masse  
420 Main St Unit 1 Box 2  
Sturbridge, MA 01566  
[victoria@northeastsitesolutions.com](mailto:victoria@northeastsitesolutions.com)

January 18, 2023

Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Tower Share Application  
154 Sayle Avenue, Putnam, CT, 06260  
Latitude: 41.929449 N  
Longitude: -71.886272 W  
Site#: CT00680-S\_BOBOS00003C\_SBA\_DISH

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 154 Sayle Avenue, Putnam, Connecticut.

Dish Wireless LLC proposes to install three (3) 600 5G MHz antenna and six (6) RRUs, at the 165-foot level of the existing 175-foot monopole, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by B+T GRP, dated January 3, 2023, Exhibit C. Also included is a structural analysis prepared by Tower Engineering Solutions, dated January 9, 2023 confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Putnam Zoning Department dated September 15, 1998. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Barney Seney, Mayor for the Town of Putnam, Chad Sessums, Building Official and Zoning Enforcement Officer as well as the property owner and tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the tower is 175-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 165-feet.
2. The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.
3. The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligible.

420 Main Street, Unit 1 Box 2, Sturbridge, MA 01566



4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 7.22% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole in Putnam. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 165-foot level of the existing 175-foot tower would have an insignificant visual impact on the area around the monopole. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Putnam.

Sincerely,

Victoria Masse  
Mobile: 860-306-2326  
Fax: 413-521-0558  
Office: 420 Main Street, Unit 1 Box 2, Sturbridge, MA 01566  
Email: victoria@northeastsitesolutions.com



Attachments

Cc:

Barney Seney, Mayor  
Town of Putnam  
200 School Street  
Putnam, CT 06260

Chad Sessums  
Building Official and Zoning Enforcement Officer  
Town of Putnam  
200 School Street  
Putnam, CT 06260

Margaret Blain & Willian Moser, Property Owner  
PO BOX 18  
Thompson, CT 06277

SBA, Tower Owners

# Exhibit A

## **Original Facility Approval**



SITE ID #8772

SITE NAME: Putnam

JOB COST #000680

CT 00680-S

**ZONING/PERMITTING COMPLETION FORM**

Zoning Classification for Site: R-40

Special Relief (setback, height variance, special use permit, wetlands permit etc.):

**Special Use Permit**

\* Date of Zoning Decision: 9/15/98

Summary of zoning conditions (Include details of any conditions relative to time restrictions, expiration dates, renewal obligations, monetary obligations, performance obligation, inspection fees).

See attached Approval

Submitted by: Esther McNany

Title: Territory Manager

Territory Manager Approval:

\* Attach a copy of the Zoning decision and forward to the Regional Compliance Manager as soon as possible, after the decision.



# TOWN OF PUTNAM

TOWN HALL  
126 CHURCH STREET  
PUTNAM, CONNECTICUT 06260



TO: Office of the Putnam Town Clerk

FROM: Zoning Board of Appeals

In accordance with the provision of Public Act 75-317, State of Connecticut, the following; was APPROVED 9-15-98

## VARIANCE

is submitted to your office for recording with the Putnam Land Records, and indexing within the Grantor's index.

### Information required:

1. Description of premises:

154 Sayles Avenue

Assessors Map 4T, Lot 16-B  
Zoned R-40

2. Nature of Approval:

180 foot multi-tenant monopole telecommunication tower

3. Zoning By-Law which is approved:

Section 920

4. Name and Address of Owner of Record:

Ronald Blain & William Moser  
587 Riverside Drive  
N. Grosvenordale, CT 06255

5. Name and Address of Applicant:

SBA Inc.  
125 Shaw Street Suite 116  
New London, CT 06320

This information is certified by:

Whit M. Chenail 10-13-98  
Zoning Enforcement Officer Date

TOWN CLERK PUTNAM  
  
98 NOV -2 PM 12:18

|                       |          |                            |          |                           |          |                      |          |
|-----------------------|----------|----------------------------|----------|---------------------------|----------|----------------------|----------|
| Mayor's Office .....  | 963-6800 | Economic Development ..... | 963-6834 | Planning Commission ..... | 963-6803 | Town Clerk .....     | 963-6807 |
| Animal Control .....  | 963-6804 | Fire Marshal .....         | 963-6805 | Public Works .....        | 963-6813 | Town Hall Fax .....  | 963-6814 |
| Assessor .....        | 963-6802 | Inland-We. s .....         | 963-6803 | Revenue Collector .....   | 3-6806   | Treasurer .....      | 963-6809 |
| Building/Zoning ..... | 963-6803 | Parks & Recreation .....   | 963-6811 | Social Services .....     | 963-6810 | ZBA Commission ..... | 963-6803 |

# Exhibit B

## **Property Card**



# Town of Putnam, Connecticut

## Property Record Card

Card 1 of 1

**154 SAYLES AVE**

ID: 2464

ID: 021-023 Account #: 000301

[Show Map](#)

Owner: BLAIN MARGARET L 1/2 &  
Co-Owner: MOSER WILLIAM F 1/2  
Address: PO BOX 18  
THOMPSON CT 06277

**Assessment:** Total: \$57,400  
Land: \$57,400 Building: \$0 Extra Features: \$0 Other: \$0

### Sales History

[illegible]

## Land Information

Land Area: 30.13 AC  
Zoning: (See Map)  
Land Use: 5-2 - Comm Land

## Building Information

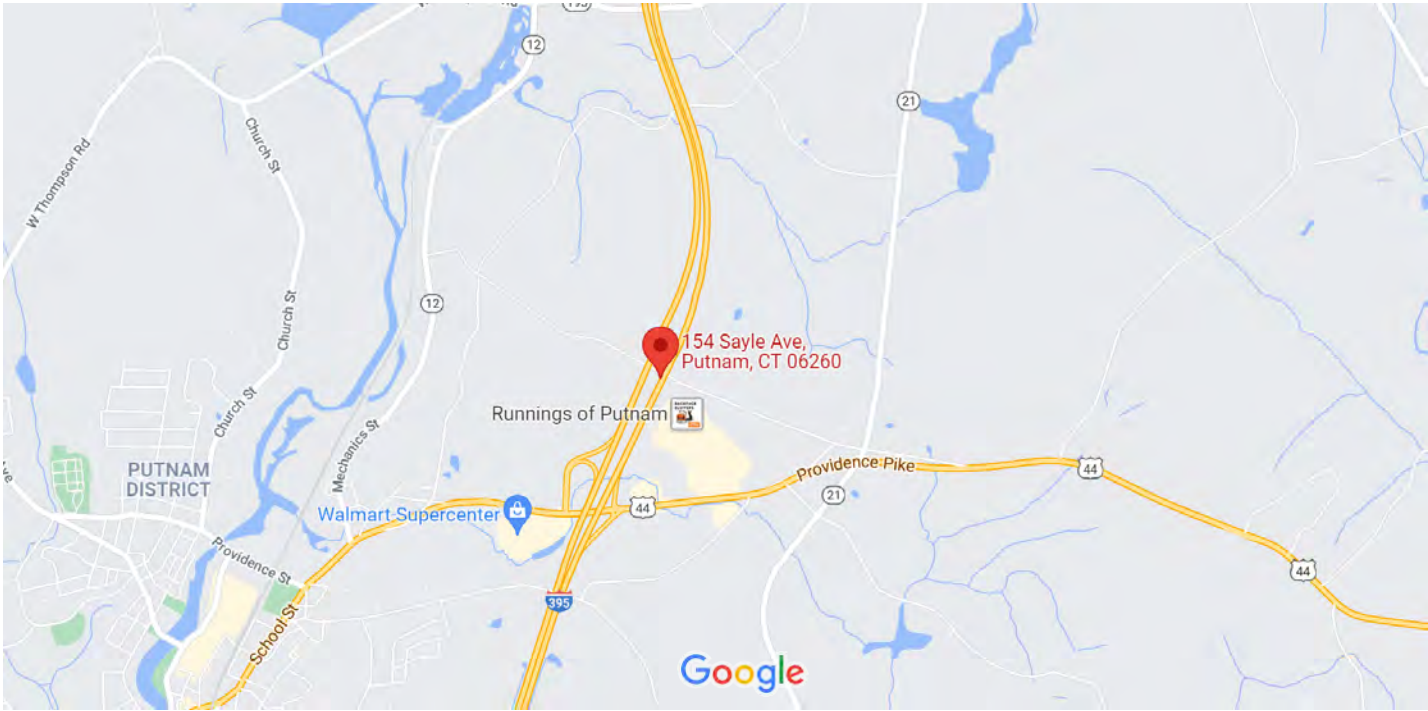
Style:  
Year Built:  
Stories:  
Rooms: Bedrooms:  
Baths: Half Baths:  
Living Area:  
Grade:  
Condition:

Heat Type:  
Heat Fuel:  
AC Type:  
Fireplaces:  
Roof Structure:  
Roof Covering:  
Exterior Wall:  
Interior Floor:  
Basement:

| Extra Features     |                     |                   |
|--------------------|---------------------|-------------------|
| <u>Description</u> | <u>Area / Units</u> | <u>Assessment</u> |
| <b>Sub Areas</b>   |                     |                   |
| <u>Description</u> | <u>Living Area</u>  | <u>Gross Area</u> |
|                    |                     |                   |

Google Maps

154 Sayle Ave



Map data ©2021 2000 ft

# Exhibit C

## **Construction Drawings**



DISH Wireless L.L.C. SITE ID:

**BOBOS00003C**

DISH Wireless L.L.C. SITE ADDRESS:

**154 SAYLE AVENUE  
PUTNAM, CT 06260**

**SBA APPROVED**



**By sroth at 1:47:14 PM, 1/5/2023**

### SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

#### TOWER SCOPE OF WORK:

- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

#### GROUND SCOPE OF WORK:

- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

### SITE INFORMATION

PROPERTY OWNER: BLAIN MARGARET L 1/2  
ADDRESS: PO BOX 18  
THOMPSON, CT 06277

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: CT00680-S

TOWER APP NUMBER: 167052

COUNTY: WINDHAM

LATITUDE (NAD 83): 41° 55' 46.06" N  
41.929460 N

LONGITUDE (NAD 83): 71° 53' 10.81" W  
71.886335 W

ZONING JURISDICTION: WINDHAM COUNTY

ZONING DISTRICT: R-40

PARCEL NUMBER: 021-023

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: AT&T

### PROJECT DIRECTORY

APPLICANT: DISH Wireless L.L.C.  
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

TOWER OWNER: SBA COMMUNICATAIONS CORP.  
8051 CONGRESS AVENUE  
BOCA RATON, FL 33487  
(800) 487-7483

SITE DESIGNER: B+T GROUP  
1717 S. BOULDER AVE, SUITE 300  
TULSA, OK 74119  
(918) 587-4630

SITE ACQUISITION: APRIL PARROTT  
april.parrott@dish.com

CONST. MANAGER: AARON CHANDLER  
aaron.chandler@dish.com

RF ENGINEER: ARVIN SEBASTIAN  
arvin.sebastian@dish.com



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON,  
UNLESS THEY ARE ACTING UNDER THE DIRECTION  
OF A LICENSED PROFESSIONAL ENGINEER,  
TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

BMK BLJ BLJ

RFDS REV #: 1

### CONSTRUCTION DOCUMENTS

#### SUBMITTALS

| REV | DATE     | DESCRIPTION             |
|-----|----------|-------------------------|
| A   | 10/1/21  | ISSUED FOR REVIEW       |
| B   | 10/7/21  | ISSUED FOR REVIEW       |
| C   | 12/31/21 | ISSUED FOR REVIEW       |
| 0   | 5/24/22  | ISSUED FOR CONSTRUCTION |
| 1   | 01/03/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION

BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE

TITLE SHEET

SHEET NUMBER

**T-1**

### CONNECTICUT CODE OF COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES

| CODE TYPE  | CODE     |
|------------|----------|
| BUILDING   | 2021 IBC |
| MECHANICAL | 2021 IMC |
| ELECTRICAL | 2020 NEC |

### SHEET INDEX

| SHEET NO. | SHEET TITLE                                       |
|-----------|---------------------------------------------------|
| T-1       | TITLE SHEET                                       |
| LS1       | SITE SURVEY                                       |
| A-1       | OVERALL AND ENLARGED SITE PLAN                    |
| A-2       | ELEVATION, ANTENNA LAYOUT AND SCHEDULE            |
| A-3       | EQUIPMENT PLATFORM AND H-FRAME DETAILS            |
| A-4       | EQUIPMENT DETAILS                                 |
| A-5       | EQUIPMENT DETAILS                                 |
| A-6       | EQUIPMENT DETAILS                                 |
| E-1       | ELECTRICAL/FIBER ROUTE PLAN AND NOTES             |
| E-2       | ELECTRICAL DETAILS                                |
| E-3       | ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE |
| G-1       | GROUNDING PLANS AND NOTES                         |
| G-2       | GROUNDING DETAILS                                 |
| G-3       | GROUNDING DETAILS                                 |
| RF-1      | RF CABLE COLOR CODE                               |
| GN-1      | LEGEND AND ABBREVIATIONS                          |
| GN-2      | GENERAL NOTES                                     |
| GN-3      | GENERAL NOTES                                     |
| GN-4      | GENERAL NOTES                                     |

### SITE PHOTO



**UNDERGROUND SERVICE ALERT CBYD 811  
UTILITY NOTIFICATION CENTER OF CONNECTICUT  
(800) 922-4455  
WWW.CBYD.COM**

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



### GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

**11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED**

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

### DIRECTIONS

DIRECTIONS FROM RHODE ISLAND T.F. GREEN INTERNATIONAL AIRPORT:

GET ON I-295 N FROM WARWICK INDUSTRIAL DR, MAIN AVE AND EAST AVE,HEAD SOUTHWEST TOWARD WARWICK INDUSTRIAL DR,TURN RIGHT ONTO WARWICK INDUSTRIAL DR,TURN RIGHT ONTO MAIN AVE,CONTINUE ONTO EAST AVE,TURN RIGHT ONTO BALD HILL RD,SLIGHT RIGHT ONTO THE INTERSTATE 295 N RAMP,FOLLOW I-295 N TO RI-5 N IN JOHNSTON. TAKE EXIT EXIT 10 FROM I-295 N,MERGE WITH I-295 N,TAKE EXIT EXIT 10 FOR RHODE ISLAND 5/JOHNSTON TOWARD SMITHFIELD,TAKE GREENVILLE AVE TO US-44 W/PUTNAM PIKE IN SMITHFIELD,USE THE LEFT 2 LANES TO TURN LEFT ONTO RI-5 N,TURN LEFT ONTO GREENVILLE AVE,FOLLOW US-44 W TO PULASKI RD IN GLOCESTER,TURN LEFT ONTO US-44 W/PUTNAM PIKE,AT THE ROUNDABOUT, TAKE THE 2ND EXIT ONTO US-44,GET ON I-395 S IN THOMPSON FROM QUADDICK RD,TURN RIGHT ONTO PULASKI RD,ENTERING CONNECTICUTCONTINUE ONTO ELMWOOD HILL RD,CONTINUE ONTO QUADDICK RD,CONTINUE ONTO CT-200 W,TURN LEFT TO MERGE WITH I-395 S TOWARD NORWICH,FOLLOW I-395 S TO EXIT 47 IN PUTNAM,MERGE WITH I-395 S,TAKE EXIT 47 FOR US-44 TOWARD PROVIDENCE/PUTNAM AND ARRIVE AT BOBOS00003C.

### VICINITY MAP





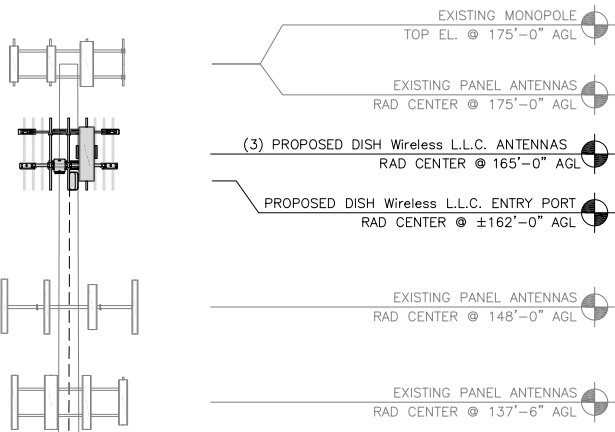




- NOTES
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.

2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS

3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ROUTED INSIDE POLE

EXISTING MONOPOLE

PROPOSED DISH Wireless L.L.C. ICE BRIDGE

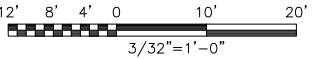
PROPOSED DISH Wireless L.L.C. EQUIPMENT ON EXISTING CONCRETE PAD

PROPOSED DISH Wireless L.L.C. GPS UNIT

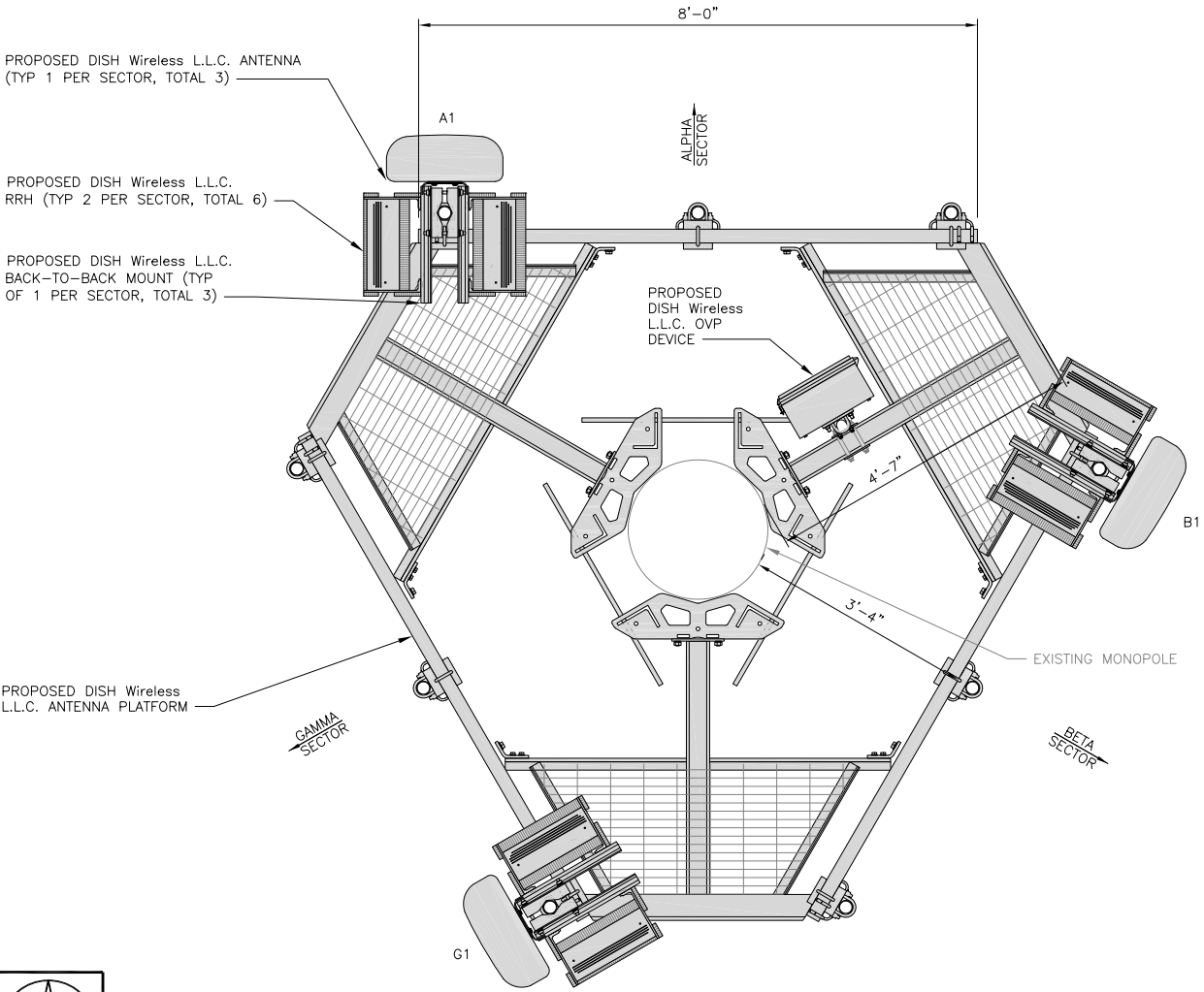
EXISTING ENTRY PORT



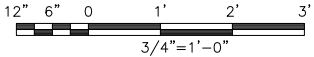
PROPOSED NORTH ELEVATION



1



ANTENNA LAYOUT



2

| SECTOR | POSITION | ANTENNA              |                             |            |               |         |            | TRANSMISSION CABLE                         |
|--------|----------|----------------------|-----------------------------|------------|---------------|---------|------------|--------------------------------------------|
|        |          | EXISTING OR PROPOSED | MANUFACTURER – MODEL NUMBER | TECHNOLOGY | SIZE (HxW)    | AZIMUTH | RAD CENTER | FEED LINE TYPE AND LENGTH                  |
| ALPHA  | A1       | PROPOSED             | JMA – MX08FR0665–21         | 5G         | 72.0" x 20.0" | 0°      | 165'–0"    | (1) HIGH-CAPACITY HYBRID CABLE (205' LONG) |
| BETA   | B1       | PROPOSED             | JMA – MX08FR0665–21         | 5G         | 72.0" x 20.0" | 120°    | 165'–0"    |                                            |
| GAMMA  | G1       | PROPOSED             | JMA – MX08FR0665–21         | 5G         | 72.0" x 20.0" | 240°    | 165'–0"    |                                            |

| SECTOR | POSITION | RRH                         |            | NOTES                                                                                                                                                                                                                                                          |
|--------|----------|-----------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |          | MANUFACTURER – MODEL NUMBER | TECHNOLOGY |                                                                                                                                                                                                                                                                |
| ALPHA  | A1       | FUJITSU – TA08025–B605      | 5G         | 1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.<br>2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES. |
|        | A1       | FUJITSU – TA08025–B604      | 5G         |                                                                                                                                                                                                                                                                |
| BETA   | B1       | FUJITSU – TA08025–B605      | 5G         |                                                                                                                                                                                                                                                                |
|        | B1       | FUJITSU – TA08025–B604      | 5G         |                                                                                                                                                                                                                                                                |
| GAMMA  | G1       | FUJITSU – TA08025–B605      | 5G         |                                                                                                                                                                                                                                                                |
|        | G1       | FUJITSU – TA08025–B604      | 5G         |                                                                                                                                                                                                                                                                |

ANTENNA SCHEDULE

NO SCALE

3

dish

wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE  
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
Ph: (918) 587-4630  
www.btgrp.com

01/03/23

MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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|           |             |              |
|-----------|-------------|--------------|
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| BMK       | BLJ         | BLJ          |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

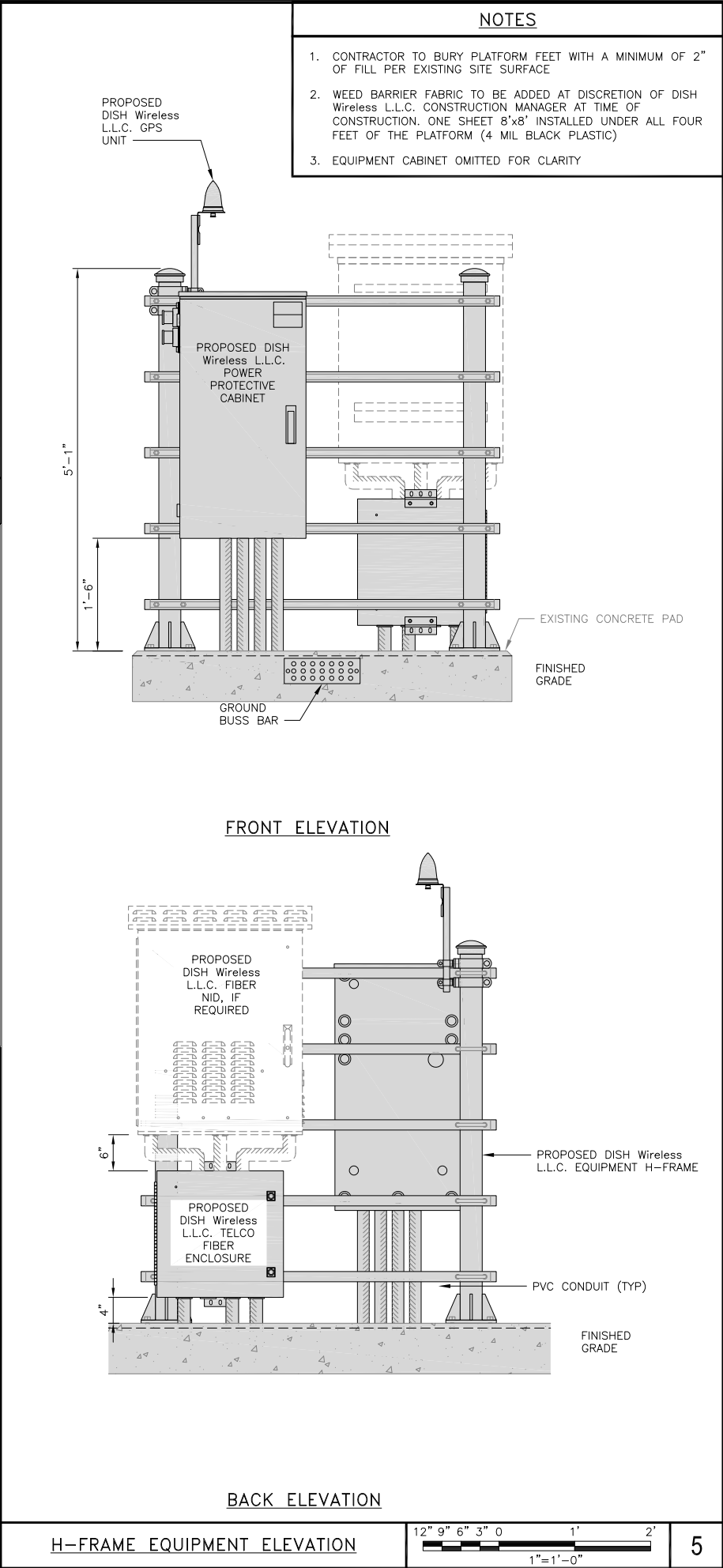
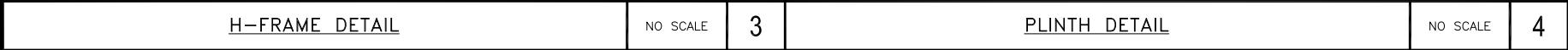
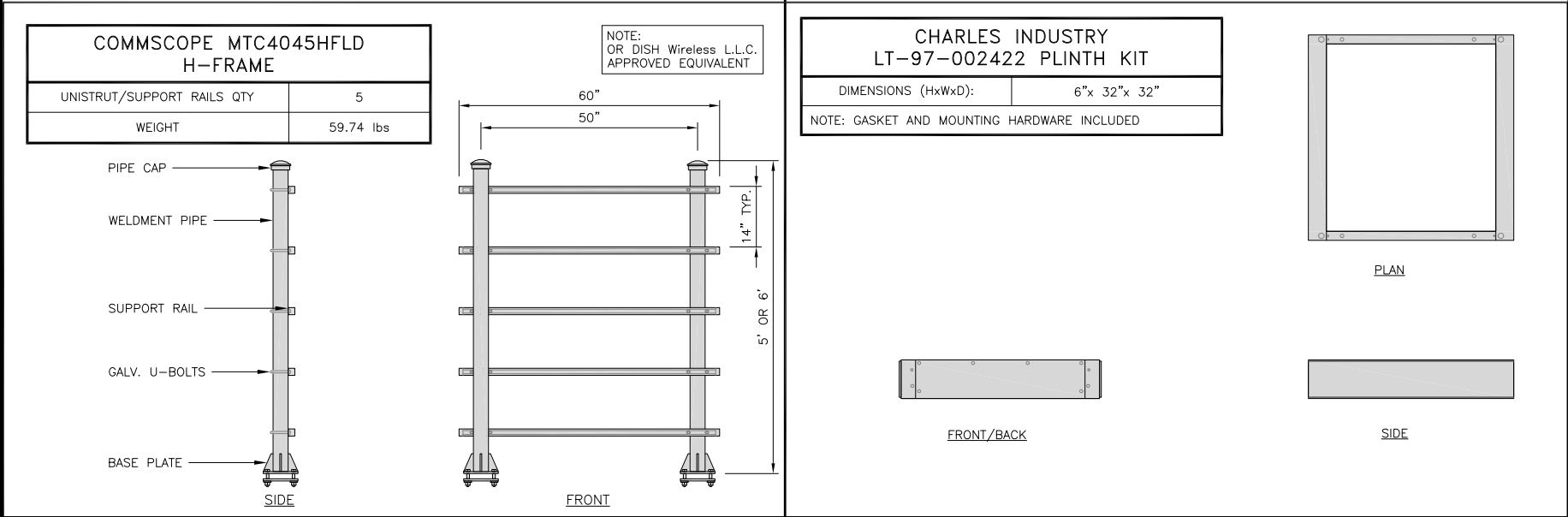
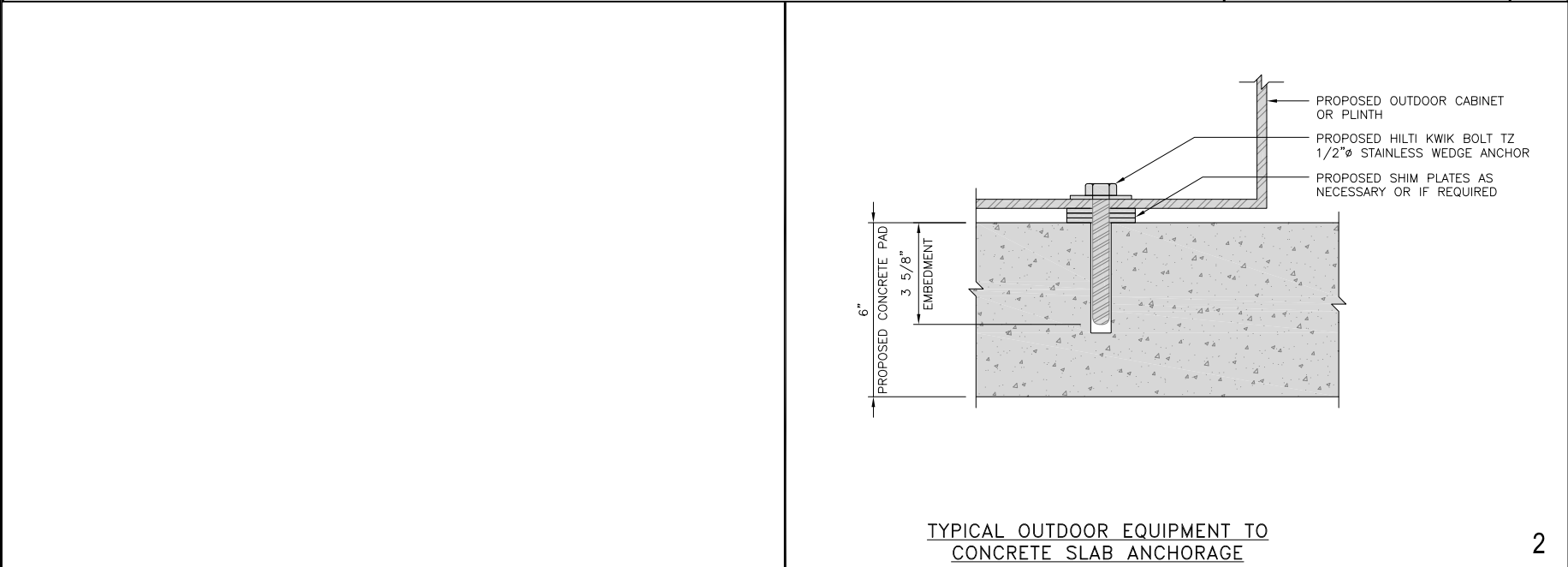
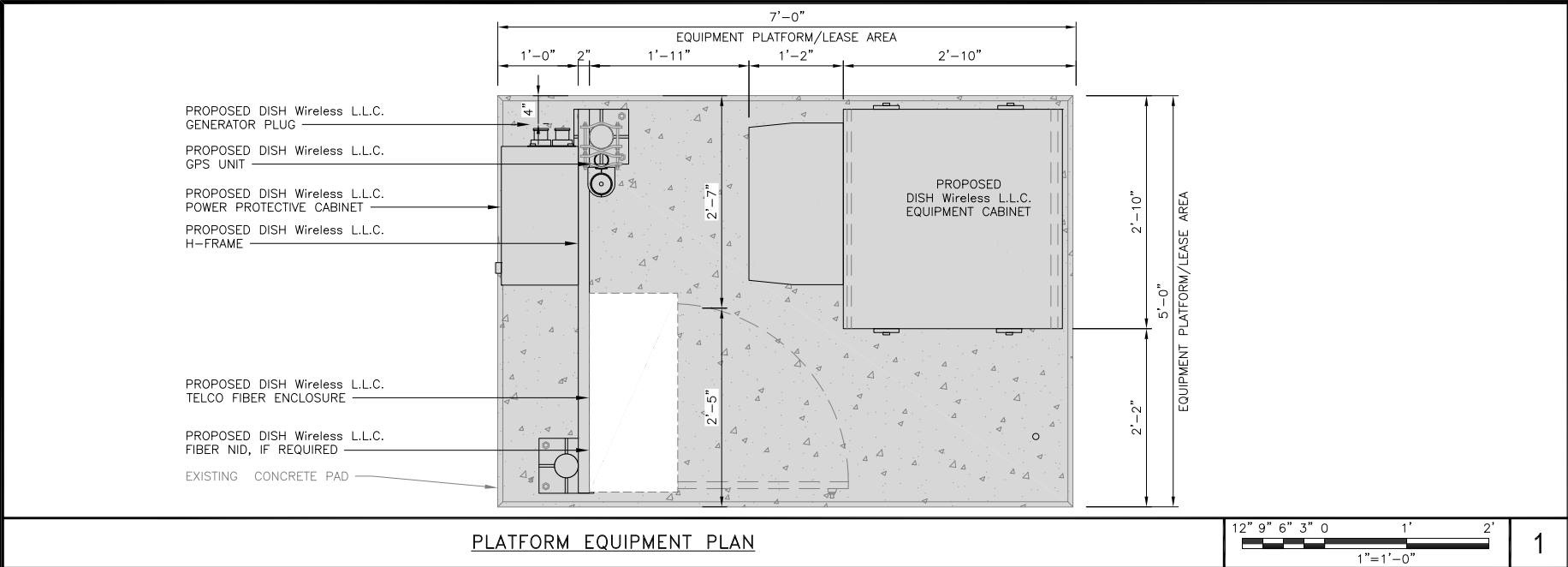
| SUBMITTALS |          |                         |
|------------|----------|-------------------------|
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A&E PROJECT NUMBER  
156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
ELEVATION, ANTENNA  
LAYOUT AND SCHEDULE

SHEET NUMBER  
A-2



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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|           |             |              |
|-----------|-------------|--------------|
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| BMK       | BLJ         | BLJ          |

RFDS REV #: 1

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DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
EQUIPMENT PLATFORM AND  
H-FRAME DETAILS

SHEET NUMBER  
A-3

CHARLES INDUSTRY HEX  
CUBE-PM639155N4

|                      |                 |
|----------------------|-----------------|
| DIMENSIONS (HxWxD):  | 74"x32"x32"     |
| POWER PLANT:         | -48VDC ABB/600W |
| TOTAL WEIGHT (EMPTY) | 408 LBS         |

CABINET DETAIL

NO SCALE

1

RAYCAP PPC  
RDIAC-2465-P-240-MTS

|                               |                      |
|-------------------------------|----------------------|
| ENCLOSURE DIMENSIONS (HxWxD): | 39"x22.855"x12.593   |
| WEIGHT:                       | 80 lbs               |
| OPERATING AC VOLTAGE          | 240/120 1 PHASE 3W+G |

POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

2

NOT USED

NO SCALE

3

ZAYO 5RU (LEFT SWING DOOR)  
FIBER NID ENCLOSURE

|                    |                 |
|--------------------|-----------------|
| DIMENSIONS (HxWxD) | 36.1"x29"x12.9" |
| WEIGHT             | 85 lbs          |

FIBER NID ENCLOSURE DETAIL

NO SCALE

5

CHARLES CFIT-PF2020DSH1  
FIBER TELCO ENCLOSURE

|                        |            |
|------------------------|------------|
| ENCLOSURE DIMS (HxWxD) | 20"x20"x9" |
| ENCLOSURE WEIGHT       | 20 lbs     |
| MOUNTING               | WALL       |
| COMPLIANCE             | TYPE 4     |

FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B  
WAVEGUIDE BRIDGE KIT

|                  |           |
|------------------|-----------|
| DIMENSIONS (HxL) | 160"x10'  |
| WEIGHT/ VOLUME   | 325.0 LBS |
| CABLE RUN (QTY)  | 12        |

ICE BRIDGE DETAIL

NO SCALE

7

SITEPRO1 BSF35  
BASE SHOE FEET

|                    |                  |
|--------------------|------------------|
| DIMENSIONS (HxWxL) | 8"x8"x1/2"       |
| WEIGHT             | 15.0 LBS         |
| POST SIZE:         | 2-7/8" OR 3-1/2" |

ICE BRIDGE PIPE MOUNT DETAIL

NO SCALE

8

HYBRID CABLE RUN

NO SCALE

9

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APPROVED BY: BLJ

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CONSTRUCTION DOCUMENTS

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| B   | 10/7/21  | ISSUED FOR REVIEW       |
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A&E PROJECT NUMBER  
156305.001.01

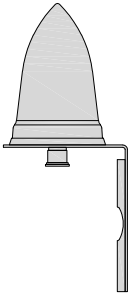
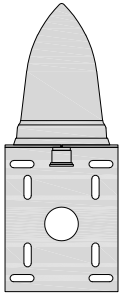
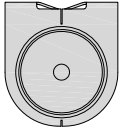
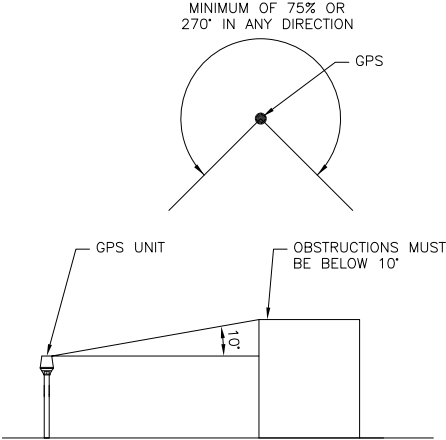
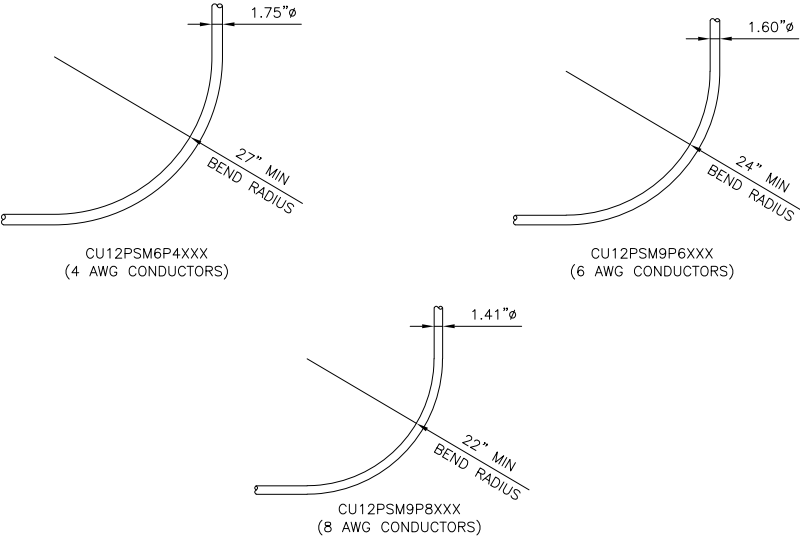
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
A-4

DISH Wireless L.L.C. TEMPLATE VERSION 41 - 09/03/2021

156305.001.01\_230609-3 BOBOS00003C.dwg - Sheet A-4 - User: hussain - Jan 03, 2023 - 8:10pm

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------|------------------------------|-----------------------------------|----------------------------|------------------------|----------------------|------------------------------------------------------|-----------|----------|-----------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <table><tr><td colspan="2">PCTEL<br/>GPSGL-TMG-SPI-40NCB</td></tr><tr><td>DIMENSIONS (DIAxH) MM/INCH</td><td>81x184mm<br/>3.2"x7.25"</td></tr><tr><td>WEIGHT W/ACCESSORIES</td><td>075 lbs</td></tr><tr><td>CONNECTOR</td><td>N-FEMALE</td></tr><tr><td>FREQUENCY RANGE</td><td>1590 ± 30MHz</td></tr></table> <div><p>BACK</p></div> <div><p>SIDE</p></div> <div><p>TOP</p></div> |                        |          | PCTEL<br>GPSGL-TMG-SPI-40NCB |                                   | DIMENSIONS (DIAxH) MM/INCH | 81x184mm<br>3.2"x7.25" | WEIGHT W/ACCESSORIES | 075 lbs                                              | CONNECTOR | N-FEMALE | FREQUENCY RANGE | 1590 ± 30MHz |  <p>MINIMUM OF 75% OR 270° IN ANY DIRECTION</p> <p>GPS</p> <p>GPS UNIT</p> <p>OBSTRUCTIONS MUST BE BELOW 10°</p> |  |  |  <p>1.75"Ø</p> <p>27" MIN BEND RADIUS</p> <p>CU12PSM6P4XXX<br/>(4 AWG CONDUCTORS)</p> <p>1.60"Ø</p> <p>24" MIN BEND RADIUS</p> <p>CU12PSM9P6XXX<br/>(6 AWG CONDUCTORS)</p> <p>1.41"Ø</p> <p>22" MIN BEND RADIUS</p> <p>CU12PSM9P8XXX<br/>(8 AWG CONDUCTORS)</p> |  |  |
| PCTEL<br>GPSGL-TMG-SPI-40NCB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                        |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| DIMENSIONS (DIAxH) MM/INCH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 81x184mm<br>3.2"x7.25" |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| WEIGHT W/ACCESSORIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 075 lbs                |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| CONNECTOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N-FEMALE               |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1590 ± 30MHz           |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| GPS DETAIL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        | NO SCALE | 1                            | GPS MINIMUM SKY VIEW REQUIREMENTS |                            | NO SCALE               | 2                    | CABLES UNLIMITED HYBRID CABLE<br>MINIMUM BEND RADIUS |           | NO SCALE | 3               |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| NOT USED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        | NO SCALE | 4                            | NOT USED                          |                            | NO SCALE               | 5                    | NOT USED                                             |           | NO SCALE | 6               |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |          |                              |                                   |                            |                        |                      |                                                      |           |          |                 |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |
| NOT USED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        | NO SCALE | 7                            | NOT USED                          |                            | NO SCALE               | 8                    | NOT USED                                             |           | NO SCALE | 9               |              |                                                                                                                                                                                                     |  |  |                                                                                                                                                                                                                                                                                                                                                    |  |  |



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A&E PROJECT NUMBER

156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION

BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

A-5



FUJITSU TRIPLE BAND  
TA08025-B605

|                    |                     |
|--------------------|---------------------|
| DIMENSIONS (HxWxD) | 14.9"x15.7"x9"      |
| WEIGHT             | 74.95 lbs           |
| CONNECTOR TYPE     | 4.3-10 RF CONNECTOR |
| POWER SUPPLY       | DC -58~-36V         |

PLAN

BACK

SIDE

FRONT

FUJITSU DUAL BAND  
TA08025-B604

|                    |                     |
|--------------------|---------------------|
| DIMENSIONS (HxWxD) | 14.9"x15.7"x7.8"    |
| WEIGHT             | 63.9 lbs            |
| CONNECTOR TYPE     | 4.3-10 RF CONNECTOR |
| POWER SUPPLY       | DC -58~-36V         |

PLAN

BACK

SIDE

FRONT

COMMSCOPE  
RR-FA2 LARGE STABILIZER

|                    |                |
|--------------------|----------------|
| DIMENSIONS (HxWxD) | 16.4"x8.5"x18" |
| WEIGHT             | 39.2 lbs       |

PLAN

SIDE

DESIGN NOTES:  
MOUNT WILL FIT LEGS UP TO:  
- 5.6" ROUND  
- 6.0" 60° ANGLE  
- 4.5" 90° ANGLE

NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

RRH DETAIL

NO SCALE

1

JMA WIRELESS  
MX08FRO665-21 ANTENNA

|                          |                   |
|--------------------------|-------------------|
| DIMENSIONS (HxWxD)       | 72.0"x20.0"x8.0"  |
| TOTAL WEIGHT             | 64.5 LB           |
| RF PORTS, CONNECTOR TYPE | 8 x 4.3-10 FEMALE |

PLAN

BACK

SIDE

FRONT

NOT USED

NO SCALE

5

JMA ANTENNA MOUNT BRACKET  
#91900318

|                              |                  |
|------------------------------|------------------|
| TOTAL WEIGHT (WITH BRACKETS) | 18 lbs (8.18 Kg) |
| POLE DIAMETER RANGE          | 2.5" TO 4.5"     |

NOTE:  
KIT #91900318: TOP AND BOTTOM BRACKETS  
FOR 4-,6-, AND 8-FOOT ANTENNAS  
ANTENNA BRACKET NOT PART OF KIT

NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL

NO SCALE

6

RAYCAP RDIDC-9181-PF-48  
DC SURGE PROTECTION (OVP)

|                    |                     |
|--------------------|---------------------|
| DIMENSIONS (HxWxD) | 18.98"x14.39"x8.15" |
| WEIGHT             | 21.82 LBS           |

PLAN

SIDE

BACK

FRONT

COMMSCOPE XP-2040  
CROSSOVER PLATE

|                  |         |
|------------------|---------|
| DIMENSIONS (HxW) | 10"x12" |
| WEIGHT           | 11 lbs  |

PLAN U-BOLT

SIDE U-BOLT

NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

COMMSCOPE  
MC-PK8-DSH

|            |             |
|------------|-------------|
| FACE WIDTH | 96"         |
| WEIGHT     | 1373.08 lbs |

NOTE: 15" TO 38" O.D.

HORIZONTAL PIPE

ANTENNA PIPE

FACE PIPE

40"

96"

NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

RRH/OVP MOUNT DETAIL

NO SCALE

8

ANTENNA PLATFORM DETAIL

NO SCALE

9

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STATE OF OKLAHOMA

CHAD BUTLER

No. 23924

PROFESSIONAL ENGINEER

01/03/23

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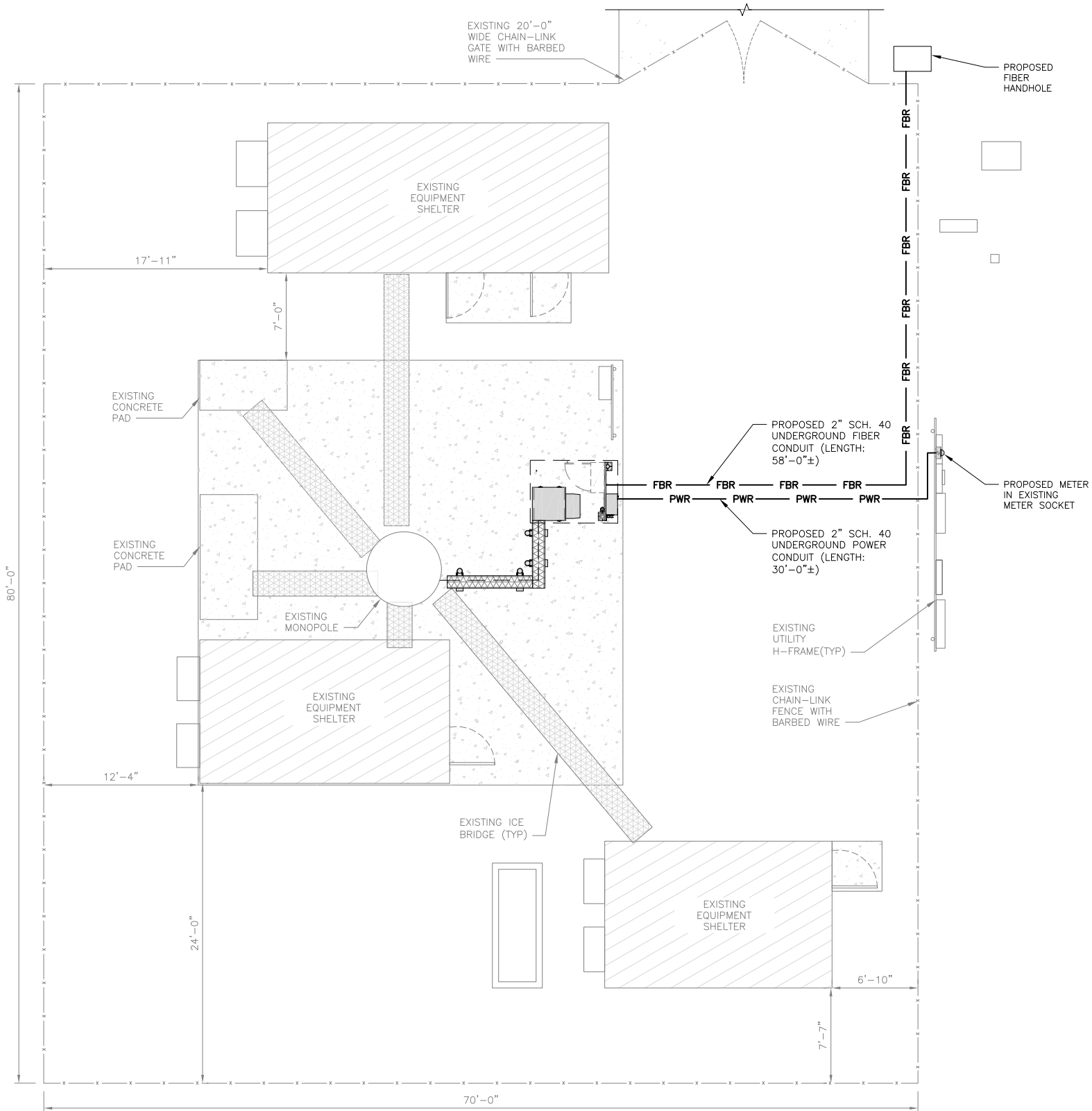
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PROJECT INFORMATION  
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154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
A-6

DISH Wireless L.L.C. TEMPLATE VERSION 41 - 09/03/2021

156305.001.01\_2305080-3 80803010003C.dwg - Sheet A-6 - User: hussain - Jan 03, 2023 - 8:10pm



#### NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

**dish**  
wireless.

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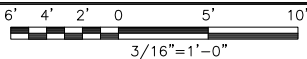
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SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

E-1

#### UTILITY ROUTE PLAN



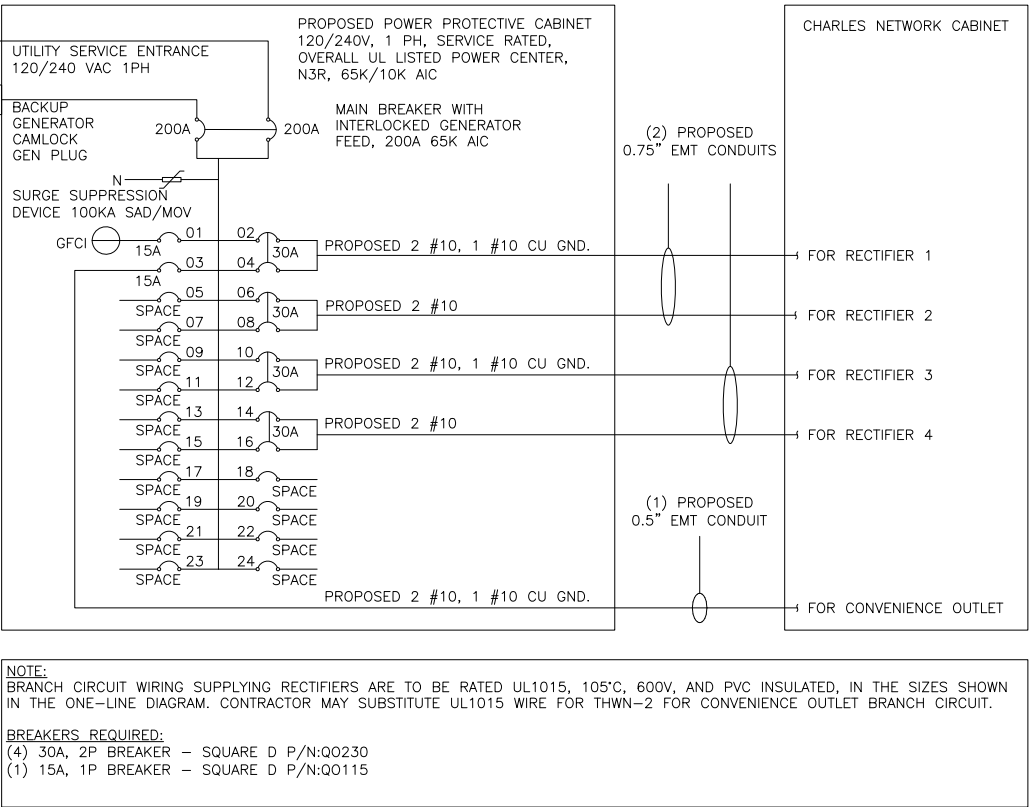
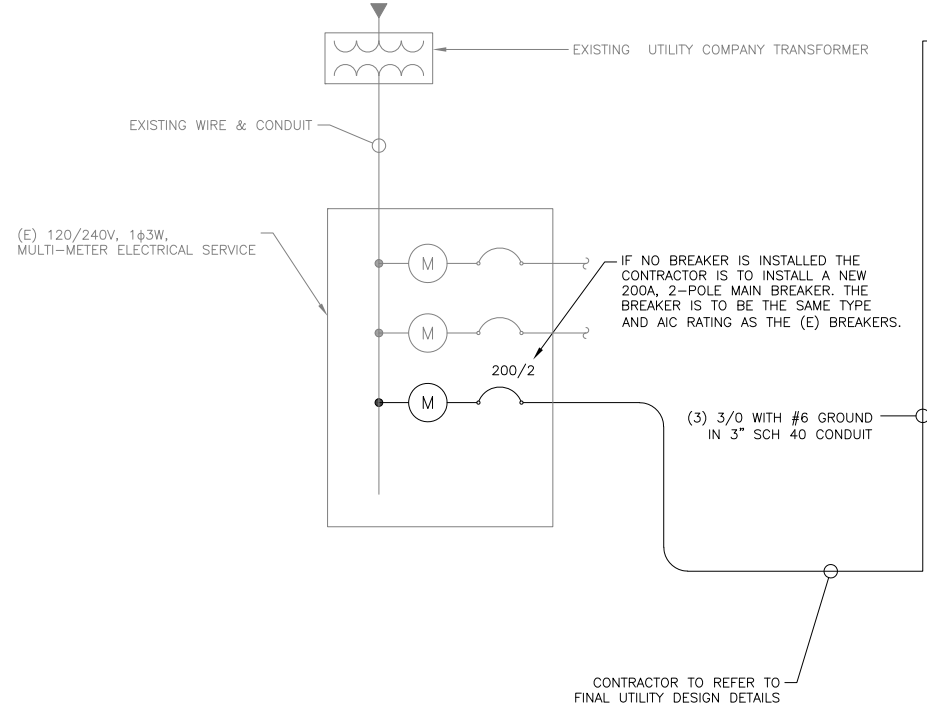
1

#### ELECTRICAL NOTES

NO SCALE

2





| NOTES                                                                                                                                                                                                                 |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.                            |  |
| #12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A<br>#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A<br>#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A<br>#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A                        |  |
| CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.<br>0.5" CONDUIT - 0.122 SQ. IN AREA<br>0.75" CONDUIT - 0.213 SQ. IN AREA<br>2.0" CONDUIT - 1.316 SQ. IN AREA<br>3.0" CONDUIT - 2.907 SQ. IN AREA |  |
| CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.<br>#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN<br>#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND<br>TOTAL = 0.0633 SQ. IN                           |  |
| 0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.                                                                                                             |  |
| RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.<br>#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN<br>#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND<br>TOTAL = 0.1146 SQ. IN                                      |  |
| 0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.                                                                                                            |  |
| PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.<br>3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN<br>#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND<br>TOTAL = 0.8544 SQ. IN                                                |  |
| 3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.                                                                                                      |  |

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A&E PROJECT NUMBER  
156305.001.01

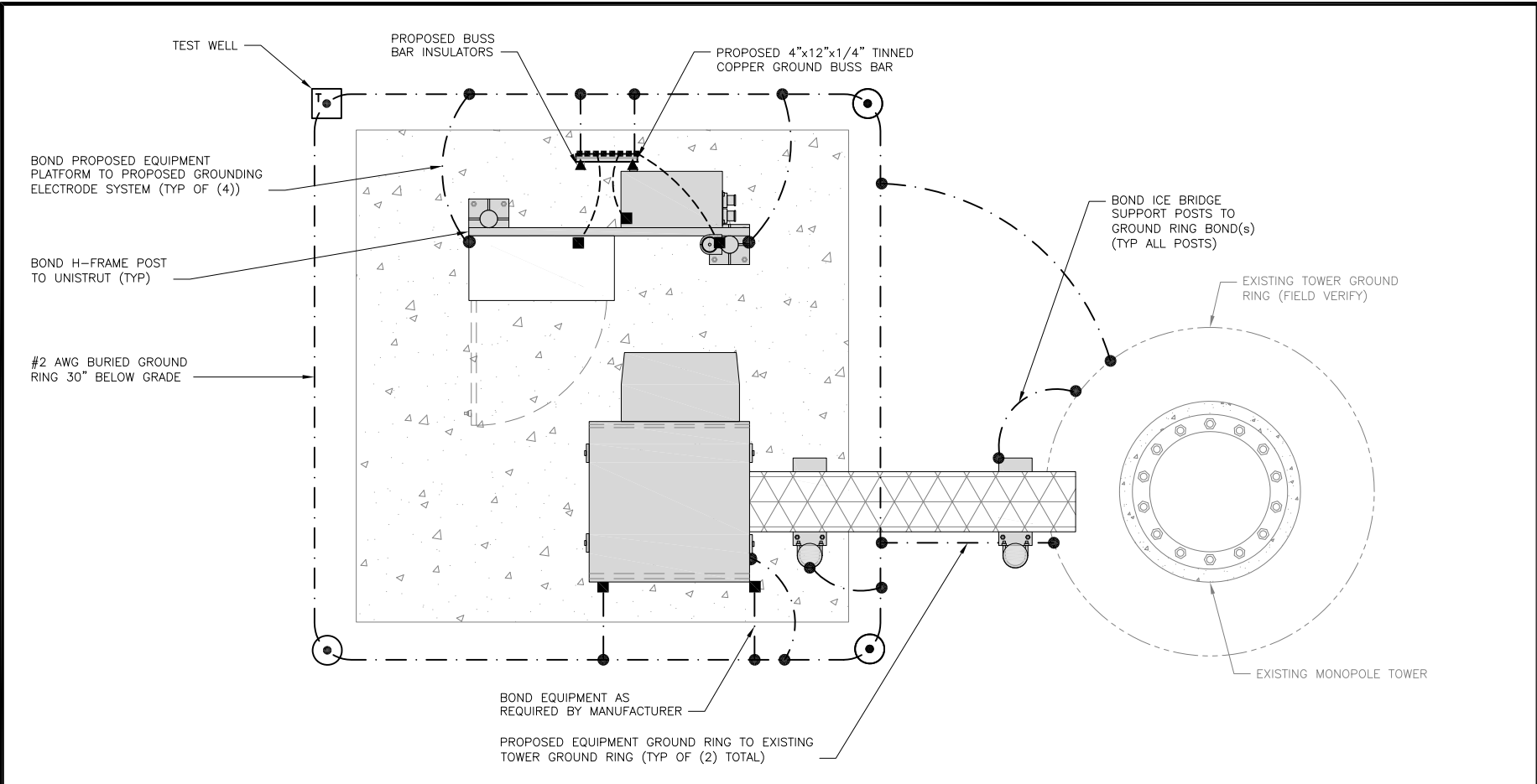
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
ELECTRICAL ONE-LINE, FAULT  
CALCS & PANEL SCHEDULE

SHEET NUMBER  
E-3

| PPC ONE—LINE DIAGRAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |       |      |       |       |              |      |                   |       | NO SCALE                    |  | 1 |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
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| <table><tr><th colspan="13">PROPOSED CHARLES PANEL SCHEDULE</th></tr><tr><th rowspan="2">LOAD SERVED</th><th colspan="2">VOLT AMPS (WATTS)</th><th rowspan="2">TRIP</th><th rowspan="2">CKT #</th><th rowspan="2">PHASE</th><th rowspan="2">CKT #</th><th rowspan="2">TRIP</th><th colspan="2">VOLT AMPS (WATTS)</th><th rowspan="2">LOAD SERVED</th></tr><tr><th>L1</th><th>L2</th><th>L1</th><th>L2</th></tr><tr><td>PPC GFCI OUTLET</td><td>180</td><td></td><td>15A</td><td>1</td><td>A</td><td>2</td><td>30A</td><td>2880</td><td></td><td>ABB/GE INFINITY RECTIFIER 1</td></tr><tr><td>CHARLES GFCI OUTLET</td><td></td><td>180</td><td>15A</td><td>3</td><td>B</td><td>4</td><td></td><td>2880</td><td>2880</td><td></td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>5</td><td>A</td><td>6</td><td>30A</td><td>2880</td><td></td><td>ABB/GE INFINITY RECTIFIER 2</td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>7</td><td>B</td><td>8</td><td></td><td>2880</td><td>2880</td><td></td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>9</td><td>A</td><td>10</td><td>30A</td><td>2880</td><td></td><td>ABB/GE INFINITY RECTIFIER 3</td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>11</td><td>B</td><td>12</td><td></td><td>2880</td><td>2880</td><td></td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>13</td><td>A</td><td>14</td><td>30A</td><td>2880</td><td></td><td>ABB/GE INFINITY RECTIFIER 4</td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>15</td><td>B</td><td>16</td><td></td><td></td><td>2880</td><td></td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>17</td><td>A</td><td>18</td><td></td><td></td><td></td><td>—SPACE—</td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>19</td><td>B</td><td>20</td><td></td><td></td><td></td><td>—SPACE—</td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>21</td><td>A</td><td>22</td><td></td><td></td><td></td><td>—SPACE—</td></tr><tr><td>—SPACE—</td><td></td><td></td><td></td><td>23</td><td>B</td><td>24</td><td></td><td>11520</td><td>11520</td><td>—SPACE—</td></tr><tr><td colspan="2">VOLTAGE AMPS</td><td>180</td><td>180</td><td colspan="4"></td><td>11520</td><td>11520</td><td colspan="2"></td></tr><tr><td colspan="2">200A MCB, 1ϕ, 24 SPACE, 120/240V</td><td colspan="2">L1</td><td colspan="2">L2</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2">MB RATING: 65,000 AIC</td><td colspan="2">11700</td><td colspan="2">11700</td><td colspan="2">VOLTAGE AMPS</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2"></td><td colspan="2">98</td><td colspan="2">98</td><td colspan="2">AMPS</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2"></td><td colspan="2">98</td><td colspan="2">98</td><td colspan="2">MAX AMPS</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td colspan="2"></td><td colspan="2">123</td><td colspan="2">123</td><td colspan="2">MAX 125%</td><td colspan="2"></td><td colspan="2"></td></tr></table> |                   |       |      |       |       |              |      |                   |       |                             |  |   | PROPOSED CHARLES PANEL SCHEDULE |  |  |  |  |  |  |  |  |  |  |  |  | LOAD SERVED | VOLT AMPS (WATTS) |  | TRIP | CKT # | PHASE | CKT # | TRIP | VOLT AMPS (WATTS) |  | LOAD SERVED | L1 | L2 | L1 | L2 | PPC GFCI OUTLET | 180 |  | 15A | 1 | A | 2 | 30A | 2880 |  | ABB/GE INFINITY RECTIFIER 1 | CHARLES GFCI OUTLET |  | 180 | 15A | 3 | B | 4 |  | 2880 | 2880 |  | —SPACE— |  |  |  | 5 | A | 6 | 30A | 2880 |  | ABB/GE INFINITY RECTIFIER 2 | —SPACE— |  |  |  | 7 | B | 8 |  | 2880 | 2880 |  | —SPACE— |  |  |  | 9 | A | 10 | 30A | 2880 |  | ABB/GE INFINITY RECTIFIER 3 | —SPACE— |  |  |  | 11 | B | 12 |  | 2880 | 2880 |  | —SPACE— |  |  |  | 13 | A | 14 | 30A | 2880 |  | ABB/GE INFINITY RECTIFIER 4 | —SPACE— |  |  |  | 15 | B | 16 |  |  | 2880 |  | —SPACE— |  |  |  | 17 | A | 18 |  |  |  | —SPACE— | —SPACE— |  |  |  | 19 | B | 20 |  |  |  | —SPACE— | —SPACE— |  |  |  | 21 | A | 22 |  |  |  | —SPACE— | —SPACE— |  |  |  | 23 | B | 24 |  | 11520 | 11520 | —SPACE— | VOLTAGE AMPS |  | 180 | 180 |  |  |  |  | 11520 | 11520 |  |  | 200A MCB, 1ϕ, 24 SPACE, 120/240V |  | L1 |  | L2 |  |  |  |  |  |  |  | MB RATING: 65,000 AIC |  | 11700 |  | 11700 |  | VOLTAGE AMPS |  |  |  |  |  |  |  | 98 |  | 98 |  | AMPS |  |  |  |  |  |  |  | 98 |  | 98 |  | MAX AMPS |  |  |  |  |  |  |  | 123 |  | 123 |  | MAX 125% |  |  |  |  |  | NO SCALE |  | 2 | NOT USED |  |  |  | NO SCALE |  | 3 |
| PROPOSED CHARLES PANEL SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |       |      |       |       |              |      |                   |       |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| LOAD SERVED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | VOLT AMPS (WATTS) |       | TRIP | CKT # | PHASE | CKT #        | TRIP | VOLT AMPS (WATTS) |       | LOAD SERVED                 |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | L1                | L2    |      |       |       |              |      | L1                | L2    |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| PPC GFCI OUTLET                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 180               |       | 15A  | 1     | A     | 2            | 30A  | 2880              |       | ABB/GE INFINITY RECTIFIER 1 |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| CHARLES GFCI OUTLET                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   | 180   | 15A  | 3     | B     | 4            |      | 2880              | 2880  |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 5     | A     | 6            | 30A  | 2880              |       | ABB/GE INFINITY RECTIFIER 2 |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 7     | B     | 8            |      | 2880              | 2880  |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 9     | A     | 10           | 30A  | 2880              |       | ABB/GE INFINITY RECTIFIER 3 |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 11    | B     | 12           |      | 2880              | 2880  |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 13    | A     | 14           | 30A  | 2880              |       | ABB/GE INFINITY RECTIFIER 4 |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 15    | B     | 16           |      |                   | 2880  |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 17    | A     | 18           |      |                   |       | —SPACE—                     |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 19    | B     | 20           |      |                   |       | —SPACE—                     |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 21    | A     | 22           |      |                   |       | —SPACE—                     |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| —SPACE—                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |       |      | 23    | B     | 24           |      | 11520             | 11520 | —SPACE—                     |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| VOLTAGE AMPS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   | 180   | 180  |       |       |              |      | 11520             | 11520 |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| 200A MCB, 1ϕ, 24 SPACE, 120/240V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   | L1    |      | L2    |       |              |      |                   |       |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
| MB RATING: 65,000 AIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   | 11700 |      | 11700 |       | VOLTAGE AMPS |      |                   |       |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   | 98    |      | 98    |       | AMPS         |      |                   |       |                             |  |   |                                 |  |  |  |  |  |  |  |  |  |  |  |  |             |                   |  |      |       |       |       |      |                   |  |             |    |    |    |    |                 |     |  |     |   |   |   |     |      |  |                             |                     |  |     |     |   |   |   |  |      |      |  |         |  |  |  |   |   |   |     |      |  |                             |         |  |  |  |   |   |   |  |      |      |  |         |  |  |  |   |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |      |      |  |         |  |  |  |    |   |    |     |      |  |                             |         |  |  |  |    |   |    |  |  |      |  |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |  |  |         |         |  |  |  |    |   |    |  |       |       |         |              |  |     |     |  |  |  |  |       |       |  |  |                                  |  |    |  |    |  |  |  |  |  |  |  |                       |  |       |  |       |  |              |  |  |  |  |  |  |  |    |  |    |  |      |  |  |  |  |  |  |  |    |  |    |  |          |  |  |  |  |  |  |  |     |  |     |  |          |  |  |  |  |  |          |  |   |          |  |  |  |          |  |   |
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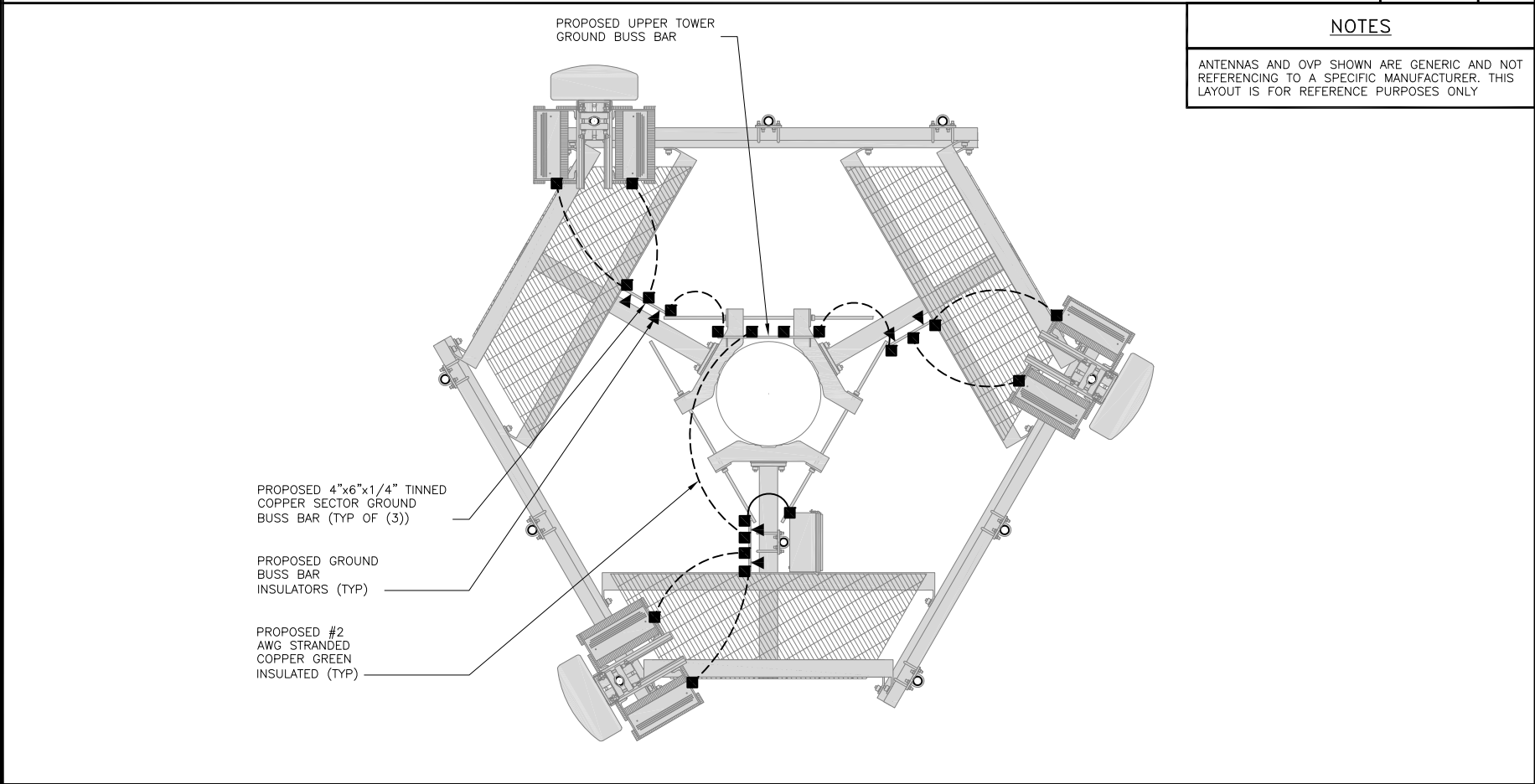




TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

● EXOTHERMIC CONNECTION

■ MECHANICAL CONNECTION

▬ GROUND BUS BAR

○ GROUND ROD

■

TEST GROUND ROD WITH INSPECTION SLEEVE

----- #6 AWG STRANDED & INSULATED

- - - - - #2 AWG SOLID COPPER TINNED

▲ BUSS BAR INSULATOR

- GROUNDING LEGEND
1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.

2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.

3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

- GROUNDING KEY NOTES
- A

EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

B

TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

C

INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

D

BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

E

GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

F

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

G

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

H

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

I

TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

J

FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

K

INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

L

FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

M

EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

N

ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

O

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

P

TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE

3

dish

wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE  
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
Ph: (918) 587-4630  
www.btgrp.com

01/03/23

MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

|           |             |              |
|-----------|-------------|--------------|
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| BMK       | BLJ         | BLJ          |

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

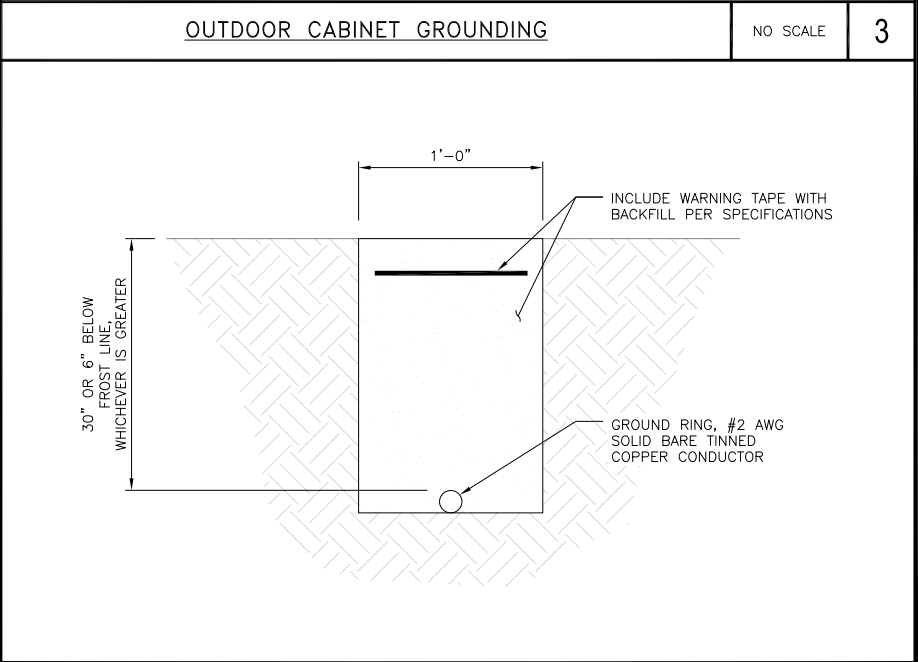
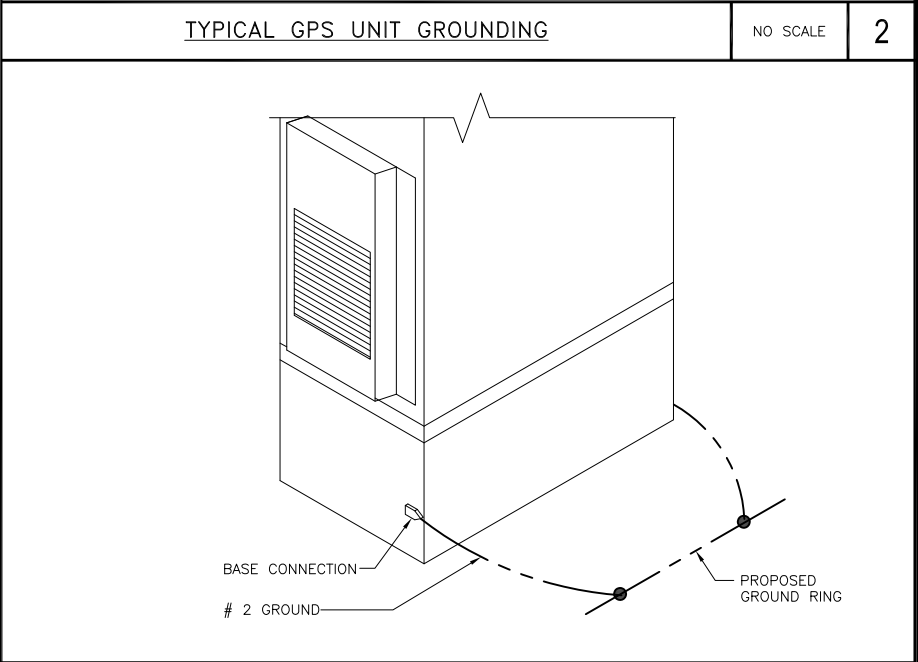
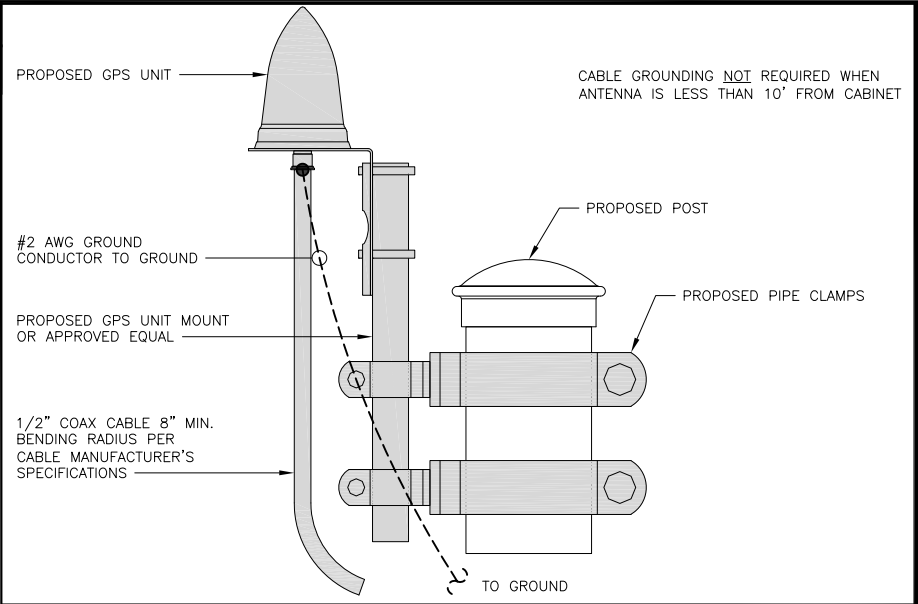
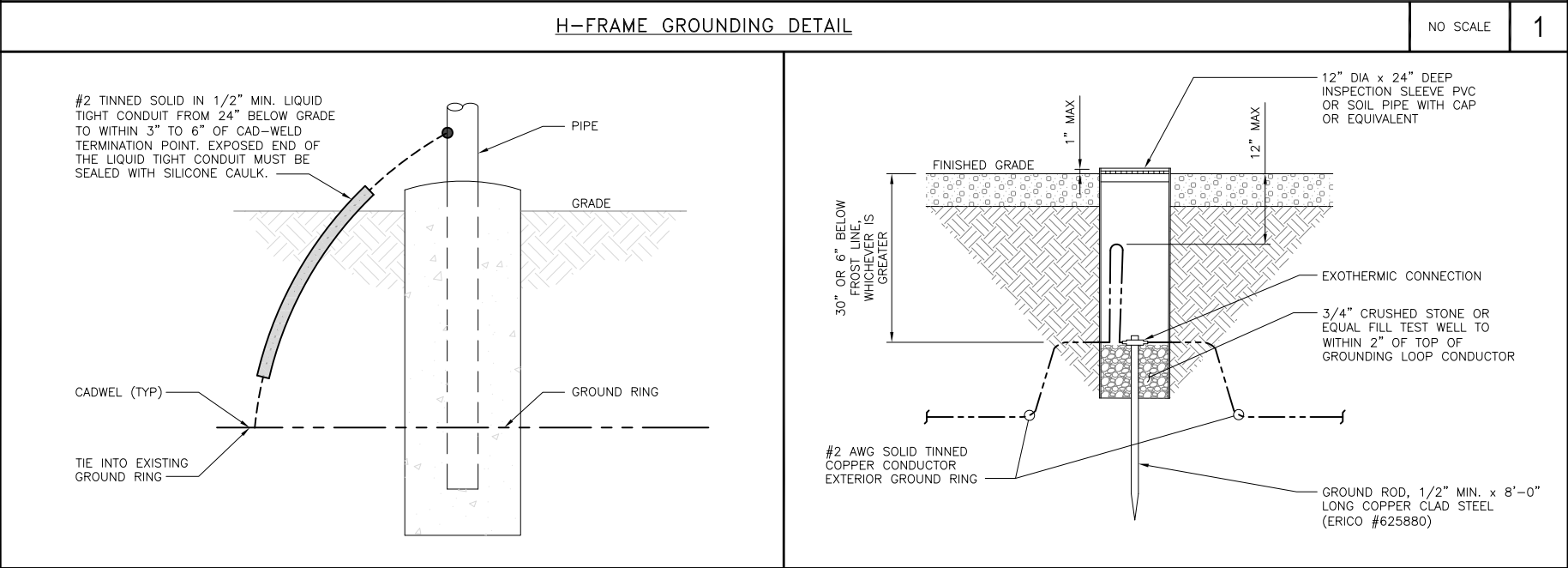
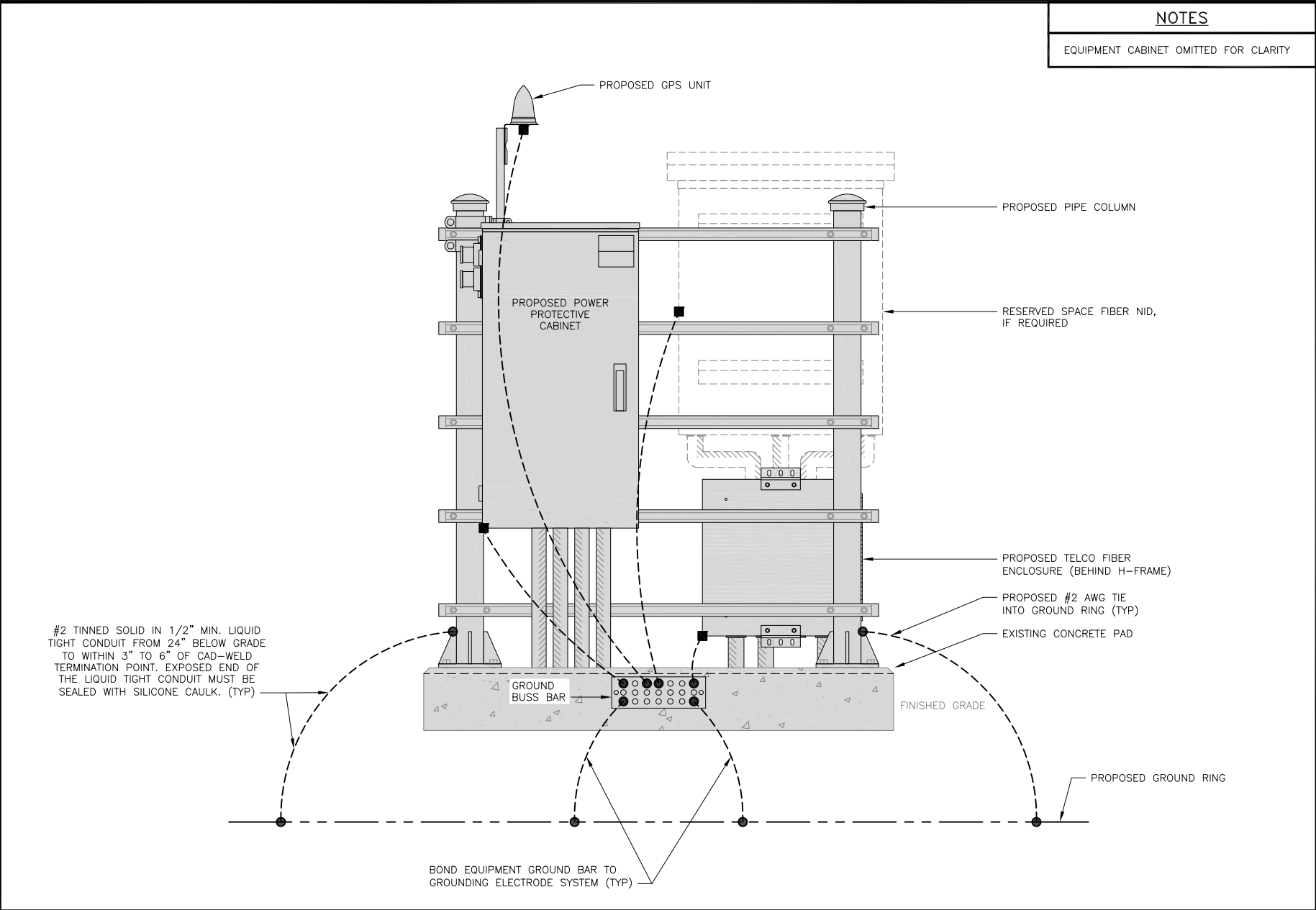
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|------------|----------|-------------------------|
| REV        | DATE     | DESCRIPTION             |
| A          | 10/1/21  | ISSUED FOR REVIEW       |
| B          | 10/7/21  | ISSUED FOR REVIEW       |
| C          | 12/31/21 | ISSUED FOR REVIEW       |
| D          | 5/24/22  | ISSUED FOR CONSTRUCTION |
| 1          | 01/03/23 | ISSUED FOR CONSTRUCTION |
|            |          |                         |
|            |          |                         |

A&E PROJECT NUMBER  
156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER  
  
G-1



**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**SBA**

8051 CONGRESS AVENUE  
BOCA RATON, FL 33487

**B+T GRP**  
1717 S. BOULDER  
SUITE 300  
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Ph: (918) 587-4630  
www.btgrp.com

MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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OF A LICENSED PROFESSIONAL ENGINEER,  
TO ALTER THIS DOCUMENT.

DRAWN BY: BMK    CHECKED BY: BLJ    APPROVED BY: BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

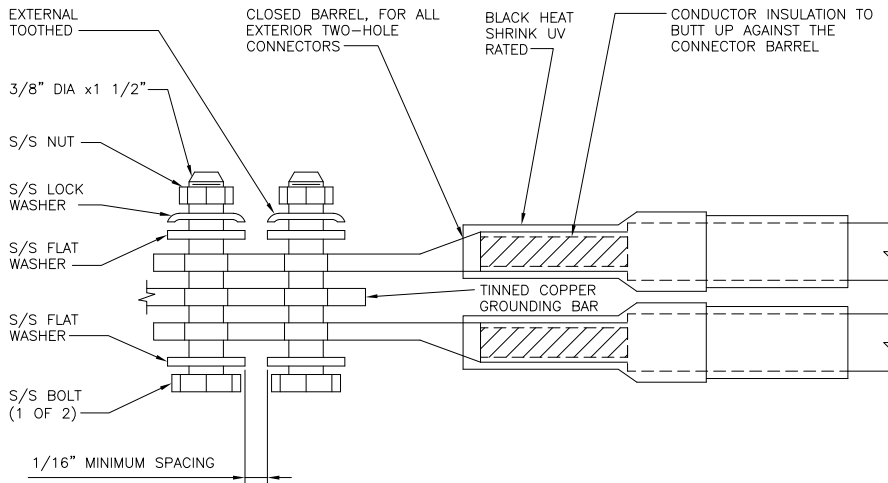
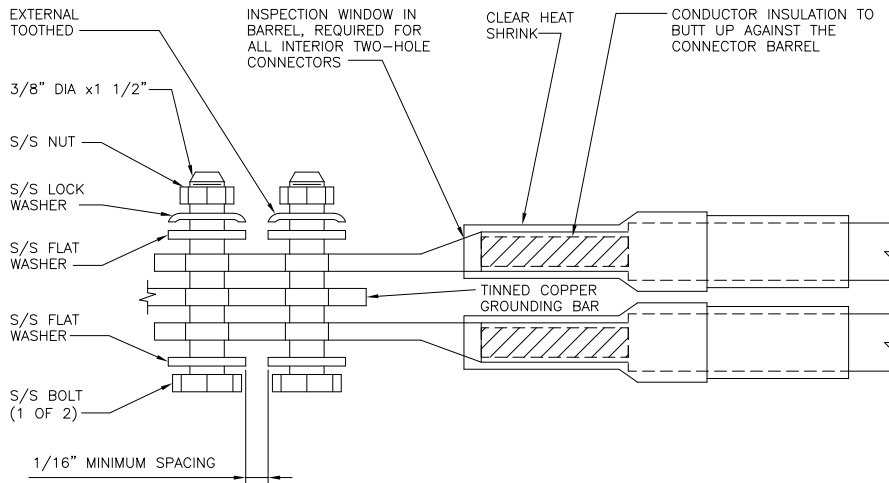
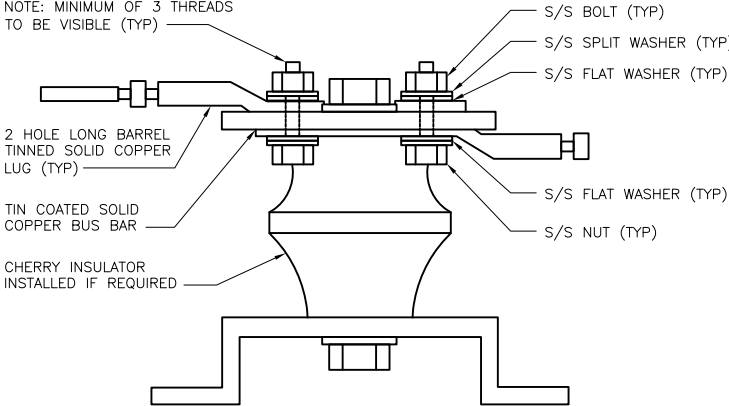
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| B   | 10/7/21  | ISSUED FOR REVIEW       |
| C   | 12/31/21 | ISSUED FOR REVIEW       |
| 0   | 5/24/22  | ISSUED FOR CONSTRUCTION |
| 1   | 01/03/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER  
156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-2**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |                                                                                    |   |                               |                                                                                     |  |          |   |                               |  |  |          |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------|---|-------------------------------|-------------------------------------------------------------------------------------|--|----------|---|-------------------------------|--|--|----------|---|
| <div>1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.</div> <div>2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.</div> <div>3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.</div> <div>4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.</div> <div>5. NUT &amp; WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.</div> <div>6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.</div> <div>7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.</div> <div>8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).</div> |  |  |  |   |                               |  |  |          |   |                               |  |  |          |   |
| TYPICAL GROUNDING NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  | NO SCALE                                                                           | 1 | TYPICAL EXTERIOR TWO HOLE LUG |                                                                                     |  | NO SCALE | 2 | TYPICAL INTERIOR TWO HOLE LUG |  |  | NO SCALE | 3 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                                    |   |                               |                                                                                     |  |          |   |                               |  |  |          |   |
| LUG DETAIL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  | NO SCALE                                                                           | 4 | NOT USED                      |                                                                                     |  | NO SCALE | 5 | NOT USED                      |  |  | NO SCALE | 6 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |                                                                                    |   |                               |                                                                                     |  |          |   |                               |  |  |          |   |
| NOT USED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  | NO SCALE                                                                           | 7 | NOT USED                      |                                                                                     |  | NO SCALE | 8 | NOT USED                      |  |  | NO SCALE | 9 |



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
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01/03/23

MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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UNLESS THEY ARE ACTING UNDER THE DIRECTION  
OF A LICENSED PROFESSIONAL ENGINEER,  
TO ALTER THIS DOCUMENT.

DRAWN BY: BMK    CHECKED BY: BLJ    APPROVED BY: BLJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

| SUBMITTALS |          |                         |
|------------|----------|-------------------------|
| REV        | DATE     | DESCRIPTION             |
| A          | 10/1/21  | ISSUED FOR REVIEW       |
| B          | 10/7/21  | ISSUED FOR REVIEW       |
| C          | 12/31/21 | ISSUED FOR REVIEW       |
| 0          | 5/24/22  | ISSUED FOR CONSTRUCTION |
| 1          | 01/03/23 | ISSUED FOR CONSTRUCTION |
|            |          |                         |
|            |          |                         |

A&E PROJECT NUMBER  
156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
  
BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
G-3

DISH Wireless L.L.C. TEMPLATE VERSION 41 – 09/03/2021

156305\_001\_01\_2305000-3 BOBOS00003C.dwg – Sheet: 3 – User: hansen – Jan 03, 2023 – 4:10pm



| RF JUMPER COLOR CODING                                                                                                                                             |                                  |                   |                                 | 3/4" TAPE WIDTHS WITH 3/4" SPACING |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------|---------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------|------------------------------------|-------------------|---------------------------------|-------------------|
| LOW-BAND RRH –<br>(600MHz N71 BASEBAND) +<br>(850MHz N26 BAND) +<br>(700MHz N29 BAND) – OPTIONAL PER MARKET                                                        | ALPHA RRH                        |                   |                                 |                                    | BETA RRH                           |                   |                                                                                                      |                   | GAMMA RRH                          |                   |                                 |                   |
|                                                                                                                                                                    | PORT 1<br>+ SLANT                | PORT 2<br>– SLANT | PORT 3<br>+ SLANT               | PORT 4<br>– SLANT                  | PORT 1<br>+ SLANT                  | PORT 2<br>– SLANT | PORT 3<br>+ SLANT                                                                                    | PORT 4<br>– SLANT | PORT 1<br>+ SLANT                  | PORT 2<br>– SLANT | PORT 3<br>+ SLANT               | PORT 4<br>– SLANT |
|                                                                                                                                                                    | RED                              | RED               | RED                             | RED                                | BLUE                               | BLUE              | BLUE                                                                                                 | BLUE              | GREEN                              | GREEN             | GREEN                           | GREEN             |
|                                                                                                                                                                    | ORANGE                           | ORANGE            | RED                             | RED                                | ORANGE                             | ORANGE            | BLUE                                                                                                 | BLUE              | ORANGE                             | ORANGE            | GREEN                           | GREEN             |
| ADD FREQUENCY COLOR TO SECTOR BAND<br>(CBRS WILL USE YELLOW BANDS)                                                                                                 |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  | WHITE<br>(–) PORT | ORANGE                          | ORANGE                             |                                    | WHITE<br>(–) PORT | ORANGE                                                                                               | ORANGE            |                                    | WHITE<br>(–) PORT | ORANGE                          | ORANGE            |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 | WHITE<br>(–) PORT                  |                                    |                   |                                                                                                      | WHITE<br>(–) PORT |                                    |                   |                                 | WHITE<br>(–) PORT |
| MID-BAND RRH –<br>(AWS BANDS N66+N70)                                                                                                                              |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | RED                              | RED               | RED                             | RED                                | BLUE                               | BLUE              | BLUE                                                                                                 | BLUE              | GREEN                              | GREEN             | GREEN                           | GREEN             |
|                                                                                                                                                                    | PURPLE                           | PURPLE            | RED                             | RED                                | PURPLE                             | PURPLE            | BLUE                                                                                                 | BLUE              | PURPLE                             | PURPLE            | GREEN                           | GREEN             |
|                                                                                                                                                                    |                                  | WHITE<br>(–) PORT | PURPLE                          | PURPLE                             |                                    | WHITE<br>(–) PORT | PURPLE                                                                                               | PURPLE            |                                    | WHITE<br>(–) PORT | PURPLE                          | PURPLE            |
| ADD FREQUENCY COLOR TO SECTOR BAND<br>(CBRS WILL USE YELLOW BANDS)                                                                                                 |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 | WHITE<br>(–) PORT                  |                                    |                   |                                                                                                      | WHITE<br>(–) PORT |                                    |                   |                                 | WHITE<br>(–) PORT |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
| HYBRID/DISCREET CABLES                                                                                                                                             | EXAMPLE 1                        |                   | EXAMPLE 2                       |                                    | EXAMPLE 3                          |                   | CONTRACTOR TO REFER TO FINAL<br>CONSTRUCTION RFDS FOR ALL RD DETAILS.<br>FINAL RFDS IS IN NEXSYSONE. |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | RED                              |                   | RED                             |                                    | RED                                |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | BLUE                             |                   | BLUE                            |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
| INCLUDE SECTOR BANDS BEING SUPPORTED<br>ALONG WITH FREQUENCY BANDS                                                                                                 |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | GREEN                            |                   | GREEN                           |                                    | ORANGE                             |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | ORANGE                           |                   |                                 |                                    | PURPLE                             |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | PURPLE                           |                   | YELLOW                          |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
| EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS<br>ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS                                                                             |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
| EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS<br>CBRS ONLY, ALL SECTORS                                                                                                |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
| FIBER JUMPERS TO RRHs                                                                                                                                              | LOW BAND RRH                     |                   | HIGH BAND RRH                   |                                    | LOW BAND RRH                       |                   | HIGH BAND RRH                                                                                        |                   | LOW BAND RRH                       |                   | HIGH BAND RRH                   |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | RED                              |                   | RED                             |                                    | BLUE                               |                   | BLUE                                                                                                 |                   | GREEN                              |                   | GREEN                           |                   |
|                                                                                                                                                                    |                                  |                   | PURPLE                          |                                    |                                    |                   | PURPLE                                                                                               |                   |                                    |                   | PURPLE                          |                   |
| POWER CABLES TO RRHs                                                                                                                                               | LOW BAND RRH                     |                   | HIGH BAND RRH                   |                                    | LOW BAND RRH                       |                   | HIGH BAND RRH                                                                                        |                   | LOW BAND RRH                       |                   | HIGH BAND RRH                   |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | RED                              |                   | RED                             |                                    | BLUE                               |                   | BLUE                                                                                                 |                   | GREEN                              |                   | GREEN                           |                   |
|                                                                                                                                                                    |                                  |                   | PURPLE                          |                                    |                                    |                   | PURPLE                                                                                               |                   |                                    |                   | PURPLE                          |                   |
| RET MOTORS AT ANTENNAS                                                                                                                                             | ANTENNA 1<br>LOW BAND/<br>"IN"   |                   | ANTENNA 1<br>HIGH BAND/<br>"IN" |                                    | ANTENNA 1<br>LOW BAND/<br>"IN"     |                   | ANTENNA 1<br>HIGH BAND/<br>"IN"                                                                      |                   | ANTENNA 1<br>LOW BAND/<br>"IN"     |                   | ANTENNA 1<br>HIGH BAND/<br>"IN" |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    | RED                              |                   | RED                             |                                    | BLUE                               |                   | BLUE                                                                                                 |                   | GREEN                              |                   | GREEN                           |                   |
|                                                                                                                                                                    |                                  |                   | PURPLE                          |                                    |                                    |                   | PURPLE                                                                                               |                   |                                    |                   | PURPLE                          |                   |
| MICROWAVE RADIO LINKS                                                                                                                                              | FORWARD AZIMUTH OF 0–120 DEGREES |                   |                                 |                                    | FORWARD AZIMUTH OF 120–240 DEGREES |                   |                                                                                                      |                   | FORWARD AZIMUTH OF 240–360 DEGREES |                   |                                 |                   |
|                                                                                                                                                                    | PRIMARY                          |                   | SECONDARY                       |                                    | PRIMARY                            |                   | SECONDARY                                                                                            |                   | PRIMARY                            |                   | SECONDARY                       |                   |
|                                                                                                                                                                    | WHITE                            | WHITE             | WHITE                           | WHITE                              | WHITE                              | WHITE             | WHITE                                                                                                | WHITE             | WHITE                              | WHITE             | WHITE                           | WHITE             |
|                                                                                                                                                                    | RED                              | RED               | RED                             | RED                                | BLUE                               | BLUE              | BLUE                                                                                                 | BLUE              | GREEN                              | GREEN             | GREEN                           | GREEN             |
| LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH<br>THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.<br>ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH<br>ADDITIONAL MW RADIO. | WHITE                            | WHITE             | WHITE                           | WHITE                              | WHITE                              | WHITE             | WHITE                                                                                                | WHITE             | WHITE                              | WHITE             | WHITE                           | WHITE             |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
| MICROWAVE CABLES WILL REQUIRE P–TOUCH<br>LABELS INSIDE THE CABINET TO IDENTIFY THE<br>LOCAL AND REMOTE SITE ID'S                                                   |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |
|                                                                                                                                                                    |                                  |                   |                                 |                                    |                                    |                   |                                                                                                      |                   |                                    |                   |                                 |                   |

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

LOW BANDS (N71+N26)  
OPTIONAL – (N29)

ORANGE

AWS  
(N66+N70+H–BLOCK)

PURPLE

CBRS TECH  
(3 GHz)

YELLOW

NEGATIVE SLANT PORT  
ON ANT/RRH

WHITE

ALPHA SECTOR

RED

BETA SECTOR

BLUE

GAMMA SECTOR

GREEN

COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

dish  
wireless.

5701 SOUTH SANTA FE DRIVE  
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BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.  
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TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:

BMK

BLJ

BLJ

RFDS REV #: 1

CONSTRUCTION  
DOCUMENTS

| SUBMITTALS |          |                         |
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| REV        | DATE     | DESCRIPTION             |
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| 0          | 5/24/22  | ISSUED FOR CONSTRUCTION |
| 1          | 01/03/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION

BOBOS00003C  
154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE  
RF  
CABLE COLOR CODES

SHEET NUMBER

RF-1

|        |                                   |       |                                               |
|--------|-----------------------------------|-------|-----------------------------------------------|
| AB     | ANCHOR BOLT                       | IN    | INCH                                          |
| ABV    | ABOVE                             | INT   | INTERIOR                                      |
| AC     | ALTERNATING CURRENT               | LB(S) | POUND(S)                                      |
| ADDL   | ADDITIONAL                        | LF    | LINEAR FEET                                   |
| AFF    | ABOVE FINISHED FLOOR              | LTE   | LONG TERM EVOLUTION                           |
| AFG    | ABOVE FINISHED GRADE              | MAS   | MASONRY                                       |
| AGL    | ABOVE GROUND LEVEL                | MAX   | MAXIMUM                                       |
| AIC    | AMPERAGE INTERRUPTION CAPACITY    | MB    | MACHINE BOLT                                  |
| ALUM   | ALUMINUM                          | MECH  | MECHANICAL                                    |
| ALT    | ALTERNATE                         | MFR   | MANUFACTURER                                  |
| ANT    | ANTENNA                           | MGB   | MASTER GROUND BAR                             |
| APPROX | APPROXIMATE                       | MIN   | MINIMUM                                       |
| ARCH   | ARCHITECTURAL                     | MISC  | MISCELLANEOUS                                 |
| ATS    | AUTOMATIC TRANSFER SWITCH         | MTL   | METAL                                         |
| AWG    | AMERICAN WIRE GAUGE               | MTS   | MANUAL TRANSFER SWITCH                        |
| BATT   | BATTERY                           | MW    | MICROWAVE                                     |
| BLDG   | BUILDING                          | NEC   | NATIONAL ELECTRIC CODE                        |
| BLK    | BLOCK                             | NM    | NEWTON METERS                                 |
| BLKG   | BLOCKING                          | NO.   | NUMBER                                        |
| BM     | BEAM                              | #     | NUMBER                                        |
| BTC    | BARE TINNED COPPER CONDUCTOR      | NTS   | NOT TO SCALE                                  |
| BOF    | BOTTOM OF FOOTING                 | OC    | ON-CENTER                                     |
| CAB    | CABINET                           | OSHA  | OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION |
| CANT   | CANTILEVERED                      | OPNG  | OPENING                                       |
| CHG    | CHARGING                          | P/C   | PRECAST CONCRETE                              |
| CLG    | CEILING                           | PCS   | PERSONAL COMMUNICATION SERVICES               |
| CLR    | CLEAR                             | PCU   | PRIMARY CONTROL UNIT                          |
| COL    | COLUMN                            | PRC   | PRIMARY RADIO CABINET                         |
| COMM   | COMMON                            | PP    | POLARIZING PRESERVING                         |
| CONC   | CONCRETE                          | PSF   | POUNDS PER SQUARE FOOT                        |
| CONSTR | CONSTRUCTION                      | PSI   | POUNDS PER SQUARE INCH                        |
| DBL    | DOUBLE                            | PT    | PRESSURE TREATED                              |
| DC     | DIRECT CURRENT                    | PWR   | POWER CABINET                                 |
| DEPT   | DEPARTMENT                        | QTY   | QUANTITY                                      |
| DF     | DOUGLAS FIR                       | RAD   | RADIUS                                        |
| DIA    | DIAMETER                          | RECT  | RECTIFIER                                     |
| DIAG   | DIAGONAL                          | REF   | REFERENCE                                     |
| DIM    | DIMENSION                         | REINF | REINFORCEMENT                                 |
| DWG    | DRAWING                           | REQ'D | REQUIRED                                      |
| DWL    | DOWEL                             | RET   | REMOTE ELECTRIC TILT                          |
| EA     | EACH                              | RF    | RADIO FREQUENCY                               |
| EC     | ELECTRICAL CONDUCTOR              | RMC   | RIGID METALLIC CONDUIT                        |
| EL.    | ELEVATION                         | RRH   | REMOTE RADIO HEAD                             |
| ELEC   | ELECTRICAL                        | RRU   | REMOTE RADIO UNIT                             |
| EMT    | ELECTRICAL METALLIC TUBING        | RWY   | RACEWAY                                       |
| ENG    | ENGINEER                          | SCH   | SCHEDULE                                      |
| EQ     | EQUAL                             | SHT   | SHEET                                         |
| EXP    | EXPANSION                         | SIAD  | SMART INTEGRATED ACCESS DEVICE                |
| EXT    | EXTERIOR                          | SIM   | SIMILAR                                       |
| EW     | EACH WAY                          | SPEC  | SPECIFICATION                                 |
| FAB    | FABRICATION                       | SQ    | SQUARE                                        |
| FF     | FINISH FLOOR                      | SS    | STAINLESS STEEL                               |
| FG     | FINISH GRADE                      | STD   | STANDARD                                      |
| FIF    | FACILITY INTERFACE FRAME          | STL   | STEEL                                         |
| FIN    | FINISH(ED)                        | TEMP  | TEMPORARY                                     |
| FLR    | FLOOR                             | THK   | THICKNESS                                     |
| FDN    | FOUNDATION                        | TMA   | TOWER MOUNTED AMPLIFIER                       |
| FOC    | FACE OF CONCRETE                  | TN    | TOE NAIL                                      |
| FOM    | FACE OF MASONRY                   | TOA   | TOP OF ANTENNA                                |
| FOS    | FACE OF STUD                      | TOC   | TOP OF CURB                                   |
| FOW    | FACE OF WALL                      | TOF   | TOP OF FOUNDATION                             |
| FS     | FINISH SURFACE                    | TOP   | TOP OF PLATE (PARAPET)                        |
| FT     | FOOT                              | TOS   | TOP OF STEEL                                  |
| FTG    | FOOTING                           | TOW   | TOP OF WALL                                   |
| GA     | GAUGE                             | TVSS  | TRANSIENT VOLTAGE SURGE SUPPRESSION           |
| GEN    | GENERATOR                         | TYP   | TYPICAL                                       |
| GFCI   | GROUND FAULT CIRCUIT INTERRUPTER  | UG    | UNDERGROUND                                   |
| GLB    | GLUE LAMINATED BEAM               | UL    | UNDERWRITERS LABORATORY                       |
| GLV    | GALVANIZED                        | UNO   | UNLESS NOTED OTHERWISE                        |
| GPS    | GLOBAL POSITIONING SYSTEM         | UMTS  | UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM    |
| GND    | GROUND                            | UPS   | UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT) |
| GSM    | GLOBAL SYSTEM FOR MOBILE          | VIF   | VERIFIED IN FIELD                             |
| HDG    | HOT DIPPED GALVANIZED             | W     | WIDE                                          |
| HDR    | HEADER                            | W/    | WITH                                          |
| HGR    | HANGER                            | WD    | WOOD                                          |
| HVAC   | HEAT/VENTILATION/AIR CONDITIONING | WP    | WEATHERPROOF                                  |
| HT     | HEIGHT                            | WT    | WEIGHT                                        |
| IGR    | INTERIOR GROUND RING              |       |                                               |

ABBREVIATIONS

SITE ACTIVITY REQUIREMENTS:

- NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
- THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO CONSTRUCTION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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RFDS REV #: 1

CONSTRUCTION  
DOCUMENTS

| SUBMITTALS |          |                         |
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| A          | 10/1/21  | ISSUED FOR REVIEW       |
| B          | 10/7/21  | ISSUED FOR REVIEW       |
| C          | 12/31/21 | ISSUED FOR REVIEW       |
| 0          | 5/24/22  | ISSUED FOR CONSTRUCTION |
| 1          | 01/03/23 | ISSUED FOR CONSTRUCTION |
|            |          |                         |

A&E PROJECT NUMBER  
156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00003C  
54 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

**GN-2**





GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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BOCA RATON, FL 33487



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A&amp;E PROJECT NUMBER

156305.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION

BOBOS00003C

154 SAYLE AVENUE  
PUTNAM, CT 06260

SHEET TITLE

## GENERAL NOTES

SHEET NUMBER

## GN-4

# Exhibit D

## **Structural Analysis Report**



**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 175 ft Nudd Corporation Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT00680-S**

**Customer Site Name: Putnam**

**Carrier Name: Dish Wireless (App#: 167052, V2)**

**Carrier Site ID / Name: BOBOS00003C / 0**

**Site Location: 154 Sayle Avenue**

**Putnam, Connecticut**

**Windham County**

**Latitude: 41.929449**

**Longitude: -71.886272**



**Analysis Result:**

**Max Structural Usage: 91.1% [Pass]**

**Max Foundation Usage: 49.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Sital Shrestha**



**Tower Engineering Solutions**

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**Report Prepared By: Sital Shrestha**



## **Introduction**

The purpose of this report is to summarize the analysis results on the 175 ft Nudd Corporation 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>        | Fred A. Nudd, Drawing #98-6220-1 dated 11/12/98                                                                                                                                                                                                  |
| <b>Foundation Drawing</b>    | Fred A. Nudd, Drawing #98-6220-2 dated 11/12/98                                                                                                                                                                                                  |
| <b>Geotechnical Report</b>   | Jaworski Geotech, Project #C98291G dated 8/4/98                                                                                                                                                                                                  |
| <b>Modification Drawings</b> | o2wirelss Solutions, Job #2230-019 dated 5/30/02<br>FDH, Project #12-01602E S2 dated 4/30/12<br>Modification Inspection Report by TES, Project #19063 dated 02/23/2016<br>Modification Inspection Report by TES, Project #69075 dated 03/28/2019 |

## **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> | 125.0 mph (3-Sec. Gust) (Ultimate wind speed)               |
| <b>Wind Speed with Ice:</b>             | 50 mph (3-Sec. Gust) with 1" 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>               | B                                                           |
| <b>Risk Category:</b>                   | II                                                          |
| <b>Topographic Category:</b>            | 1                                                           |
| <b>Crest Height:</b>                    | 0 ft                                                        |
| <b>Seismic Parameters:</b>              | $S_S = 0.184$ , $S_1 = 0.055$                               |

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

## Existing Antennas, Mounts and Transmission Lines

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

| Items | Elevation (ft) | Qty. | Antenna Descriptions                     | Mount Type & Qty.                                                                                                                                                                                  | Transmission Lines                                                | Owner            |
|-------|----------------|------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------|
| 1     | 191.5          | 6    | EMS - DR65-18-02DPL2Q - Panel            | (3) 24' x 4.5 Pipe Mounts                                                                                                                                                                          | (12) 1 5/8"                                                       | T-Mobile         |
| 2     | 188.5          | 6    | Andrew - E15S09P9402 - TMA/TTA           |                                                                                                                                                                                                    |                                                                   |                  |
| 3     | 175.0          | 3    | Commscope NNVV-65B-R4 - Panel            | (3) T-Arms w/<br>(1) SitePro PRK-1245L,<br>(1) SitePro PRK-SFS-L V-brace kit<br>(3) 2" PST x 12.5' support rails,<br>(3) 2" PST x 4' corner braces<br>(6) Puck Brackets and<br>(12) 2.0" Pipe Mast | (4) 1 1/4" Fiber                                                  | Sprint<br>Nextel |
| 4     |                | 3    | RFS APXVTM14-C-I20 - Panel               |                                                                                                                                                                                                    |                                                                   |                  |
| 5     |                | 3    | ALU 1900 Mhz - RRUs                      |                                                                                                                                                                                                    |                                                                   |                  |
| 6     |                | 6    | ALU 800 Mhz - RRUs                       |                                                                                                                                                                                                    |                                                                   |                  |
| 7     |                | 3    | ALU TD-RRH8x20-25 - RRUs                 |                                                                                                                                                                                                    |                                                                   |                  |
| 12    | 148.0          | 3    | Amphenol - BXA-80080/4CF - Panel         | Low Profile Platform                                                                                                                                                                               | (11) 1 5/8"<br>(2) 1 5/8" Hybrid                                  | Verizon          |
| 13    |                | 6    | Commscope - SBNHH-1D65B - Panel          |                                                                                                                                                                                                    |                                                                   |                  |
| 14    |                | 3    | Amphenol - BXA-70063-6CF-EDIN-X Panel    |                                                                                                                                                                                                    |                                                                   |                  |
| 15    |                | 6    | RFS - FD9R6004-2C-3L - Diplexer          |                                                                                                                                                                                                    |                                                                   |                  |
| 16    |                | 3    | ALU - RRH2X60-AWS - RRU                  |                                                                                                                                                                                                    |                                                                   |                  |
| 17    |                | 3    | ALU - RRH2X60-PCS - RRU                  |                                                                                                                                                                                                    |                                                                   |                  |
| 18    |                | 3    | ALU - RRH2X60-700 - RRU                  |                                                                                                                                                                                                    |                                                                   |                  |
| 19    |                | 2    | RFS - DB-T1-6Z-8AB-0Z - Distribution Box |                                                                                                                                                                                                    |                                                                   |                  |
| 20    | 137.5          | 3    | Kathrein 800 10966 Panel                 | Platform w/ Handrails                                                                                                                                                                              | (12) 1 5/8"<br>(6) 3/4" DC**<br>(2) 7/16" Fiber**<br>(3) 3/8" RET | AT&T             |
| 21    |                | 3    | Cci TPA-65R-LCUUUU-H8 Panel              |                                                                                                                                                                                                    |                                                                   |                  |
| 22    |                | 3    | KMW AM-X-CD-17-65-00T-RET Panel          |                                                                                                                                                                                                    |                                                                   |                  |
| 23    |                | 3    | Powerwave 7770 Panel                     |                                                                                                                                                                                                    |                                                                   |                  |
| 24    |                | 6    | Powerwave LGP21401 TMA                   |                                                                                                                                                                                                    |                                                                   |                  |
| 25    |                | 3    | Ericsson 4426 B66 RRU                    |                                                                                                                                                                                                    |                                                                   |                  |
| 26    |                | 3    | Ericsson 4478 B5 RRU                     |                                                                                                                                                                                                    |                                                                   |                  |
| 27    |                | 3    | Ericsson RRUS 11 RRU                     |                                                                                                                                                                                                    |                                                                   |                  |
| 28    |                | 6    | Ericsson RRUS 32 RRU                     |                                                                                                                                                                                                    |                                                                   |                  |
| 29    |                | 3    | Ericsson RRUS 4478 B14 RRU               |                                                                                                                                                                                                    |                                                                   |                  |
| 30    |                | 6    | Kaelus dbc0061F1V51-2 Diplexer           |                                                                                                                                                                                                    |                                                                   |                  |
| 31    |                | 1    | Raycap dc6-48-60-18-8c                   |                                                                                                                                                                                                    |                                                                   |                  |
| 32    |                | 1    | Raycap DC6-48-60-18-8F                   |                                                                                                                                                                                                    |                                                                   |                  |
| 33    |                | 1    | Raycap DC6-48-60-0-8C-EV                 |                                                                                                                                                                                                    |                                                                   |                  |
| 34    | 54.0           | 1    | Generic - GPS - Panel                    | (1) Standoff                                                                                                                                                                                       | (1) 1/2"                                                          | Sprint           |
| 35    | 12.0           | 1    | Nokia CS72188.01 LMU GPS                 | Direct                                                                                                                                                                                             | (1) 1/2"                                                          | AT&T             |

\*\*Existing (2) 3/4" DC and (1) 7/16" Fiber lines are routed in (1) 3" Flex Conduit.

## **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     | 165.0          | 3    | JMA Wireless MX08FRO665-21 - Panel | Platform w/ HRK<br>[Commscope MC-PK8-DSH] | (1) 1.6" Hybrid    | Dish<br>Wireless |
| 9     |                | 3    | Fujitsu TA08025-B605 - RRU         |                                           |                    |                  |
| 10    |                | 3    | Fujitsu TA08025-B604 - RRU         |                                           |                    |                  |
| 11    |                | 1    | Raycap RDIDC-9181-PF-48 - OVP      |                                           |                    |                  |

The proposed transmission lines can be installed inside or outside of the pole shafts. If installed outside, the lines shall be strapped tightly to the face of the pole shafts. 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>91.1%</b> | <b>90.4%</b> | <b>90.1%</b> |
| Pass/Fail   | <b>Pass</b>  | <b>Pass</b>  | <b>Pass</b>  |

## **Foundations**

|                    | Moment (Kip-Ft) | Shear (Kips) | Axial (Kips) |
|--------------------|-----------------|--------------|--------------|
| Analysis Reactions | 5245.6          | 40.9         | 58.6         |

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 1.6029 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 90.27% at 125.0ft

**Structure:** CT00680-S-SBA  
**Site Name:** Putnam  
**Height:** 175.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-H  
**Exposure:** B  
**Gh:** 1.1

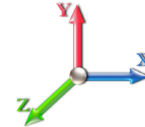
1/9/2023

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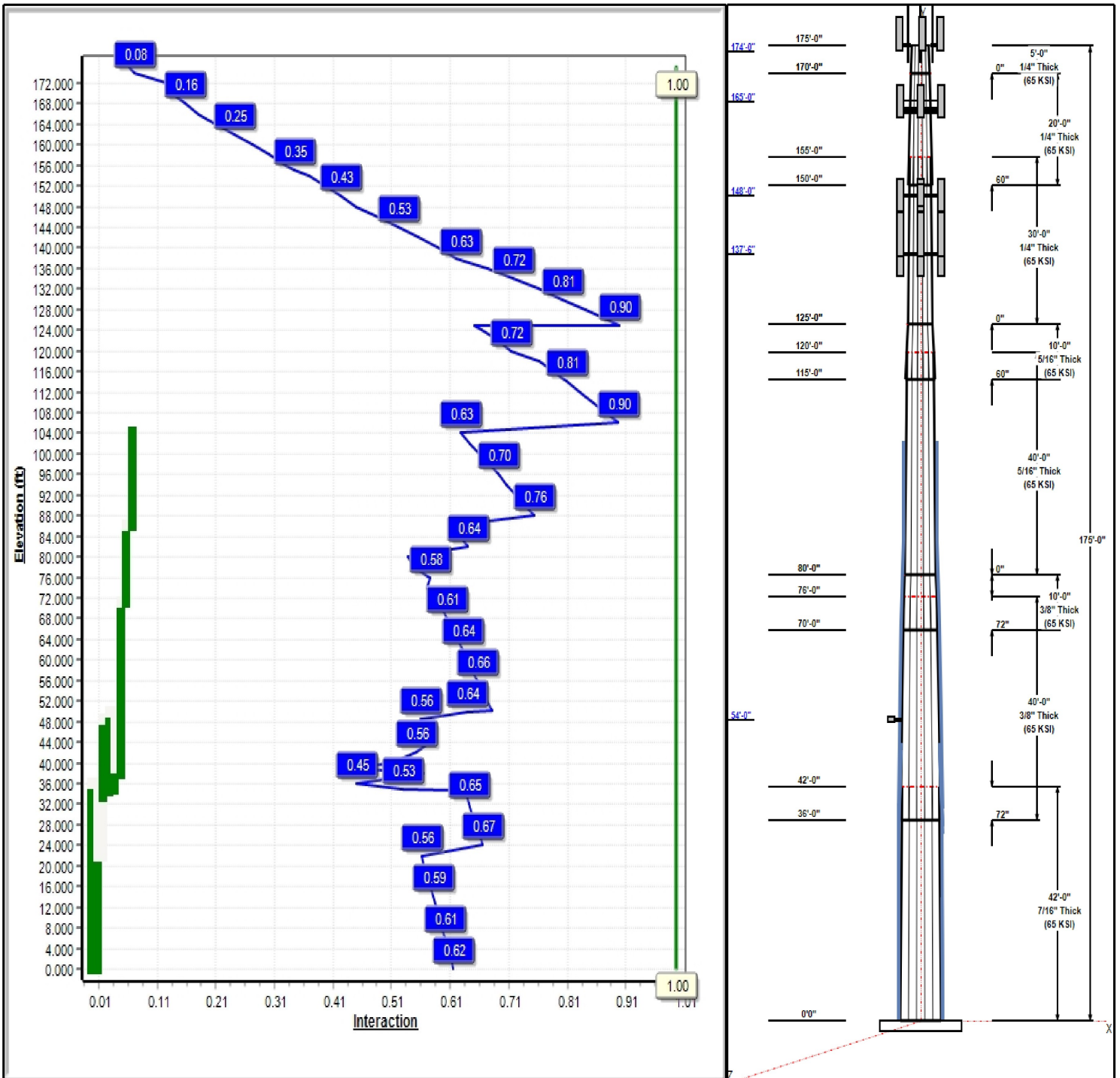
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.00

**Load Case : 1.2D + 1.0W 125 mph Wind**



**Iterations:** 28

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# Structure: CT00680-S-SBA

**Type:** Custom  
**Site Name:** Putnam  
**Height:** 175.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 12 Sided  
**Taper:** 0.19338

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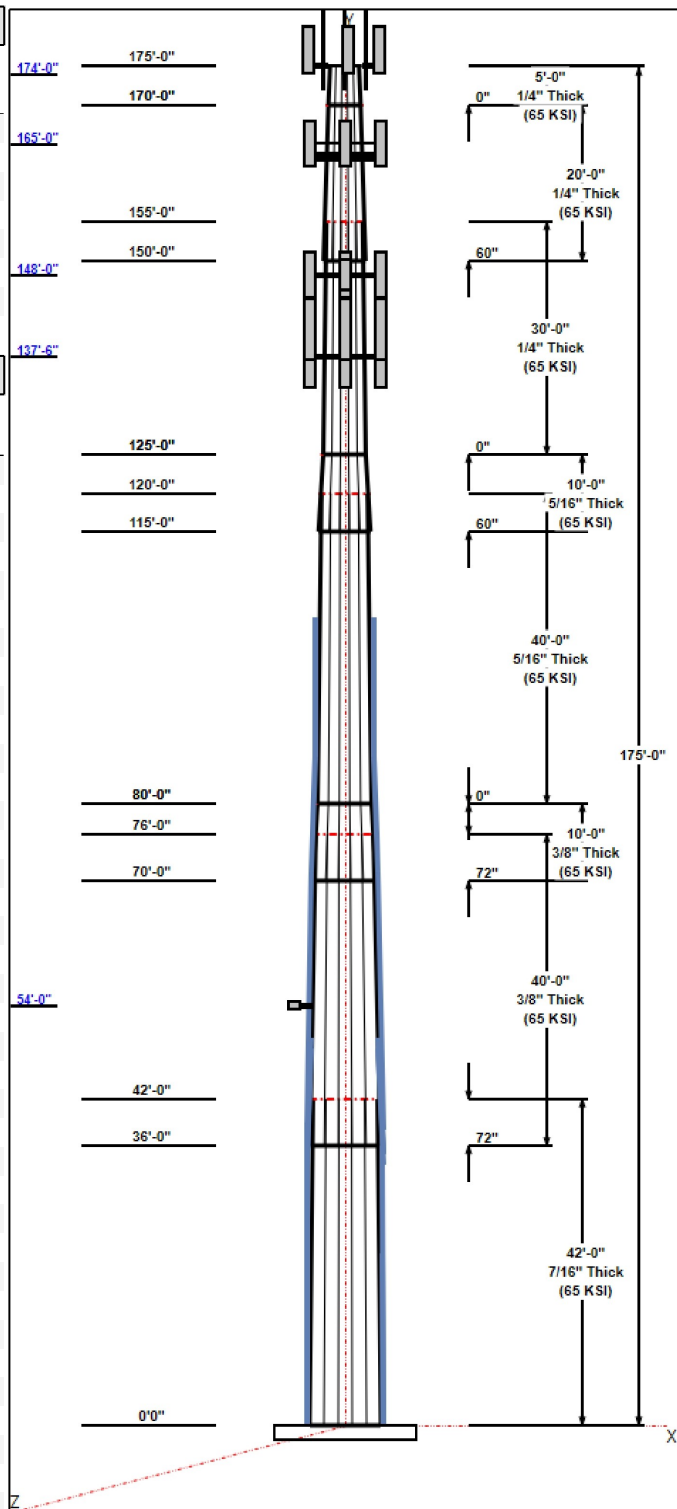


## Shaft Properties

| Seq | Length (ft) | Top (in) | Bottom (in) | Thick (in) | Joint Type | Taper   | Grade (ksi) |
|-----|-------------|----------|-------------|------------|------------|---------|-------------|
| 1   | 42.00       | 45.88    | 54.00       | 0.438      |            | 0.19338 | 65          |
| 2   | 40.00       | 40.05    | 47.79       | 0.375      | Slip       | 0.19338 | 65          |
| 3   | 10.00       | 40.03    | 41.96       | 0.375      | Slip       | 0.19338 | 65          |
| 4   | 40.00       | 32.29    | 40.03       | 0.313      | Butt       | 0.19338 | 65          |
| 5   | 10.00       | 31.95    | 33.89       | 0.313      | Slip       | 0.19338 | 65          |
| 6   | 30.00       | 26.15    | 31.95       | 0.250      | Butt       | 0.19338 | 65          |
| 7   | 20.00       | 23.75    | 27.62       | 0.250      | Slip       | 0.19338 | 65          |
| 8   | 5.00        | 18.00    | 23.75       | 0.250      | Butt       | 1.15000 | 65          |

## Discrete Appurtenances

| Attach Elev (ft) | Force Elev (ft) | Qty | Description           | Carrier       |
|------------------|-----------------|-----|-----------------------|---------------|
| 175.00           | 175.00          | 1   | PRK-SFS-L             | Sprint Nextel |
| 175.00           | 175.00          | 1   | Handrail              | Sprint Nextel |
| 175.00           | 175.00          | 1   | PRK-1245L             | Sprint Nextel |
| 175.00           | 177.00          | 3   | APXVTM14-C-I20        | Sprint Nextel |
| 175.00           | 177.00          | 3   | NNVV-65B-R4           | Sprint Nextel |
| 175.00           | 175.00          | 12  | Pipes                 | Sprint Nextel |
| 175.00           | 191.50          | 6   | DR65-18-02DPL2Q       | T-Mobile      |
| 175.00           | 188.50          | 6   | E15S09P94             | T-Mobile      |
| 175.00           | 175.00          | 3   | T-Arms                | Sprint Nextel |
| 175.00           | 177.00          | 3   | 1900MHz               | Sprint Nextel |
| 175.00           | 177.00          | 6   | 800 MHz               | Sprint Nextel |
| 175.00           | 177.00          | 3   | TD-RRH8x20-25         | Sprint Nextel |
| 174.00           | 184.00          | 3   | 4.5" x 24 FT Pipe     | T-Mobile      |
| 165.00           | 165.00          | 3   | MX08FRO665-21         | Dish Wireless |
| 165.00           | 165.00          | 1   | MC-PK8-DSH            | Dish Wireless |
| 165.00           | 165.00          | 3   | TA08025-B604          | Dish Wireless |
| 165.00           | 165.00          | 3   | TA08025-B605          | Dish Wireless |
| 165.00           | 165.00          | 1   | Raycap                | Dish Wireless |
| 148.00           | 148.00          | 3   | BXA-70063-6CF-EDIN-X  | Verizon       |
| 148.00           | 148.00          | 3   | BXA-80080-4CF         | Verizon       |
| 148.00           | 148.00          | 6   | SBNHH-1D65B           | Verizon       |
| 148.00           | 148.00          | 6   | FD9R6004/2C-3L        | Verizon       |
| 148.00           | 148.00          | 2   | DB-T1-6Z-8AB-0Z       | Verizon       |
| 148.00           | 145.00          | 3   | RRH2X60-AWS           | Verizon       |
| 148.00           | 145.00          | 3   | RRH2X60-PCS           | Verizon       |
| 148.00           | 145.00          | 3   | RRH2X60-700           | Verizon       |
| 148.00           | 148.00          | 3   | T-Arms                | Verizon       |
| 137.50           | 141.00          | 3   | 7770.00               | AT&T          |
| 137.50           | 141.00          | 3   | AM-X-CD-17-65-00T-RET | AT&T          |
| 137.50           | 137.50          | 3   | 800 10966             | AT&T          |
| 137.50           | 137.50          | 3   | 4426 B66              | AT&T          |
| 137.50           | 137.50          | 3   | RRUS 11               | AT&T          |
| 137.50           | 137.50          | 6   | RRUS 32               | AT&T          |
| 137.50           | 137.50          | 3   | RRUS 4478 B14         | AT&T          |
| 137.50           | 137.50          | 6   | dbc0061F1V51-2        | AT&T          |
| 137.50           | 137.50          | 1   | dc6-48-60-18-8c       | AT&T          |
| 137.50           | 137.50          | 1   | DC6-48-60-18-8F       | AT&T          |
| 137.50           | 137.50          | 1   | DC6-48-60-0-8C-EV     | AT&T          |
| 137.50           | 141.00          | 6   | LGP21401              | AT&T          |
| 137.50           | 141.00          | 3   | TPA-65R-LCUUUU-H8     | AT&T          |
| 137.50           | 141.00          | 3   | RRUS 4478 B5          | AT&T          |



## Structure: CT00680-S-SBA

**Type:** Custom  
**Site Name:** Putnam  
**Height:** 175.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 12 Sided  
**Taper:** 1.15000

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|        |        |   |                       |        |
|--------|--------|---|-----------------------|--------|
| 137.50 | 137.50 | 1 | Platform w/ Hand Rail | AT&T   |
| 54.00  | 54.00  | 1 | GPS                   | Sprint |
| 54.00  | 54.00  | 1 | Standoff              | Sprint |
| 12.00  | 12.00  | 1 | CS72188.01 LMU        | AT&T   |

### Linear Appurtenances

| Elev From (ft) | Elev To (ft) | Placement | Description   | Carrier       |
|----------------|--------------|-----------|---------------|---------------|
| 0.00           | 192.00       | Inside    | 1 5/8" Coax   | T-Mobile      |
| 0.00           | 177.00       | Inside    | 1-1/4" Fiber  | Sprint Nextel |
| 0.00           | 165.00       | Outside   | 1.6" Hybrid   | Dish Wireless |
| 0.00           | 147.00       | Inside    | 1 5/8" Coax   | Verizon       |
| 0.00           | 147.00       | Inside    | 1 5/8" Hybrid | Verizon       |
| 0.00           | 137.50       | Inside    | 1 5/8" Coax   | AT&T          |
| 0.00           | 137.50       | Inside    | 3" Conduit    | AT&T          |
| 0.00           | 137.50       | Inside    | 3/4" DC       | AT&T          |
| 0.00           | 137.50       | Inside    | 3/8" RET      | AT&T          |
| 0.00           | 137.50       | Inside    | 7/16" Fiber   | AT&T          |
| 0.00           | 105.00       | Outside   | 3" Chanel     |               |
| 0.00           | 54.00        | Inside    | 1/2" Coax     | Sprint        |
| 0.00           | 12.00        | Inside    | 1/2" Coax     | AT&T          |

### Anchor Bolts

| Qty | Specifications | Grade (ksi) | Arrangement |
|-----|----------------|-------------|-------------|
| 18  | 2.00" A687     | 105.0       | Radial      |

### Base Plate

| Thickness (in) | Specifications (in) | Grade (ksi) | Geometry |
|----------------|---------------------|-------------|----------|
| 1.5000         | 67.0                | 50.0        | Round    |

### Reactions

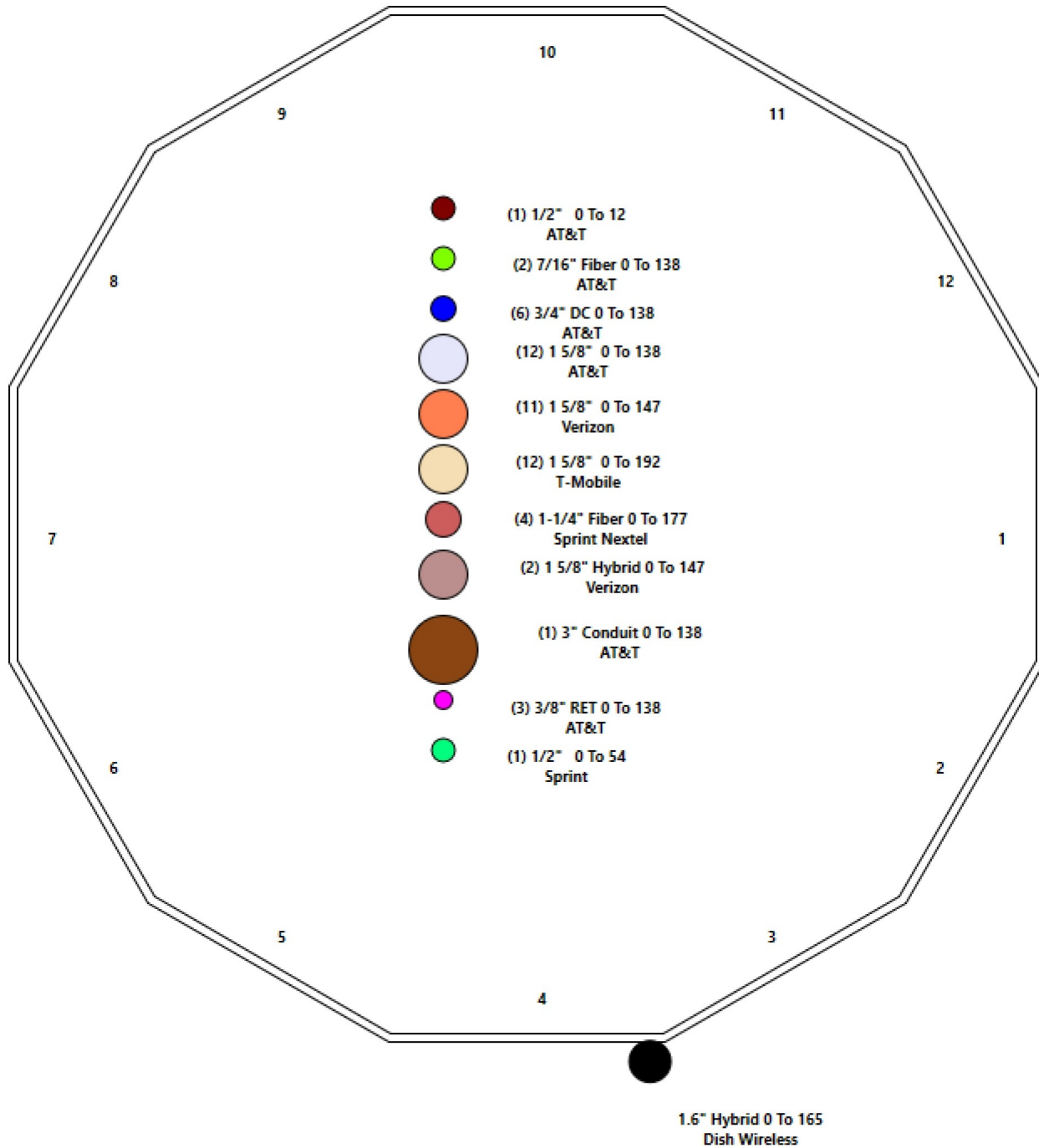
| Load Case                        | Moment (FT-Kips) | Shear (Kips) | Axial (Kips) |
|----------------------------------|------------------|--------------|--------------|
| 1.2D + 1.0W 125 mph Wind         | 5245.6           | 40.9         | 58.6         |
| 0.9D + 1.0W 125 mph Wind         | 5182.1           | 40.9         | 43.9         |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 1171.2           | 8.8          | 77.7         |
| 1.2D + 1.0Ev + 1.0Eh             | 102.4            | 0.6          | 60.6         |
| 0.9D + 1.0Ev + 1.0Eh             | 101.4            | 0.6          | 45.9         |
| 1.0D + 1.0W 60 mph Wind          | 1074.4           | 8.4          | 48.9         |

## Structure: CT00680-S-SBA - Coax Line Placement

**Type:** Monopole  
**Site Name:** Putnam  
**Height:** 175.00 (ft)

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## Shaft Properties

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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                          | 12    | 42.000      | 0.4375     | 65       |            | 0.00         | 9,966         |
| 2                          | 12    | 40.000      | 0.3750     | 65       | Slip       | 72.00        | 7,157         |
| 3                          | 12    | 10.000      | 0.3750     | 65       | Slip       | 72.00        | 1,669         |
| 4                          | 12    | 40.000      | 0.3125     | 65       | Flange     | 0.00         | 4,910         |
| 5                          | 12    | 10.000      | 0.3125     | 65       | Slip       | 60.00        | 1,116         |
| 6                          | 12    | 30.000      | 0.2500     | 65       | Flange     | 0.00         | 2,367         |
| 7                          | 12    | 20.000      | 0.2500     | 65       | Slip       | 60.00        | 1,393         |
| 8                          | 12    | 5.000       | 0.2500     | 65       | Flange     | 0.00         | 282           |
| <b>Total Shaft Weight:</b> |       |             |            |          |            |              | <b>28,861</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        | 54.00    | 0.00      | 75.46       | 27631.37  | 30.93     | 123.43    | 45.88    | 42.00     | 64.01       | 16871.2   | 25.95     | 104.8     | 0.193382 |
| 2        | 47.79    | 36.00     | 57.25       | 16427.51  | 32.00     | 127.44    | 40.05    | 76.00     | 47.91       | 9627.65   | 26.48     | 106.8     | 0.193382 |
| 3        | 41.96    | 70.00     | 50.22       | 11086.25  | 27.84     | 111.90    | 40.03    | 80.00     | 47.88       | 9610.54   | 26.46     | 106.7     | 0.193382 |
| 4        | 40.03    | 80.00     | 39.97       | 8046.71   | 32.18     | 128.09    | 32.29    | 120.00    | 32.18       | 4201.39   | 25.55     | 103.3     | 0.193382 |
| 5        | 33.89    | 115.0     | 33.78       | 4860.52   | 26.91     | 108.44    | 31.95    | 125.00    | 31.84       | 4068.08   | 25.25     | 102.2     | 0.193382 |
| 6        | 31.95    | 125.0     | 25.52       | 3273.79   | 32.10     | 127.81    | 26.15    | 155.00    | 20.85       | 1785.33   | 25.88     | 104.6     | 0.193382 |
| 7        | 27.62    | 150.0     | 22.03       | 2106.17   | 27.46     | 110.47    | 23.75    | 170.00    | 18.92       | 1333.48   | 23.31     | 95.00     | 0.193382 |
| 8        | 23.75    | 170.0     | 18.92       | 1333.48   | 23.31     | 95.00     | 18.00    | 175.00    | 14.29       | 574.61    | 17.15     | 72.00     | 1.150000 |

### Additional Steel

|                |              |     |                         |          |          |             | Intermediate Connectors |              | Termination Connectors |              |           |           |
|----------------|--------------|-----|-------------------------|----------|----------|-------------|-------------------------|--------------|------------------------|--------------|-----------|-----------|
| Elev From (ft) | Elev To (ft) | Qty | Description             | Fy (ksi) | Fu (ksi) | Offset (in) | Description             | Spacing (in) | Description            | Spacing (in) | Lower Qty | Upper Qty |
| 0.00           | 36.00        | 3   | PLT C10x30(1.5" Hole)   | 65       | 80       | 0.00        | AJM20&sleeve            | 0.00         | AJM20&sleeve           | 3.00         |           |           |
| 0.00           | 22.00        | 3   | PLT C10x30(1.5" Hole)   | 65       | 80       | 0.00        | AJM20&sleeve            | 24.00        | AJM20&sleeve           | 3.00         |           |           |
| 33.50          | 48.50        | 1   | LNP LP6X100-G-20TT      | 65       | 80       | 0.00        | 5/8" Hollo Bolt         | 24.00        | 5/8" Hollo Bolt        | 3.00         | 10        | 10        |
| 34.75          | 49.75        | 2   | LNP LP6X100-G-20TT      | 65       | 80       | 0.00        | 5/8" Hollo Bolt         | 24.00        | 5/8" Hollo Bolt        | 3.00         | 10        | 10        |
| 35.00          | 39.00        | 3   | LNP LP6X100-G-10TT      | 65       | 80       | 0.00        | 5/8" Hollo Bolt         | 24.00        | 5/8" Hollo Bolt        | 3.00         | 11        | 11        |
| 38.00          | 71.25        | 3   | PLT C10x30(1.5" Hole)   | 65       | 80       | 0.00        | AJM20&sleeve            | 24.00        | AJM20&sleeve           | 3.00         |           |           |
| 71.25          | 86.00        | 3   | PLT C10x30(1.5" Hole)   | 65       | 80       | 0.00        | AJM20&sleeve            | 24.00        | AJM20&sleeve           | 3.00         |           |           |
| 86.00          | 104.0        | 3   | PLT C10x15.3(1.5" Hole) | 65       | 80       | 0.00        | AJM20&sleeve            | 24.00        | AJM20&sleeve           | 3.00         |           |           |



## Load Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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: 6                 |



### 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 |                      |                     |
| 1              | 175.00       | PRK-SFS-L                     | 1          | 230.00           | 7.70         | 1.00           | 447.41           | 13.159       | 1.00           | 0.00                 | 0.00                |
| 2              | 175.00       | Handrail                      | 1          | 415.06           | 6.50         | 1.00           | 689.69           | 12.030       | 1.00           | 0.00                 | 0.00                |
| 3              | 175.00       | PRK-1245L                     | 1          | 464.91           | 9.50         | 1.00           | 684.64           | 16.235       | 1.00           | 0.00                 | 0.00                |
| 4              | 175.00       | APXVTM14-C-I20                | 3          | 56.20            | 6.34         | 0.77           | 157.80           | 7.078        | 0.77           | 0.00                 | 2.00                |
| 5              | 175.00       | NNVV-65B-R4                   | 3          | 77.40            | 12.27        | 0.74           | 270.73           | 13.256       | 0.74           | 0.00                 | 2.00                |
| 6              | 175.00       | Pipes                         | 12         | 33.00            | 1.80         | 0.75           | 67.31            | 3.323        | 0.75           | 0.00                 | 0.00                |
| 7              | 175.00       | DR65-18-02DPL2Q               | 6          | 24.00            | 5.81         | 0.67           | 106.94           | 6.506        | 0.67           | 0.00                 | 16.50               |
| 8              | 175.00       | E15S09P94                     | 6          | 14.60            | 0.66         | 0.50           | 26.28            | 1.069        | 0.50           | 0.00                 | 13.50               |
| 9              | 175.00       | T-Arms                        | 3          | 242.00           | 11.00        | 0.75           | 381.42           | 20.331       | 0.75           | 0.00                 | 0.00                |
| 10             | 175.00       | 1900MHz                       | 3          | 60.00            | 2.77         | 0.50           | 116.49           | 3.629        | 0.50           | 0.00                 | 2.00                |
| 11             | 175.00       | 800 MHz                       | 6          | 53.00            | 2.49         | 0.50           | 103.07           | 3.264        | 0.50           | 0.00                 | 2.00                |
| 12             | 175.00       | TD-RRH8x20-25                 | 3          | 70.00            | 4.05         | 0.50           | 139.84           | 4.586        | 0.50           | 0.00                 | 2.00                |
| 13             | 174.00       | 4.5" x 24 FT Pipe             | 3          | 259.20           | 13.50        | 1.00           | 428.52           | 18.224       | 1.00           | 0.00                 | 10.00               |
| 14             | 165.00       | MX08FRO665-21                 | 3          | 64.50            | 12.49        | 0.74           | 260.27           | 13.476       | 0.74           | 0.00                 | 0.00                |
| 15             | 165.00       | MC-PK8-DSH                    | 1          | 1727.00          | 35.00        | 1.00           | 2863.00          | 64.600       | 1.00           | 0.00                 | 0.00                |
| 16             | 165.00       | TA08025-B604                  | 3          | 63.90            | 1.96         | 0.50           | 97.98            | 2.338        | 0.50           | 0.00                 | 0.00                |
| 17             | 165.00       | TA08025-B605                  | 3          | 75.00            | 1.96         | 0.50           | 110.20           | 2.338        | 0.50           | 0.00                 | 0.00                |
| 18             | 165.00       | Raycap RDIDC-9181-PF-48       | 1          | 21.90            | 2.01         | 0.50           | 57.74            | 2.393        | 0.50           | 0.00                 | 0.00                |
| 19             | 148.00       | BXA-70063-6CF-EDIN-X          | 3          | 17.00            | 7.57         | 0.73           | 115.73           | 9.410        | 0.73           | 0.00                 | 0.00                |
| 20             | 148.00       | BXA-80080-4CF                 | 3          | 12.00            | 3.56         | 0.87           | 70.74            | 4.786        | 0.87           | 0.00                 | 0.00                |
| 21             | 148.00       | SBNHH-1D65B                   | 6          | 50.71            | 8.08         | 0.83           | 176.43           | 8.919        | 0.83           | 0.00                 | 0.00                |
| 22             | 148.00       | FD9R6004/2C-3L                | 6          | 3.10             | 0.36         | 0.50           | 8.44             | 0.655        | 0.50           | 0.00                 | 0.00                |
| 23             | 148.00       | DB-T1-6Z-8AB-OZ               | 2          | 44.00            | 4.80         | 0.50           | 134.08           | 5.369        | 0.50           | 0.00                 | 0.00                |
| 24             | 148.00       | RRH2X60-AWS                   | 3          | 60.00            | 3.50         | 0.50           | 118.11           | 4.025        | 0.50           | 0.00                 | -3.00               |
| 25             | 148.00       | RRH2X60-PCS                   | 3          | 55.00            | 2.20         | 0.50           | 106.95           | 2.610        | 0.50           | 0.00                 | -3.00               |
| 26             | 148.00       | RRH2X60-700                   | 3          | 60.00            | 3.50         | 0.50           | 118.11           | 4.025        | 0.50           | 0.00                 | -3.00               |
| 27             | 148.00       | T-Arms                        | 3          | 242.00           | 11.00        | 0.75           | 379.11           | 20.176       | 0.75           | 0.00                 | 0.00                |
| 28             | 137.50       | 7770.00                       | 3          | 35.00            | 5.50         | 0.73           | 117.54           | 6.189        | 0.73           | 0.00                 | 3.50                |
| 29             | 137.50       | AM-X-CD-17-65-00T-RET         | 3          | 59.50            | 11.31        | 0.75           | 202.49           | 14.112       | 0.75           | 0.00                 | 3.50                |
| 30             | 137.50       | 800 10966                     | 3          | 115.00           | 17.36        | 0.72           | 339.96           | 18.537       | 0.72           | 0.00                 | 0.00                |
| 31             | 137.50       | 4426 B66                      | 3          | 53.00            | 1.15         | 0.50           | 103.44           | 3.209        | 0.50           | 0.00                 | 0.00                |
| 32             | 137.50       | RRUS 11                       | 3          | 50.70            | 2.52         | 0.50           | 105.24           | 2.938        | 0.50           | 0.00                 | 0.00                |
| 33             | 137.50       | RRUS 32                       | 6          | 77.00            | 1.65         | 0.50           | 105.55           | 2.021        | 0.50           | 0.00                 | 0.00                |
| 34             | 137.50       | RRUS 4478 B14                 | 3          | 59.40            | 1.65         | 0.50           | 86.80            | 1.993        | 0.50           | 0.00                 | 0.00                |
| 35             | 137.50       | dbc0061F1V51-2                | 6          | 25.40            | 0.43         | 0.50           | 35.01            | 0.619        | 0.50           | 0.00                 | 0.00                |
| 36             | 137.50       | dc6-48-60-18-8c               | 1          | 20.00            | 1.26         | 0.50           | 54.87            | 1.696        | 0.50           | 0.00                 | 0.00                |
| 37             | 137.50       | DC6-48-60-18-8F               | 1          | 32.80            | 0.92         | 0.50           | 74.94            | 1.210        | 0.50           | 0.00                 | 0.00                |
| 38             | 137.50       | DC6-48-60-0-8C-EV             | 1          | 16.00            | 4.78         | 0.50           | 97.77            | 5.364        | 0.50           | 0.00                 | 0.00                |
| 39             | 137.50       | LGP21401                      | 6          | 17.50            | 1.29         | 0.50           | 38.01            | 1.842        | 0.50           | 0.00                 | 3.50                |
| 40             | 137.50       | TPA-65R-LCUUUU-H8             | 3          | 75.00            | 13.30        | 0.83           | 270.24           | 14.364       | 0.83           | 0.00                 | 3.50                |
| 41             | 137.50       | RRUS 4478 B5                  | 3          | 60.00            | 1.84         | 0.50           | 92.36            | 2.203        | 0.50           | 0.00                 | 3.50                |
| 42             | 137.50       | Platform w/ Hand Rail (round) | 1          | 1600.00          | 32.00        | 1.00           | 2987.77          | 50.454       | 1.00           | 0.00                 | 0.00                |
| 43             | 54.00        | GPS                           | 1          | 10.00            | 1.00         | 1.00           | 27.65            | 1.429        | 1.00           | 0.00                 | 0.00                |
| 44             | 54.00        | Standoff                      | 1          | 40.00            | 2.63         | 1.00           | 88.32            | 6.223        | 1.00           | 0.00                 | 0.00                |
| 45             | 12.00        | CS72188.01 LMU                | 1          | 1.00             | 0.14         | 1.00           | 5.03             | 0.251        | 1.00           | 0.00                 | 0.00                |
| <b>Totals:</b> |              |                               | <b>143</b> | <b>12,419.93</b> |              |                | <b>25,323.40</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                    | 192.00               | (12) 1 5/8" Coax  | 0.00             | Inside  |
| 0.00                    | 177.00               | (4) 1-1/4" Fiber  | 0.00             | Inside  |
| 0.00                    | 165.00               | (1) 1.6" Hybrid   | 0.00             | Outside |
| 0.00                    | 147.00               | (11) 1 5/8" Coax  | 0.00             | Inside  |
| 0.00                    | 147.00               | (2) 1 5/8" Hybrid | 0.00             | Inside  |
| 0.00                    | 137.50               | (12) 1 5/8" Coax  | 0.00             | Inside  |
| 0.00                    | 137.50               | (1) 3" Conduit    | 0.00             | Inside  |
| 0.00                    | 137.50               | (6) 3/4" DC       | 0.00             | Inside  |
| 0.00                    | 137.50               | (3) 3/8" RET      | 0.00             | Inside  |
| 0.00                    | 137.50               | (2) 7/16" Fiber   | 0.00             | Inside  |
| 0.00                    | 105.00               | (1) 3" Chanel     | 3.25             | Outside |
| 0.00                    | 54.00                | (1) 1/2" Coax     | 0.00             | Inside  |
| 0.00                    | 12.00                | (1) 1/2" Coax     | 0.00             | Inside  |

## Shaft Section Properties

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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**Increment Length:** 2 (ft)

| Elev<br>(ft) | Description         | Thick<br>(in) | Flat<br>Dia<br>(in) | Area<br>(in^2) | Ix<br>(in^4) | W/t<br>Ratio | D/t<br>Ratio | Fy<br>(ksi) | Fb<br>(ksi) | Weight<br>(lb) | Additional Reinforcing |               |               |                |
|--------------|---------------------|---------------|---------------------|----------------|--------------|--------------|--------------|-------------|-------------|----------------|------------------------|---------------|---------------|----------------|
|              |                     |               |                     |                |              |              |              |             |             |                | Area<br>(in^2)         | Ixp<br>(in^4) | Iyp<br>(in^4) | Weight<br>(lb) |
| 0.00         | RB1 RB2             | 0.4375        | 54.000              | 75.456         | 27631.4      | 30.93        | 123.43       | 65          | 71          | 0.0            | 52.92                  | 24301.7       | 17345.4       |                |
| 2.00         |                     | 0.4375        | 53.613              | 74.911         | 27037.1      | 30.69        | 122.54       | 65          | 71          | 511.7          | 52.92                  | 23968.5       | 17107.7       | 360.0          |
| 4.00         |                     | 0.4375        | 53.226              | 74.366         | 26451.4      | 30.46        | 121.66       | 65          | 71          | 508.0          | 52.92                  | 23637.7       | 16871.7       | 360.0          |
| 6.00         |                     | 0.4375        | 52.840              | 73.822         | 25874.3      | 30.22        | 120.78       | 65          | 72          | 504.3          | 52.92                  | 23309.1       | 16637.3       | 360.0          |
| 8.00         |                     | 0.4375        | 52.453              | 73.277         | 25305.6      | 29.98        | 119.89       | 65          | 72          | 500.5          | 52.92                  | 22982.8       | 16404.6       | 360.0          |
| 10.00        |                     | 0.4375        | 52.066              | 72.732         | 24745.3      | 29.74        | 119.01       | 65          | 72          | 496.8          | 52.92                  | 22658.9       | 16173.5       | 360.0          |
| 12.00        |                     | 0.4375        | 51.679              | 72.187         | 24193.3      | 29.51        | 118.12       | 65          | 73          | 493.1          | 52.92                  | 22337.2       | 15944.1       | 360.0          |
| 14.00        |                     | 0.4375        | 51.293              | 71.642         | 23649.6      | 29.27        | 117.24       | 65          | 73          | 489.4          | 52.92                  | 22017.9       | 15716.3       | 360.0          |
| 16.00        |                     | 0.4375        | 50.906              | 71.097         | 23114.2      | 29.03        | 116.36       | 65          | 73          | 485.7          | 52.92                  | 21700.9       | 15490.2       | 360.0          |
| 18.00        |                     | 0.4375        | 50.519              | 70.552         | 22586.8      | 28.80        | 115.47       | 65          | 73          | 482.0          | 52.92                  | 21386.1       | 15265.7       | 360.0          |
| 20.00        |                     | 0.4375        | 50.132              | 70.008         | 22067.5      | 28.56        | 114.59       | 65          | 74          | 478.3          | 52.92                  | 21073.7       | 15042.8       | 360.0          |
| 22.00        | RT2                 | 0.4375        | 49.746              | 69.463         | 21556.3      | 28.32        | 113.70       | 65          | 74          | 474.6          | 52.92                  | 20763.6       | 14821.6       | 360.0          |
| 24.00        |                     | 0.4375        | 49.359              | 68.918         | 21053.0      | 28.09        | 112.82       | 65          | 74          | 470.9          | 26.46                  | 8808.9        | 8808.9        | 180.0          |
| 26.00        |                     | 0.4375        | 48.972              | 68.373         | 20557.6      | 27.85        | 111.94       | 65          | 74          | 467.2          | 26.46                  | 8677.6        | 8677.6        | 180.0          |
| 28.00        |                     | 0.4375        | 48.585              | 67.828         | 20070.1      | 27.61        | 111.05       | 65          | 75          | 463.5          | 26.46                  | 8547.2        | 8547.2        | 180.0          |
| 30.00        |                     | 0.4375        | 48.199              | 67.283         | 19590.3      | 27.38        | 110.17       | 65          | 75          | 459.8          | 26.46                  | 8417.8        | 8417.8        | 180.0          |
| 32.00        |                     | 0.4375        | 47.812              | 66.738         | 19118.2      | 27.14        | 109.28       | 65          | 75          | 456.0          | 26.46                  | 8289.4        | 8289.4        | 180.0          |
| 33.50        | RB3                 | 0.4375        | 47.522              | 66.330         | 18769.2      | 26.96        | 108.62       | 65          | 75          | 339.6          | 32.46                  | 11373.8       | 8205.1        | 165.6          |
| 34.00        |                     | 0.4375        | 47.425              | 66.194         | 18653.8      | 26.90        | 108.40       | 65          | 75          | 112.7          | 32.46                  | 11329.0       | 8173.4        | 55.2           |
| 34.75        | RB4                 | 0.4375        | 47.280              | 65.989         | 18481.6      | 26.81        | 108.07       | 65          | 75          | 168.7          | 44.46                  | 13386.8       | 13386.8       | 113.4          |
| 35.00        | RB5                 | 0.4375        | 47.232              | 65.921         | 18424.4      | 26.78        | 107.96       | 65          | 76          | 56.1           | 62.46                  | 18622.4       | 18622.4       | 53.1           |
| 36.00        | Bot - Section 2 RT1 | 0.4375        | 47.038              | 65.649         | 18196.9      | 26.67        | 107.52       | 65          | 76          | 223.9          | 62.46                  | 18475.6       | 18475.6       | 212.5          |
| 38.00        | RB6                 | 0.4375        | 46.651              | 65.104         | 17747.6      | 26.43        | 106.63       | 65          | 76          | 833.0          | 62.46                  | 18751.9       | 18751.9       | 425.0          |
| 39.00        | RT5                 | 0.4375        | 46.458              | 64.832         | 17525.7      | 26.31        | 106.19       | 65          | 76          | 413.9          | 62.46                  | 18604.5       | 18604.5       | 212.5          |
| 40.00        |                     | 0.4375        | 46.265              | 64.559         | 17305.7      | 26.19        | 105.75       | 65          | 76          | 412.2          | 44.46                  | 13242.8       | 13242.8       | 151.2          |
| 42.00        | Top - Section 1     | 0.3750        | 46.628              | 55.850         | 15250.7      | 31.17        | 124.34       | 65          | 71          | 819.2          | 44.46                  | 13034.2       | 13034.2       | 302.5          |
| 44.00        |                     | 0.3750        | 46.241              | 55.383         | 14871.4      | 30.90        | 123.31       | 65          | 71          | 378.5          | 44.46                  | 12827.2       | 12827.2       | 302.5          |
| 46.00        |                     | 0.3750        | 45.854              | 54.916         | 14498.3      | 30.62        | 122.28       | 65          | 71          | 375.3          | 44.46                  | 12622.0       | 12622.0       | 302.5          |
| 48.00        |                     | 0.3750        | 45.468              | 54.449         | 14131.6      | 30.34        | 121.25       | 65          | 72          | 372.1          | 44.46                  | 12418.3       | 12418.3       | 302.5          |
| 48.50        | RT3                 | 0.3750        | 45.371              | 54.333         | 14040.9      | 30.28        | 120.99       | 65          | 72          | 92.5           | 44.46                  | 12367.7       | 12367.7       | 75.6           |
| 49.75        | RT4                 | 0.3750        | 45.129              | 54.041         | 13815.8      | 30.10        | 120.34       | 65          | 72          | 230.5          | 38.46                  | 12230.1       | 8714.6        | 163.5          |
| 50.00        |                     | 0.3750        | 45.081              | 53.982         | 13771.1      | 30.07        | 120.22       | 65          | 72          | 45.9           | 26.46                  | 7410.9        | 7410.9        | 22.5           |
| 52.00        |                     | 0.3750        | 44.694              | 53.515         | 13416.7      | 29.79        | 119.18       | 65          | 72          | 365.8          | 26.46                  | 7290.4        | 7290.4        | 180.0          |
| 54.00        |                     | 0.3750        | 44.307              | 53.048         | 13068.5      | 29.52        | 118.15       | 65          | 73          | 362.6          | 26.46                  | 7171.0        | 7171.0        | 180.0          |
| 56.00        |                     | 0.3750        | 43.921              | 52.581         | 12726.4      | 29.24        | 117.12       | 65          | 73          | 359.4          | 26.46                  | 7052.5        | 7052.5        | 180.0          |
| 58.00        |                     | 0.3750        | 43.534              | 52.114         | 12390.3      | 28.96        | 116.09       | 65          | 73          | 356.3          | 26.46                  | 6935.1        | 6935.1        | 180.0          |
| 60.00        |                     | 0.3750        | 43.147              | 51.647         | 12060.2      | 28.69        | 115.06       | 65          | 73          | 353.1          | 26.46                  | 6818.6        | 6818.6        | 180.0          |
| 62.00        |                     | 0.3750        | 42.760              | 51.180         | 11736.0      | 28.41        | 114.03       | 65          | 74          | 349.9          | 26.46                  | 6703.1        | 6703.1        | 180.0          |
| 64.00        |                     | 0.3750        | 42.374              | 50.713         | 11417.6      | 28.13        | 113.00       | 65          | 74          | 346.7          | 26.46                  | 6588.6        | 6588.6        | 180.0          |
| 66.00        |                     | 0.3750        | 41.987              | 50.246         | 11105.1      | 27.86        | 111.96       | 65          | 74          | 343.5          | 26.46                  | 6475.1        | 6475.1        | 180.0          |
| 68.00        |                     | 0.3750        | 41.600              | 49.779         | 10798.3      | 27.58        | 110.93       | 65          | 75          | 340.4          | 26.46                  | 6362.6        | 6362.6        | 180.0          |
| 70.00        | Bot - Section 3     | 0.3750        | 41.213              | 49.312         | 10497.2      | 27.30        | 109.90       | 65          | 75          | 337.2          | 26.46                  | 6251.1        | 6251.1        | 180.0          |
| 71.25        | RT6 RB7             | 0.3750        | 40.972              | 49.020         | 10311.9      | 27.13        | 109.26       | 65          | 75          | 422.1          | 52.92                  | 12795.7       | 12795.7       | 225.0          |
| 72.00        |                     | 0.3750        | 40.826              | 48.845         | 10201.8      | 27.03        | 108.87       | 65          | 75          | 252.1          | 26.46                  | 6355.8        | 6355.8        | 67.5           |
| 74.00        |                     | 0.3750        | 40.440              | 48.378         | 9911.9       | 26.75        | 107.84       | 65          | 76          | 667.8          | 26.46                  | 6244.3        | 6244.3        | 180.0          |
| 76.00        | Top - Section 2     | 0.3750        | 40.803              | 48.817         | 10184.0      | 27.01        | 108.81       | 65          | 75          | 661.5          | 26.46                  | 6133.9        | 6133.9        | 180.0          |
| 78.00        |                     | 0.3750        | 40.416              | 48.350         | 9894.5       | 26.74        | 107.78       | 65          | 76          | 330.6          | 26.46                  | 6024.4        | 6024.4        | 180.0          |
| 80.00        | Top - Section 3     | 0.3750        | 40.029              | 47.883         | 9610.5       | 26.46        | 106.75       | 65          | 76          | 327.5          | 26.46                  | 5915.9        | 5915.9        | 180.0          |
| 80.00        | Bot - Section 4     | 0.3125        | 40.029              | 39.965         | 8046.7       | 31.75        | 128.09       | 65          | 70          |                |                        |               |               |                |
| 82.00        |                     | 0.3125        | 39.643              | 39.576         | 7813.9       | 31.85        | 126.86       | 65          | 70          | 270.7          | 26.46                  | 5808.4        | 5808.4        | 180.0          |

Increment Length: 2 (ft)

| Elev<br>(ft) | Description     | Thick<br>(in) | Flat<br>Dia<br>(in) | Area<br>(in^2) | Ix<br>(in^4) | W/t<br>Ratio | D/t<br>Ratio | Fy<br>(ksi) | Fb<br>(ksi) | Weight<br>(lb) | Additional Reinforcing |               |               |                |
|--------------|-----------------|---------------|---------------------|----------------|--------------|--------------|--------------|-------------|-------------|----------------|------------------------|---------------|---------------|----------------|
|              |                 |               |                     |                |              |              |              |             |             |                | Area<br>(in^2)         | Ixp<br>(in^4) | Iyp<br>(in^4) | Weight<br>(lb) |
| 84.00        |                 | 0.3125        | 39.256              | 39.187         | 7585.7       | 31.52        | 125.62       | 65          | 70          | 268.0          | 26.46                  | 5701.9        | 5701.9        | 180.0          |
| 86.00        | RT7 RB8         | 0.3125        | 38.869              | 38.798         | 7361.9       | 31.18        | 124.38       | 65          | 71          | 265.4          | 39.93                  | 8621.0        | 8621.0        | 271.8          |
| 88.00        |                 | 0.3125        | 38.482              | 38.408         | 7142.6       | 30.85        | 123.14       | 65          | 71          | 262.7          | 13.47                  | 2969.8        | 2969.8        | 91.8           |
| 90.00        |                 | 0.3125        | 38.096              | 38.019         | 6927.6       | 30.52        | 121.91       | 65          | 71          | 260.1          | 13.47                  | 2915.4        | 2915.4        | 91.8           |
| 92.00        |                 | 0.3125        | 37.709              | 37.630         | 6717.0       | 30.19        | 120.67       | 65          | 72          | 257.4          | 13.47                  | 2861.5        | 2861.5        | 91.8           |
| 94.00        |                 | 0.3125        | 37.322              | 37.241         | 6510.8       | 29.86        | 119.43       | 65          | 72          | 254.8          | 13.47                  | 2808.1        | 2808.1        | 91.8           |
| 96.00        |                 | 0.3125        | 36.935              | 36.852         | 6308.8       | 29.53        | 118.19       | 65          | 73          | 252.1          | 13.47                  | 2755.2        | 2755.2        | 91.8           |
| 98.00        |                 | 0.3125        | 36.549              | 36.463         | 6111.0       | 29.19        | 116.96       | 65          | 73          | 249.5          | 13.47                  | 2702.8        | 2702.8        | 91.8           |
| 100.00       |                 | 0.3125        | 36.162              | 36.073         | 5917.4       | 28.86        | 115.72       | 65          | 73          | 246.8          | 13.47                  | 2650.9        | 2650.9        | 91.8           |
| 102.00       |                 | 0.3125        | 35.775              | 35.684         | 5728.0       | 28.53        | 114.48       | 65          | 74          | 244.2          | 13.47                  | 2599.6        | 2599.6        | 91.8           |
| 104.00       | RT8             | 0.3125        | 35.388              | 35.295         | 5542.6       | 28.20        | 113.24       | 65          | 74          | 241.5          | 13.47                  | 2548.7        | 2548.7        | 91.8           |
| 106.00       |                 | 0.3125        | 35.001              | 34.906         | 5361.3       | 27.87        | 112.00       | 65          | 74          | 238.9          |                        |               |               |                |
| 108.00       |                 | 0.3125        | 34.615              | 34.517         | 5183.9       | 27.54        | 110.77       | 65          | 75          | 236.2          |                        |               |               |                |
| 110.00       |                 | 0.3125        | 34.228              | 34.127         | 5010.5       | 27.20        | 109.53       | 65          | 75          | 233.6          |                        |               |               |                |
| 112.00       |                 | 0.3125        | 33.841              | 33.738         | 4841.1       | 26.87        | 108.29       | 65          | 75          | 230.9          |                        |               |               |                |
| 114.00       |                 | 0.3125        | 33.454              | 33.349         | 4675.5       | 26.54        | 107.05       | 65          | 76          | 228.3          |                        |               |               |                |
| 115.00       | Bot - Section 5 | 0.3125        | 33.261              | 33.154         | 4594.1       | 26.38        | 106.44       | 65          | 76          | 113.1          |                        |               |               |                |
| 116.00       |                 | 0.3125        | 33.068              | 32.960         | 4513.7       | 26.21        | 105.82       | 65          | 76          | 227.1          |                        |               |               |                |
| 118.00       |                 | 0.3125        | 32.681              | 32.571         | 4355.7       | 25.88        | 104.58       | 65          | 76          | 450.3          |                        |               |               |                |
| 120.00       | Top - Section 4 | 0.3125        | 32.919              | 32.810         | 4452.6       | 26.08        | 105.34       | 65          | 76          | 445.0          |                        |               |               |                |
| 122.00       |                 | 0.3125        | 32.532              | 32.421         | 4296.0       | 25.75        | 104.10       | 65          | 77          | 222.0          |                        |               |               |                |
| 124.00       |                 | 0.3125        | 32.146              | 32.032         | 4143.1       | 25.42        | 102.87       | 65          | 77          | 219.3          |                        |               |               |                |
| 125.00       | Top - Section 5 | 0.3125        | 31.952              | 31.837         | 4068.1       | 25.25        | 102.25       | 65          | 77          | 108.7          |                        |               |               |                |
| 125.00       | Bot - Section 6 | 0.2500        | 31.952              | 25.520         | 3273.8       | 31.57        | 127.81       | 65          | 70          |                |                        |               |               |                |
| 126.00       |                 | 0.2500        | 31.759              | 25.365         | 3214.2       | 31.90        | 127.04       | 65          | 70          | 86.6           |                        |               |               |                |
| 128.00       |                 | 0.2500        | 31.372              | 25.053         | 3097.3       | 31.48        | 125.49       | 65          | 70          | 171.6          |                        |               |               |                |
| 130.00       |                 | 0.2500        | 30.985              | 24.742         | 2983.3       | 31.07        | 123.94       | 65          | 71          | 169.4          |                        |               |               |                |
| 132.00       |                 | 0.2500        | 30.599              | 24.431         | 2872.1       | 30.65        | 122.39       | 65          | 71          | 167.3          |                        |               |               |                |
| 134.00       |                 | 0.2500        | 30.212              | 24.119         | 2763.7       | 30.24        | 120.85       | 65          | 72          | 165.2          |                        |               |               |                |
| 136.00       |                 | 0.2500        | 29.825              | 23.808         | 2658.0       | 29.82        | 119.30       | 65          | 72          | 163.1          |                        |               |               |                |
| 137.50       |                 | 0.2500        | 29.535              | 23.574         | 2580.6       | 29.51        | 118.14       | 65          | 73          | 120.9          |                        |               |               |                |
| 138.00       |                 | 0.2500        | 29.438              | 23.497         | 2555.1       | 29.41        | 117.75       | 65          | 73          | 40.0           |                        |               |               |                |
| 140.00       |                 | 0.2500        | 29.051              | 23.185         | 2454.9       | 28.99        | 116.21       | 65          | 73          | 158.8          |                        |               |               |                |
| 142.00       |                 | 0.2500        | 28.665              | 22.874         | 2357.3       | 28.58        | 114.66       | 65          | 74          | 156.7          |                        |               |               |                |
| 144.00       |                 | 0.2500        | 28.278              | 22.562         | 2262.3       | 28.16        | 113.11       | 65          | 74          | 154.6          |                        |               |               |                |
| 146.00       |                 | 0.2500        | 27.891              | 22.251         | 2170.0       | 27.75        | 111.56       | 65          | 74          | 152.5          |                        |               |               |                |
| 148.00       |                 | 0.2500        | 27.504              | 21.940         | 2080.1       | 27.34        | 110.02       | 65          | 75          | 150.4          |                        |               |               |                |
| 150.00       | Bot - Section 7 | 0.2500        | 27.118              | 21.628         | 1992.8       | 26.92        | 108.47       | 65          | 75          | 148.3          |                        |               |               |                |
| 152.00       |                 | 0.2500        | 26.731              | 21.317         | 1908.0       | 26.51        | 106.92       | 65          | 76          | 295.0          |                        |               |               |                |
| 154.00       |                 | 0.2500        | 26.344              | 21.006         | 1825.6       | 26.09        | 105.38       | 65          | 76          | 290.8          |                        |               |               |                |
| 155.00       | Top - Section 6 | 0.2500        | 26.651              | 21.253         | 1890.7       | 26.42        | 106.60       | 65          | 76          | 143.8          |                        |               |               |                |
| 156.00       |                 | 0.2500        | 26.457              | 21.097         | 1849.5       | 26.21        | 105.83       | 65          | 76          | 72.1           |                        |               |               |                |
| 158.00       |                 | 0.2500        | 26.071              | 20.786         | 1768.8       | 25.80        | 104.28       | 65          | 77          | 142.5          |                        |               |               |                |
| 160.00       |                 | 0.2500        | 25.684              | 20.474         | 1690.5       | 25.38        | 102.74       | 65          | 77          | 140.4          |                        |               |               |                |
| 162.00       |                 | 0.2500        | 25.297              | 20.163         | 1614.6       | 24.97        | 101.19       | 65          | 77          | 138.3          |                        |               |               |                |
| 164.00       |                 | 0.2500        | 24.910              | 19.852         | 1540.9       | 24.56        | 99.64        | 65          | 78          | 136.2          |                        |               |               |                |
| 165.00       |                 | 0.2500        | 24.717              | 19.696         | 1504.9       | 24.35        | 98.87        | 65          | 78          | 67.3           |                        |               |               |                |
| 166.00       |                 | 0.2500        | 24.524              | 19.540         | 1469.5       | 24.14        | 98.09        | 65          | 78          | 66.8           |                        |               |               |                |
| 168.00       |                 | 0.2500        | 24.137              | 19.229         | 1400.4       | 23.73        | 96.55        | 65          | 79          | 131.9          |                        |               |               |                |
| 170.00       | Top - Section 7 | 0.2500        | 23.750              | 18.918         | 1333.5       | 23.31        | 95.00        | 65          | 79          | 129.8          |                        |               |               |                |
| 170.00       | Bot - Section 8 | 0.2500        | 23.750              | 18.918         | 1333.5       | 23.31        | 95.00        | 65          | 79          |                |                        |               |               |                |
| 172.00       |                 | 0.2500        | 21.450              | 17.066         | 979.0        | 20.85        | 85.80        | 65          | 82          | 122.4          |                        |               |               |                |
| 174.00       |                 | 0.2500        | 19.150              | 15.214         | 693.7        | 18.38        | 76.60        | 65          | 82          | 109.8          |                        |               |               |                |
| 175.00       |                 | 0.2500        | 18.000              | 14.289         | 574.6        | 17.15        | 72.00        | 65          | 82          | 50.2           |                        |               |               |                |
| Total Weight |                 |               |                     |                |              |              |              |             |             | 28861.4        | 11990.8                |               |               |                |

## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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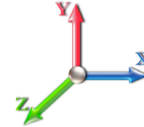


**Load Case:** 1.2D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



| Elev<br>(ft) | Description         | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Aa<br>(sf) | CfAa<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot<br>Dead<br>Load<br>(lb) |
|--------------|---------------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|-----------------------------|
| 0.00         | RB1 RB2             | 1.00 | 0.70 | 26.148      | 28.76         | 483.07        | 0.950 | 0.000                | 0.00              | 0.000      | 0.00         | 0.0                     | 0.0                      | 0.0                         |
| 2.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 479.61        | 0.950 | 0.000                | 2.00              | 9.284      | 8.82         | 253.7                   | 0.0                      | 614.0                       |
| 4.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 476.15        | 0.950 | 0.000                | 2.00              | 9.217      | 8.76         | 251.9                   | 0.0                      | 609.6                       |
| 6.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 472.69        | 0.950 | 0.000                | 2.00              | 9.151      | 8.69         | 250.0                   | 0.0                      | 605.1                       |
| 8.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 469.23        | 0.950 | 0.000                | 2.00              | 9.084      | 8.63         | 248.2                   | 0.0                      | 600.7                       |
| 10.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 465.77        | 0.950 | 0.000                | 2.00              | 9.017      | 8.57         | 246.4                   | 0.0                      | 596.2                       |
| 12.00        | Appurtenance(s)     | 1.00 | 0.70 | 26.148      | 28.76         | 462.31        | 0.950 | 0.000                | 2.00              | 8.950      | 8.50         | 244.6                   | 0.0                      | 591.8                       |
| 14.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 458.85        | 0.950 | 0.000                | 2.00              | 8.884      | 8.44         | 242.7                   | 0.0                      | 587.3                       |
| 16.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 455.39        | 0.950 | 0.000                | 2.00              | 8.817      | 8.38         | 240.9                   | 0.0                      | 582.9                       |
| 18.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 451.93        | 0.950 | 0.000                | 2.00              | 8.750      | 8.31         | 239.1                   | 0.0                      | 578.4                       |
| 20.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 448.47        | 0.950 | 0.000                | 2.00              | 8.684      | 8.25         | 237.3                   | 0.0                      | 574.0                       |
| 22.00        | RT2                 | 1.00 | 0.70 | 26.148      | 28.76         | 445.01        | 0.950 | 0.000                | 2.00              | 8.617      | 8.19         | 235.5                   | 0.0                      | 569.5                       |
| 24.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 441.55        | 0.950 | 0.000                | 2.00              | 8.550      | 8.12         | 233.6                   | 0.0                      | 565.1                       |
| 26.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 438.09        | 0.950 | 0.000                | 2.00              | 8.483      | 8.06         | 231.8                   | 0.0                      | 560.6                       |
| 28.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 434.63        | 0.950 | 0.000                | 2.00              | 8.417      | 8.00         | 230.0                   | 0.0                      | 556.2                       |
| 30.00        |                     | 1.00 | 0.70 | 26.171      | 28.79         | 431.35        | 0.950 | 0.000                | 2.00              | 8.350      | 7.93         | 228.4                   | 0.0                      | 551.7                       |
| 32.00        |                     | 1.00 | 0.71 | 26.658      | 29.32         | 431.86        | 0.950 | 0.000                | 2.00              | 8.283      | 7.87         | 230.7                   | 0.0                      | 547.3                       |
| 33.50        | RB3                 | 1.00 | 0.72 | 27.009      | 29.71         | 432.05        | 0.950 | 0.000                | 1.50              | 6.169      | 5.86         | 174.1                   | 0.0                      | 407.5                       |
| 34.00        |                     | 1.00 | 0.73 | 27.123      | 29.84         | 432.09        | 0.950 | 0.000                | 0.50              | 2.048      | 1.95         | 58.0                    | 0.0                      | 135.3                       |
| 34.75        | RB4                 | 1.00 | 0.73 | 27.293      | 30.02         | 432.11        | 0.950 | 0.000                | 0.75              | 3.064      | 2.91         | 87.4                    | 0.0                      | 202.4                       |
| 35.00        | RB5                 | 1.00 | 0.73 | 27.349      | 30.08         | 432.11        | 0.950 | 0.000                | 0.25              | 1.019      | 0.97         | 29.1                    | 0.0                      | 67.3                        |
| 36.00        | Bot - Section 2 RT1 | 1.00 | 0.74 | 27.570      | 30.33         | 432.08        | 0.950 | 0.000                | 1.00              | 4.066      | 3.86         | 117.2                   | 0.0                      | 268.6                       |
| 38.00        | RB6                 | 1.00 | 0.75 | 27.999      | 30.80         | 431.85        | 0.950 | 0.000                | 2.00              | 8.212      | 7.80         | 240.3                   | 0.0                      | 999.6                       |
| 39.00        | RT5                 | 1.00 | 0.76 | 28.208      | 31.03         | 431.66        | 0.950 | 0.000                | 1.00              | 4.081      | 3.88         | 120.3                   | 0.0                      | 496.7                       |
| 40.00        |                     | 1.00 | 0.76 | 28.413      | 31.25         | 431.42        | 0.950 | 0.000                | 1.00              | 4.064      | 3.86         | 120.7                   | 0.0                      | 494.6                       |
| 42.00        | Top - Section 1     | 1.00 | 0.77 | 28.811      | 31.69         | 430.80        | 0.950 | 0.000                | 2.00              | 8.079      | 7.67         | 243.2                   | 0.0                      | 983.0                       |
| 44.00        |                     | 1.00 | 0.78 | 29.197      | 32.12         | 437.11        | 0.950 | 0.000                | 2.00              | 8.012      | 7.61         | 244.5                   | 0.0                      | 454.2                       |
| 46.00        |                     | 1.00 | 0.79 | 29.570      | 32.53         | 436.21        | 0.950 | 0.000                | 2.00              | 7.945      | 7.55         | 245.5                   | 0.0                      | 450.4                       |
| 48.00        |                     | 1.00 | 0.80 | 29.932      | 32.92         | 435.17        | 0.950 | 0.000                | 2.00              | 7.879      | 7.48         | 246.4                   | 0.0                      | 446.6                       |
| 48.50        | RT3                 | 1.00 | 0.80 | 30.021      | 33.02         | 434.89        | 0.950 | 0.000                | 0.50              | 1.959      | 1.86         | 61.5                    | 0.0                      | 111.0                       |
| 49.75        | RT4                 | 1.00 | 0.81 | 30.240      | 33.26         | 434.15        | 0.950 | 0.000                | 1.25              | 4.880      | 4.64         | 154.2                   | 0.0                      | 276.6                       |
| 50.00        |                     | 1.00 | 0.81 | 30.283      | 33.31         | 434.00        | 0.950 | 0.000                | 0.25              | 0.973      | 0.92         | 30.8                    | 0.0                      | 55.1                        |
| 52.00        |                     | 1.00 | 0.82 | 30.624      | 33.69         | 432.69        | 0.950 | 0.000                | 2.00              | 7.745      | 7.36         | 247.9                   | 0.0                      | 438.9                       |
| 54.00        | Appurtenance(s)     | 1.00 | 0.83 | 30.956      | 34.05         | 431.26        | 0.950 | 0.000                | 2.00              | 7.678      | 7.29         | 248.4                   | 0.0                      | 435.1                       |
| 56.00        |                     | 1.00 | 0.84 | 31.280      | 34.41         | 429.73        | 0.950 | 0.000                | 2.00              | 7.612      | 7.23         | 248.8                   | 0.0                      | 431.3                       |
| 58.00        |                     | 1.00 | 0.85 | 31.595      | 34.75         | 428.08        | 0.950 | 0.000                | 2.00              | 7.545      | 7.17         | 249.1                   | 0.0                      | 427.5                       |
| 60.00        |                     | 1.00 | 0.85 | 31.902      | 35.09         | 426.34        | 0.950 | 0.000                | 2.00              | 7.478      | 7.10         | 249.3                   | 0.0                      | 423.7                       |
| 62.00        |                     | 1.00 | 0.86 | 32.203      | 35.42         | 424.50        | 0.950 | 0.000                | 2.00              | 7.411      | 7.04         | 249.4                   | 0.0                      | 419.9                       |
| 64.00        |                     | 1.00 | 0.87 | 32.496      | 35.75         | 422.57        | 0.950 | 0.000                | 2.00              | 7.345      | 6.98         | 249.4                   | 0.0                      | 416.1                       |
| 66.00        |                     | 1.00 | 0.88 | 32.783      | 36.06         | 420.56        | 0.950 | 0.000                | 2.00              | 7.278      | 6.91         | 249.3                   | 0.0                      | 412.3                       |
| 68.00        |                     | 1.00 | 0.89 | 33.064      | 36.37         | 418.47        | 0.950 | 0.000                | 2.00              | 7.211      | 6.85         | 249.2                   | 0.0                      | 408.4                       |
| 70.00        | Bot - Section 3     | 1.00 | 0.89 | 33.339      | 36.67         | 416.30        | 0.950 | 0.000                | 2.00              | 7.145      | 6.79         | 248.9                   | 0.0                      | 404.6                       |
| 71.25        | RT6 RB7             | 1.00 | 0.90 | 33.508      | 36.86         | 414.90        | 0.950 | 0.000                | 1.25              | 4.512      | 4.29         | 158.0                   | 0.0                      | 506.5                       |
| 72.00        |                     | 1.00 | 0.90 | 33.608      | 36.97         | 414.05        | 0.950 | 0.000                | 0.75              | 2.695      | 2.56         | 94.6                    | 0.0                      | 302.5                       |
| 74.00        |                     | 1.00 | 0.91 | 33.872      | 37.26         | 411.74        | 0.950 | 0.000                | 2.00              | 7.140      | 6.78         | 252.7                   | 0.0                      | 801.4                       |
| 76.00        | Top - Section 2     | 1.00 | 0.91 | 34.131      | 37.54         | 409.36        | 0.950 | 0.000                | 2.00              | 7.074      | 6.72         | 252.3                   | 0.0                      | 793.8                       |
| 78.00        |                     | 1.00 | 0.92 | 34.386      | 37.82         | 414.61        | 0.950 | 0.000                | 2.00              | 7.007      | 6.66         | 251.8                   | 0.0                      | 396.8                       |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|                        |      |      |        |       |        |       |       |      |       |      |       |     |       |
|------------------------|------|------|--------|-------|--------|-------|-------|------|-------|------|-------|-----|-------|
| 80.00 Top - Section 3  | 1.00 | 0.93 | 34.635 | 38.10 | 412.13 | 0.950 | 0.000 | 2.00 | 6.940 | 6.59 | 251.2 | 0.0 | 392.9 |
| 82.00                  | 1.00 | 0.93 | 34.880 | 38.37 | 409.59 | 0.950 | 0.000 | 2.00 | 6.874 | 6.53 | 250.5 | 0.0 | 324.8 |
| 84.00                  | 1.00 | 0.94 | 35.121 | 38.63 | 406.99 | 0.950 | 0.000 | 2.00 | 6.807 | 6.47 | 249.8 | 0.0 | 321.6 |
| 86.00 RT7 RB8          | 1.00 | 0.95 | 35.358 | 38.89 | 404.34 | 0.950 | 0.000 | 2.00 | 6.740 | 6.40 | 249.0 | 0.0 | 318.4 |
| 88.00                  | 1.00 | 0.95 | 35.591 | 39.15 | 401.63 | 0.950 | 0.000 | 2.00 | 6.673 | 6.34 | 248.2 | 0.0 | 315.3 |
| 90.00                  | 1.00 | 0.96 | 35.821 | 39.40 | 398.87 | 0.950 | 0.000 | 2.00 | 6.607 | 6.28 | 247.3 | 0.0 | 312.1 |
| 92.00                  | 1.00 | 0.96 | 36.046 | 39.65 | 396.07 | 0.950 | 0.000 | 2.00 | 6.540 | 6.21 | 246.3 | 0.0 | 308.9 |
| 94.00                  | 1.00 | 0.97 | 36.268 | 39.90 | 393.21 | 0.950 | 0.000 | 2.00 | 6.473 | 6.15 | 245.3 | 0.0 | 305.7 |
| 96.00                  | 1.00 | 0.98 | 36.487 | 40.14 | 390.31 | 0.950 | 0.000 | 2.00 | 6.406 | 6.09 | 244.3 | 0.0 | 302.5 |
| 98.00                  | 1.00 | 0.98 | 36.703 | 40.37 | 387.36 | 0.950 | 0.000 | 2.00 | 6.340 | 6.02 | 243.2 | 0.0 | 299.4 |
| 100.00                 | 1.00 | 0.99 | 36.915 | 40.61 | 384.37 | 0.950 | 0.000 | 2.00 | 6.273 | 5.96 | 242.0 | 0.0 | 296.2 |
| 102.00                 | 1.00 | 0.99 | 37.125 | 40.84 | 381.33 | 0.950 | 0.000 | 2.00 | 6.206 | 5.90 | 240.8 | 0.0 | 293.0 |
| 104.00 RT8             | 1.00 | 1.00 | 37.331 | 41.06 | 378.26 | 0.950 | 0.000 | 2.00 | 6.139 | 5.83 | 239.5 | 0.0 | 289.8 |
| 106.00                 | 1.00 | 1.00 | 37.535 | 41.29 | 375.14 | 0.950 | 0.000 | 2.00 | 6.073 | 5.77 | 238.2 | 0.0 | 286.7 |
| 108.00                 | 1.00 | 1.01 | 37.736 | 41.51 | 371.99 | 0.950 | 0.000 | 2.00 | 6.006 | 5.71 | 236.8 | 0.0 | 283.5 |
| 110.00                 | 1.00 | 1.02 | 37.934 | 41.73 | 368.80 | 0.950 | 0.000 | 2.00 | 5.939 | 5.64 | 235.4 | 0.0 | 280.3 |
| 112.00                 | 1.00 | 1.02 | 38.130 | 41.94 | 365.57 | 0.950 | 0.000 | 2.00 | 5.873 | 5.58 | 234.0 | 0.0 | 277.1 |
| 114.00                 | 1.00 | 1.03 | 38.324 | 42.16 | 362.31 | 0.950 | 0.000 | 2.00 | 5.806 | 5.52 | 232.5 | 0.0 | 273.9 |
| 115.00 Bot - Section 5 | 1.00 | 1.03 | 38.419 | 42.26 | 360.66 | 0.950 | 0.000 | 1.00 | 2.878 | 2.73 | 115.5 | 0.0 | 135.8 |
| 116.00                 | 1.00 | 1.03 | 38.514 | 42.37 | 359.01 | 0.950 | 0.000 | 1.00 | 2.915 | 2.77 | 117.3 | 0.0 | 272.5 |
| 118.00                 | 1.00 | 1.04 | 38.703 | 42.57 | 355.68 | 0.950 | 0.000 | 2.00 | 5.780 | 5.49 | 233.8 | 0.0 | 540.3 |
| 120.00 Top - Section 4 | 1.00 | 1.04 | 38.889 | 42.78 | 352.32 | 0.950 | 0.000 | 2.00 | 5.713 | 5.43 | 232.2 | 0.0 | 533.9 |
| 122.00                 | 1.00 | 1.05 | 39.073 | 42.98 | 355.75 | 0.950 | 0.000 | 2.00 | 5.647 | 5.36 | 230.6 | 0.0 | 266.4 |
| 124.00                 | 1.00 | 1.05 | 39.255 | 43.18 | 352.34 | 0.950 | 0.000 | 2.00 | 5.580 | 5.30 | 228.9 | 0.0 | 263.2 |
| 125.00 Top - Section 5 | 1.00 | 1.05 | 39.346 | 43.28 | 350.62 | 0.950 | 0.000 | 1.00 | 2.765 | 2.63 | 113.7 | 0.0 | 130.4 |
| 126.00                 | 1.00 | 1.06 | 39.435 | 43.38 | 348.90 | 0.950 | 0.000 | 1.00 | 2.748 | 2.61 | 113.3 | 0.0 | 103.9 |
| 128.00                 | 1.00 | 1.06 | 39.613 | 43.57 | 345.43 | 0.950 | 0.000 | 2.00 | 5.446 | 5.17 | 225.5 | 0.0 | 205.9 |
| 130.00                 | 1.00 | 1.07 | 39.789 | 43.77 | 341.92 | 0.950 | 0.000 | 2.00 | 5.380 | 5.11 | 223.7 | 0.0 | 203.3 |
| 132.00                 | 1.00 | 1.07 | 39.963 | 43.96 | 338.39 | 0.950 | 0.000 | 2.00 | 5.313 | 5.05 | 221.9 | 0.0 | 200.8 |
| 134.00                 | 1.00 | 1.07 | 40.135 | 44.15 | 334.83 | 0.950 | 0.000 | 2.00 | 5.246 | 4.98 | 220.0 | 0.0 | 198.2 |
| 136.00                 | 1.00 | 1.08 | 40.305 | 44.34 | 331.25 | 0.950 | 0.000 | 2.00 | 5.180 | 4.92 | 218.2 | 0.0 | 195.7 |
| 137.50 Appurtenance(s) | 1.00 | 1.08 | 40.432 | 44.47 | 328.54 | 0.950 | 0.000 | 1.50 | 3.841 | 3.65 | 162.3 | 0.0 | 145.1 |
| 138.00                 | 1.00 | 1.08 | 40.474 | 44.52 | 327.64 | 0.950 | 0.000 | 0.50 | 1.272 | 1.21 | 53.8  | 0.0 | 48.1  |
| 140.00                 | 1.00 | 1.09 | 40.640 | 44.70 | 324.00 | 0.950 | 0.000 | 2.00 | 5.046 | 4.79 | 214.3 | 0.0 | 190.6 |
| 142.00                 | 1.00 | 1.09 | 40.805 | 44.89 | 320.33 | 0.950 | 0.000 | 2.00 | 4.979 | 4.73 | 212.3 | 0.0 | 188.1 |
| 144.00                 | 1.00 | 1.10 | 40.969 | 45.07 | 316.64 | 0.950 | 0.000 | 2.00 | 4.913 | 4.67 | 210.3 | 0.0 | 185.5 |
| 146.00                 | 1.00 | 1.10 | 41.131 | 45.24 | 312.93 | 0.950 | 0.000 | 2.00 | 4.846 | 4.60 | 208.3 | 0.0 | 183.0 |
| 148.00 Appurtenance(s) | 1.00 | 1.11 | 41.291 | 45.42 | 309.19 | 0.950 | 0.000 | 2.00 | 4.779 | 4.54 | 206.2 | 0.0 | 180.4 |
| 150.00 Bot - Section 7 | 1.00 | 1.11 | 41.449 | 45.59 | 305.43 | 0.950 | 0.000 | 2.00 | 4.712 | 4.48 | 204.1 | 0.0 | 177.9 |
| 152.00                 | 1.00 | 1.11 | 41.607 | 45.77 | 301.64 | 0.950 | 0.000 | 2.00 | 4.732 | 4.50 | 205.7 | 0.0 | 354.0 |
| 154.00                 | 1.00 | 1.12 | 41.762 | 45.94 | 297.83 | 0.950 | 0.000 | 2.00 | 4.665 | 4.43 | 203.6 | 0.0 | 348.9 |
| 155.00 Top - Section 6 | 1.00 | 1.12 | 41.840 | 46.02 | 295.92 | 0.950 | 0.000 | 1.00 | 2.308 | 2.19 | 100.9 | 0.0 | 172.6 |
| 156.00                 | 1.00 | 1.12 | 41.917 | 46.11 | 299.66 | 0.950 | 0.000 | 1.00 | 2.291 | 2.18 | 100.3 | 0.0 | 86.5  |
| 158.00                 | 1.00 | 1.13 | 42.069 | 46.28 | 295.82 | 0.950 | 0.000 | 2.00 | 4.532 | 4.31 | 199.2 | 0.0 | 171.0 |
| 160.00                 | 1.00 | 1.13 | 42.221 | 46.44 | 291.96 | 0.950 | 0.000 | 2.00 | 4.465 | 4.24 | 197.0 | 0.0 | 168.5 |
| 162.00                 | 1.00 | 1.13 | 42.371 | 46.61 | 288.07 | 0.950 | 0.000 | 2.00 | 4.398 | 4.18 | 194.7 | 0.0 | 165.9 |
| 164.00                 | 1.00 | 1.14 | 42.520 | 46.77 | 284.16 | 0.950 | 0.000 | 2.00 | 4.332 | 4.11 | 192.5 | 0.0 | 163.4 |
| 165.00 Appurtenance(s) | 1.00 | 1.14 | 42.594 | 46.85 | 282.20 | 0.950 | 0.000 | 1.00 | 2.141 | 2.03 | 95.3  | 0.0 | 80.7  |
| 166.00                 | 1.00 | 1.14 | 42.667 | 46.93 | 280.24 | 0.950 | 0.000 | 1.00 | 2.124 | 2.02 | 94.7  | 0.0 | 80.1  |
| 168.00                 | 1.00 | 1.15 | 42.814 | 47.09 | 276.29 | 0.950 | 0.000 | 2.00 | 4.198 | 3.99 | 187.8 | 0.0 | 158.3 |
| 170.00 Top - Section 7 | 1.00 | 1.15 | 42.959 | 47.25 | 272.32 | 0.950 | 0.000 | 2.00 | 4.131 | 3.92 | 185.5 | 0.0 | 155.8 |
| 172.00                 | 1.00 | 1.15 | 43.102 | 47.41 | 246.36 | 0.950 | 0.000 | 2.00 | 3.900 | 3.70 | 175.6 | 0.0 | 146.9 |
| 174.00 Appurtenance(s) | 1.00 | 1.16 | 43.245 | 47.57 | 220.31 | 0.950 | 0.000 | 2.00 | 3.503 | 3.33 | 158.3 | 0.0 | 131.8 |
| 175.00 Appurtenance(s) | 1.00 | 1.16 | 43.316 | 47.65 | 207.25 | 0.950 | 0.000 | 1.00 | 1.603 | 1.52 | 72.5  | 0.0 | 60.2  |

**Totals: 175.00 20,221.5 34,633.7**

## Discrete Appurtenance Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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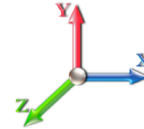


**Load Case:** 1.2D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



| No. | Elev<br>(ft) | Description           | Qty | qz<br>(psf) | qzGh<br>(psf) | Orient<br>Factor<br>x Ka | Ka   | Total<br>CaAa<br>(sf) | Dead<br>Load<br>(lb) | Horiz<br>Ecc<br>(ft) | Vert<br>Ecc<br>(ft) | Wind<br>FX<br>(lb) | Mom<br>Y<br>(lb-ft) | Mom<br>Z<br>(lb-ft) |
|-----|--------------|-----------------------|-----|-------------|---------------|--------------------------|------|-----------------------|----------------------|----------------------|---------------------|--------------------|---------------------|---------------------|
| 1   | 175.00       | Pipes                 | 12  | 43.316      | 47.647        | 0.56                     | 0.75 | 12.15                 | 475.20               | 0.000                | 0.000               | 578.92             | 0.00                | 0.00                |
| 2   | 175.00       | PRK-SFS-L             | 1   | 43.316      | 47.647        | 0.75                     | 0.75 | 5.78                  | 276.00               | 0.000                | 0.000               | 275.16             | 0.00                | 0.00                |
| 3   | 175.00       | Handrail              | 1   | 43.316      | 47.647        | 1.00                     | 1.00 | 6.50                  | 498.07               | 0.000                | 0.000               | 309.71             | 0.00                | 0.00                |
| 4   | 175.00       | PRK-1245L             | 1   | 43.316      | 47.647        | 0.75                     | 0.75 | 7.13                  | 557.89               | 0.000                | 0.000               | 339.49             | 0.00                | 0.00                |
| 5   | 175.00       | APXVTM14-C-I20        | 3   | 43.457      | 47.802        | 0.62                     | 0.80 | 11.72                 | 202.32               | 0.000                | 2.000               | 560.07             | 0.00                | 1120.14             |
| 6   | 175.00       | NNVV-65B-R4           | 3   | 43.457      | 47.802        | 0.59                     | 0.80 | 21.79                 | 278.64               | 0.000                | 2.000               | 1041.69            | 0.00                | 2083.37             |
| 7   | 175.00       | TD-RRH8x20-25         | 3   | 43.457      | 47.802        | 0.40                     | 0.80 | 4.86                  | 252.00               | 0.000                | 2.000               | 232.32             | 0.00                | 464.64              |
| 8   | 175.00       | E15S09P94             | 6   | 44.245      | 48.670        | 0.50                     | 1.00 | 1.98                  | 105.12               | 0.000                | 13.500              | 96.37              | 0.00                | 1300.95             |
| 9   | 175.00       | T-Arms                | 3   | 43.316      | 47.647        | 0.56                     | 0.75 | 18.56                 | 871.20               | 0.000                | 0.000               | 884.45             | 0.00                | 0.00                |
| 10  | 175.00       | 1900MHz               | 3   | 43.457      | 47.802        | 0.40                     | 0.80 | 3.32                  | 216.00               | 0.000                | 2.000               | 158.89             | 0.00                | 317.79              |
| 11  | 175.00       | 800 MHz               | 6   | 43.457      | 47.802        | 0.40                     | 0.80 | 5.98                  | 381.60               | 0.000                | 2.000               | 285.67             | 0.00                | 571.33              |
| 12  | 175.00       | DR65-18-02DPL2Q       | 6   | 44.445      | 48.890        | 0.67                     | 1.00 | 23.36                 | 172.80               | 0.000                | 16.500              | 1141.88            | 0.00                | 18841.07            |
| 13  | 174.00       | 4.5" x 24 FT Pipe     | 3   | 43.941      | 48.335        | 1.00                     | 1.00 | 40.50                 | 933.12               | 0.000                | 10.000              | 1957.57            | 0.00                | 19575.68            |
| 14  | 165.00       | MC-PK8-DSH            | 1   | 42.594      | 46.853        | 1.00                     | 1.00 | 35.00                 | 2072.40              | 0.000                | 0.000               | 1639.86            | 0.00                | 0.00                |
| 15  | 165.00       | MX08FRO665-21         | 3   | 42.594      | 46.853        | 0.55                     | 0.75 | 20.80                 | 232.20               | 0.000                | 0.000               | 974.35             | 0.00                | 0.00                |
| 16  | 165.00       | TA08025-B605          | 3   | 42.594      | 46.853        | 0.38                     | 0.75 | 2.21                  | 270.00               | 0.000                | 0.000               | 103.31             | 0.00                | 0.00                |
| 17  | 165.00       | TA08025-B604          | 3   | 42.594      | 46.853        | 0.38                     | 0.75 | 2.21                  | 230.04               | 0.000                | 0.000               | 103.31             | 0.00                | 0.00                |
| 18  | 165.00       | Raycap                | 1   | 42.594      | 46.853        | 0.38                     | 0.75 | 0.75                  | 26.28                | 0.000                | 0.000               | 35.32              | 0.00                | 0.00                |
| 19  | 148.00       | T-Arms                | 3   | 41.291      | 45.420        | 0.56                     | 0.75 | 18.56                 | 871.20               | 0.000                | 0.000               | 843.11             | 0.00                | 0.00                |
| 20  | 148.00       | RRH2X60-700           | 3   | 41.050      | 45.155        | 0.40                     | 0.80 | 4.20                  | 216.00               | 0.000                | -3.000              | 189.65             | 0.00                | -568.95             |
| 21  | 148.00       | RRH2X60-PCS           | 3   | 41.050      | 45.155        | 0.40                     | 0.80 | 2.64                  | 198.00               | 0.000                | -3.000              | 119.21             | 0.00                | -357.63             |
| 22  | 148.00       | RRH2X60-AWS           | 3   | 41.050      | 45.155        | 0.40                     | 0.80 | 4.20                  | 216.00               | 0.000                | -3.000              | 189.65             | 0.00                | -568.95             |
| 23  | 148.00       | DB-T1-6Z-8AB-OZ       | 2   | 41.291      | 45.420        | 0.40                     | 0.80 | 3.84                  | 105.60               | 0.000                | 0.000               | 174.41             | 0.00                | 0.00                |
| 24  | 148.00       | SBNHH-1D65B           | 6   | 41.291      | 45.420        | 0.66                     | 0.80 | 32.19                 | 365.11               | 0.000                | 0.000               | 1462.10            | 0.00                | 0.00                |
| 25  | 148.00       | BXA-80080-4CF         | 3   | 41.291      | 45.420        | 0.70                     | 0.80 | 7.43                  | 43.20                | 0.000                | 0.000               | 337.62             | 0.00                | 0.00                |
| 26  | 148.00       | BXA-70063-6CF-EDIN-X  | 3   | 41.291      | 45.420        | 0.58                     | 0.80 | 13.26                 | 61.20                | 0.000                | 0.000               | 602.39             | 0.00                | 0.00                |
| 27  | 148.00       | FD9R6004/2C-3L        | 6   | 41.291      | 45.420        | 0.40                     | 0.80 | 0.86                  | 22.32                | 0.000                | 0.000               | 39.24              | 0.00                | 0.00                |
| 28  | 137.50       | RRUS 11               | 3   | 40.432      | 44.475        | 0.38                     | 0.75 | 2.83                  | 182.52               | 0.000                | 0.000               | 126.09             | 0.00                | 0.00                |
| 29  | 137.50       | RRUS 4478 B14         | 3   | 40.432      | 44.475        | 0.38                     | 0.75 | 1.86                  | 213.84               | 0.000                | 0.000               | 82.56              | 0.00                | 0.00                |
| 30  | 137.50       | RRUS 32               | 6   | 40.432      | 44.475        | 0.38                     | 0.75 | 3.71                  | 554.40               | 0.000                | 0.000               | 165.11             | 0.00                | 0.00                |
| 31  | 137.50       | AM-X-CD-17-65-00T-RET | 3   | 40.723      | 44.795        | 0.56                     | 0.75 | 19.09                 | 214.20               | 0.000                | 3.500               | 854.95             | 0.00                | 2992.32             |
| 32  | 137.50       | 4426 B66              | 3   | 40.432      | 44.475        | 0.38                     | 0.75 | 1.29                  | 190.80               | 0.000                | 0.000               | 57.54              | 0.00                | 0.00                |
| 33  | 137.50       | 800 10966             | 3   | 40.432      | 44.475        | 0.54                     | 0.75 | 28.12                 | 414.00               | 0.000                | 0.000               | 1250.78            | 0.00                | 0.00                |
| 34  | 137.50       | 7770.00               | 3   | 40.723      | 44.795        | 0.55                     | 0.75 | 9.03                  | 126.00               | 0.000                | 3.500               | 404.67             | 0.00                | 1416.35             |
| 35  | 137.50       | dc6-48-60-18-8c       | 1   | 40.432      | 44.475        | 0.38                     | 0.75 | 0.47                  | 24.00                | 0.000                | 0.000               | 21.01              | 0.00                | 0.00                |
| 36  | 137.50       | dbc0061F1V51-2        | 6   | 40.432      | 44.475        | 0.38                     | 0.75 | 0.97                  | 182.88               | 0.000                | 0.000               | 43.03              | 0.00                | 0.00                |
| 37  | 137.50       | DC6-48-60-18-8F       | 1   | 40.432      | 44.475        | 0.38                     | 0.75 | 0.35                  | 39.36                | 0.000                | 0.000               | 15.34              | 0.00                | 0.00                |
| 38  | 137.50       | DC6-48-60-0-8C-EV     | 1   | 40.432      | 44.475        | 0.38                     | 0.75 | 1.79                  | 19.20                | 0.000                | 0.000               | 79.72              | 0.00                | 0.00                |
| 39  | 137.50       | LGP21401              | 6   | 40.723      | 44.795        | 0.38                     | 0.75 | 2.90                  | 126.00               | 0.000                | 3.500               | 130.02             | 0.00                | 455.07              |
| 40  | 137.50       | TPA-65R-LCUUUU-H8     | 3   | 40.723      | 44.795        | 0.62                     | 0.75 | 24.84                 | 270.00               | 0.000                | 3.500               | 1112.62            | 0.00                | 3894.16             |
| 41  | 137.50       | RRUS 4478 B5          | 3   | 40.723      | 44.795        | 0.38                     | 0.75 | 2.07                  | 216.00               | 0.000                | 3.500               | 92.73              | 0.00                | 324.54              |
| 42  | 137.50       | Platform w/ Hand Rail | 1   | 40.432      | 44.475        | 1.00                     | 1.00 | 32.00                 | 1920.00              | 0.000                | 0.000               | 1423.20            | 0.00                | 0.00                |
| 43  | 54.00        | Standoff              | 1   | 30.956      | 34.052        | 1.00                     | 1.00 | 2.63                  | 48.00                | 0.000                | 0.000               | 89.56              | 0.00                | 0.00                |
| 44  | 54.00        | GPS                   | 1   | 30.956      | 34.052        | 1.00                     | 1.00 | 1.00                  | 12.00                | 0.000                | 0.000               | 34.05              | 0.00                | 0.00                |
| 45  | 12.00        | CS72188.01 LMU        | 1   | 26.148      | 28.763        | 1.00                     | 1.00 | 0.14                  | 1.20                 | 0.000                | 0.000               | 4.03               | 0.00                | 0.00                |

**Totals:** 14,903.92

20,662.69

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

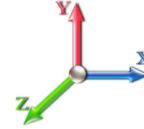


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**Load Case:** 1.2D + 1.0W 125 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



**Iterations** 28

| 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                    |
| 2.00         |                 | 253.69                    | 734.47                  | 0.00                     | 0.00                    |
| 4.00         |                 | 251.87                    | 730.02                  | 0.00                     | 0.00                    |
| 6.00         |                 | 250.04                    | 725.57                  | 0.00                     | 0.00                    |
| 8.00         |                 | 248.22                    | 721.12                  | 0.00                     | 0.00                    |
| 10.00        |                 | 246.40                    | 716.67                  | 0.00                     | 0.00                    |
| 12.00        | (1) attachments | 248.60                    | 713.42                  | 0.00                     | 0.00                    |
| 14.00        |                 | 242.75                    | 707.39                  | 0.00                     | 0.00                    |
| 16.00        |                 | 240.93                    | 702.94                  | 0.00                     | 0.00                    |
| 18.00        |                 | 239.10                    | 698.49                  | 0.00                     | 0.00                    |
| 20.00        |                 | 237.28                    | 694.04                  | 0.00                     | 0.00                    |
| 22.00        |                 | 235.45                    | 689.59                  | 0.00                     | 0.00                    |
| 24.00        |                 | 233.63                    | 685.14                  | 0.00                     | 0.00                    |
| 26.00        |                 | 231.81                    | 680.69                  | 0.00                     | 0.00                    |
| 28.00        |                 | 229.98                    | 676.24                  | 0.00                     | 0.00                    |
| 30.00        |                 | 228.35                    | 671.79                  | 0.00                     | 0.00                    |
| 32.00        |                 | 230.74                    | 667.34                  | 0.00                     | 0.00                    |
| 33.50        |                 | 174.10                    | 497.59                  | 0.00                     | 0.00                    |
| 34.00        |                 | 58.04                     | 165.31                  | 0.00                     | 0.00                    |
| 34.75        |                 | 87.39                     | 247.44                  | 0.00                     | 0.00                    |
| 35.00        |                 | 29.13                     | 82.34                   | 0.00                     | 0.00                    |
| 36.00        |                 | 117.16                    | 328.67                  | 0.00                     | 0.00                    |
| 38.00        |                 | 240.28                    | 1119.64                 | 0.00                     | 0.00                    |
| 39.00        |                 | 120.30                    | 556.72                  | 0.00                     | 0.00                    |
| 40.00        |                 | 120.68                    | 554.66                  | 0.00                     | 0.00                    |
| 42.00        |                 | 243.24                    | 1103.11                 | 0.00                     | 0.00                    |
| 44.00        |                 | 244.45                    | 574.29                  | 0.00                     | 0.00                    |
| 46.00        |                 | 245.52                    | 570.48                  | 0.00                     | 0.00                    |
| 48.00        |                 | 246.43                    | 566.66                  | 0.00                     | 0.00                    |
| 48.50        |                 | 61.46                     | 141.07                  | 0.00                     | 0.00                    |
| 49.75        |                 | 154.20                    | 351.63                  | 0.00                     | 0.00                    |
| 50.00        |                 | 30.79                     | 70.15                   | 0.00                     | 0.00                    |
| 52.00        |                 | 247.86                    | 559.04                  | 0.00                     | 0.00                    |
| 54.00        | (2) attachments | 372.00                    | 615.22                  | 0.00                     | 0.00                    |
| 56.00        |                 | 248.80                    | 551.02                  | 0.00                     | 0.00                    |
| 58.00        |                 | 249.11                    | 547.21                  | 0.00                     | 0.00                    |
| 60.00        |                 | 249.31                    | 543.40                  | 0.00                     | 0.00                    |
| 62.00        |                 | 249.41                    | 539.58                  | 0.00                     | 0.00                    |
| 64.00        |                 | 249.42                    | 535.77                  | 0.00                     | 0.00                    |
| 66.00        |                 | 249.33                    | 531.95                  | 0.00                     | 0.00                    |
| 68.00        |                 | 249.16                    | 528.14                  | 0.00                     | 0.00                    |
| 70.00        |                 | 248.91                    | 524.33                  | 0.00                     | 0.00                    |
| 71.25        |                 | 158.00                    | 581.34                  | 0.00                     | 0.00                    |
| 72.00        |                 | 94.65                     | 347.37                  | 0.00                     | 0.00                    |
| 74.00        |                 | 252.75                    | 921.09                  | 0.00                     | 0.00                    |
| 76.00        |                 | 252.30                    | 913.46                  | 0.00                     | 0.00                    |
| 78.00        |                 | 251.78                    | 516.47                  | 0.00                     | 0.00                    |

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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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|                |                  |                  |                  |             |                  |
|----------------|------------------|------------------|------------------|-------------|------------------|
| 80.00          |                  | 251.20           | 512.65           | 0.00        | 0.00             |
| 82.00          |                  | 250.54           | 444.50           | 0.00        | 0.00             |
| 84.00          |                  | 249.82           | 441.32           | 0.00        | 0.00             |
| 86.00          |                  | 249.04           | 438.14           | 0.00        | 0.00             |
| 88.00          |                  | 248.20           | 434.96           | 0.00        | 0.00             |
| 90.00          |                  | 247.30           | 431.78           | 0.00        | 0.00             |
| 92.00          |                  | 246.35           | 428.60           | 0.00        | 0.00             |
| 94.00          |                  | 245.34           | 425.43           | 0.00        | 0.00             |
| 96.00          |                  | 244.27           | 422.25           | 0.00        | 0.00             |
| 98.00          |                  | 243.15           | 419.07           | 0.00        | 0.00             |
| 100.00         |                  | 241.99           | 415.89           | 0.00        | 0.00             |
| 102.00         |                  | 240.77           | 412.71           | 0.00        | 0.00             |
| 104.00         |                  | 239.51           | 409.53           | 0.00        | 0.00             |
| 106.00         |                  | 238.20           | 404.22           | 0.00        | 0.00             |
| 108.00         |                  | 236.84           | 398.91           | 0.00        | 0.00             |
| 110.00         |                  | 235.44           | 395.73           | 0.00        | 0.00             |
| 112.00         |                  | 234.00           | 392.55           | 0.00        | 0.00             |
| 114.00         |                  | 232.51           | 389.37           | 0.00        | 0.00             |
| 115.00         |                  | 115.54           | 193.49           | 0.00        | 0.00             |
| 116.00         |                  | 117.33           | 330.25           | 0.00        | 0.00             |
| 118.00         |                  | 233.78           | 655.73           | 0.00        | 0.00             |
| 120.00         |                  | 232.19           | 649.38           | 0.00        | 0.00             |
| 122.00         |                  | 230.56           | 381.79           | 0.00        | 0.00             |
| 124.00         |                  | 228.90           | 378.61           | 0.00        | 0.00             |
| 125.00         |                  | 113.68           | 188.12           | 0.00        | 0.00             |
| 126.00         |                  | 113.26           | 161.61           | 0.00        | 0.00             |
| 128.00         |                  | 225.46           | 321.30           | 0.00        | 0.00             |
| 130.00         |                  | 223.69           | 318.76           | 0.00        | 0.00             |
| 132.00         |                  | 221.88           | 316.22           | 0.00        | 0.00             |
| 134.00         |                  | 220.03           | 313.68           | 0.00        | 0.00             |
| 136.00         |                  | 218.16           | 311.13           | 0.00        | 0.00             |
| 137.50         | (46) attachments | 6021.64          | 4924.88          | 0.00        | 9082.44          |
| 138.00         |                  | 53.80            | 66.61            | 0.00        | 0.00             |
| 140.00         |                  | 214.30           | 264.86           | 0.00        | 0.00             |
| 142.00         |                  | 212.33           | 262.32           | 0.00        | 0.00             |
| 144.00         |                  | 210.32           | 259.78           | 0.00        | 0.00             |
| 146.00         |                  | 208.28           | 257.24           | 0.00        | 0.00             |
| 148.00         | (32) attachments | 4163.59          | 2336.96          | 0.00        | -1495.53         |
| 150.00         |                  | 204.12           | 219.41           | 0.00        | 0.00             |
| 152.00         |                  | 205.74           | 395.52           | 0.00        | 0.00             |
| 154.00         |                  | 203.60           | 390.43           | 0.00        | 0.00             |
| 155.00         |                  | 100.89           | 193.31           | 0.00        | 0.00             |
| 156.00         |                  | 100.35           | 107.22           | 0.00        | 0.00             |
| 158.00         |                  | 199.23           | 212.53           | 0.00        | 0.00             |
| 160.00         |                  | 197.00           | 209.99           | 0.00        | 0.00             |
| 162.00         |                  | 194.75           | 207.45           | 0.00        | 0.00             |
| 164.00         |                  | 192.46           | 204.90           | 0.00        | 0.00             |
| 165.00         | (11) attachments | 2951.43          | 2932.42          | 0.00        | 0.00             |
| 166.00         |                  | 94.71            | 99.66            | 0.00        | 0.00             |
| 168.00         |                  | 187.82           | 197.42           | 0.00        | 0.00             |
| 170.00         |                  | 185.46           | 194.87           | 0.00        | 0.00             |
| 172.00         |                  | 175.64           | 186.04           | 0.00        | 0.00             |
| 174.00         | (3) attachments  | 2115.86          | 1104.04          | 0.00        | 19575.68         |
| 175.00         | (48) attachments | 5977.15          | 4366.64          | 0.00        | 24699.28         |
| <b>Totals:</b> |                  | <b>40,884.21</b> | <b>58,632.24</b> | <b>0.00</b> | <b>51,861.87</b> |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 1.2D + 1.0W 125 mph Wind

**Iterations** 28

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 2.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.058 | 0.000            | 26.148   | 0.00     | 2.40           |
| 2.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.058 | 0.000            | 26.148   | 0.00     | 4.27           |
| 4.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 2.40           |
| 4.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 4.27           |
| 6.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 2.40           |
| 6.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 4.27           |
| 8.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 2.40           |
| 8.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 4.27           |
| 10.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 2.40           |
| 10.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 4.27           |
| 12.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 2.40           |
| 12.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 4.27           |
| 14.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 2.40           |
| 14.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 4.27           |
| 16.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 2.40           |
| 16.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 4.27           |
| 18.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 2.40           |
| 18.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 4.27           |
| 20.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 2.40           |
| 20.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 4.27           |
| 22.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 2.40           |
| 22.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 4.27           |
| 24.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 2.40           |
| 24.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 4.27           |
| 26.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 2.40           |
| 26.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 4.27           |
| 28.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 2.40           |
| 28.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 4.27           |
| 30.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 26.171   | 0.00     | 2.40           |
| 30.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.065 | 0.000            | 26.171   | 0.00     | 4.27           |
| 32.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 26.658   | 0.00     | 2.40           |
| 32.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.065 | 0.000            | 26.658   | 0.00     | 4.27           |
| 33.50         | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.009   | 0.00     | 1.80           |
| 33.50         | 3" Chanel   | Yes          | 1.50        | 0.000 | 3.25               | 0.41        | 0.00        | 0.066 | 0.000            | 27.009   | 0.00     | 3.20           |
| 34.00         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.123   | 0.00     | 0.60           |
| 34.00         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.14        | 0.00        | 0.066 | 0.000            | 27.123   | 0.00     | 1.07           |
| 34.75         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.293   | 0.00     | 0.90           |
| 34.75         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.20        | 0.00        | 0.066 | 0.000            | 27.293   | 0.00     | 1.60           |
| 35.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.349   | 0.00     | 0.30           |
| 35.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.07        | 0.00        | 0.066 | 0.000            | 27.349   | 0.00     | 0.53           |
| 36.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 27.570   | 0.00     | 1.20           |
| 36.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.067 | 0.000            | 27.570   | 0.00     | 2.14           |
| 38.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 27.999   | 0.00     | 2.40           |
| 38.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.067 | 0.000            | 27.999   | 0.00     | 4.27           |
| 39.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 28.208   | 0.00     | 1.20           |
| 39.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.067 | 0.000            | 28.208   | 0.00     | 2.14           |
| 40.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 28.413   | 0.00     | 1.20           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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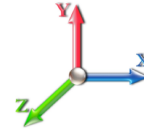


**Load Case:** 1.2D + 1.0W 125 mph Wind

**Iterations** 28

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 40.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.068 | 0.000            | 28.413   | 0.00     | 2.14           |
| 42.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 28.811   | 0.00     | 2.40           |
| 42.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 28.811   | 0.00     | 4.27           |
| 44.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 29.197   | 0.00     | 2.40           |
| 44.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 29.197   | 0.00     | 4.27           |
| 46.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 29.570   | 0.00     | 2.40           |
| 46.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 29.570   | 0.00     | 4.27           |
| 48.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 29.932   | 0.00     | 2.40           |
| 48.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.069 | 0.000            | 29.932   | 0.00     | 4.27           |
| 48.50         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 30.021   | 0.00     | 0.60           |
| 48.50         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.14        | 0.00        | 0.069 | 0.000            | 30.021   | 0.00     | 1.07           |
| 49.75         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 30.240   | 0.00     | 1.50           |
| 49.75         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.34        | 0.00        | 0.069 | 0.000            | 30.240   | 0.00     | 2.67           |
| 50.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 30.283   | 0.00     | 0.30           |
| 50.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.07        | 0.00        | 0.070 | 0.000            | 30.283   | 0.00     | 0.53           |
| 52.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 30.624   | 0.00     | 2.40           |
| 52.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.070 | 0.000            | 30.624   | 0.00     | 4.27           |
| 54.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 30.956   | 0.00     | 2.40           |
| 54.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.071 | 0.000            | 30.956   | 0.00     | 4.27           |
| 56.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 31.280   | 0.00     | 2.40           |
| 56.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.071 | 0.000            | 31.280   | 0.00     | 4.27           |
| 58.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 31.595   | 0.00     | 2.40           |
| 58.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.072 | 0.000            | 31.595   | 0.00     | 4.27           |
| 60.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 31.902   | 0.00     | 2.40           |
| 60.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.072 | 0.000            | 31.902   | 0.00     | 4.27           |
| 62.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.073 | 0.000            | 32.203   | 0.00     | 2.40           |
| 62.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.073 | 0.000            | 32.203   | 0.00     | 4.27           |
| 64.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 32.496   | 0.00     | 2.40           |
| 64.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.074 | 0.000            | 32.496   | 0.00     | 4.27           |
| 66.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 32.783   | 0.00     | 2.40           |
| 66.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.074 | 0.000            | 32.783   | 0.00     | 4.27           |
| 68.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.075 | 0.000            | 33.064   | 0.00     | 2.40           |
| 68.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.075 | 0.000            | 33.064   | 0.00     | 4.27           |
| 70.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 33.339   | 0.00     | 2.40           |
| 70.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.076 | 0.000            | 33.339   | 0.00     | 4.27           |
| 71.25         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 33.508   | 0.00     | 1.50           |
| 71.25         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.34        | 0.00        | 0.076 | 0.000            | 33.508   | 0.00     | 2.67           |
| 72.00         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 33.608   | 0.00     | 0.90           |
| 72.00         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.20        | 0.00        | 0.077 | 0.000            | 33.608   | 0.00     | 1.60           |
| 74.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 33.872   | 0.00     | 2.40           |
| 74.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.077 | 0.000            | 33.872   | 0.00     | 4.27           |
| 76.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 34.131   | 0.00     | 2.40           |
| 76.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.078 | 0.000            | 34.131   | 0.00     | 4.27           |
| 78.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 34.386   | 0.00     | 2.40           |
| 78.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.077 | 0.000            | 34.386   | 0.00     | 4.27           |
| 80.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 34.635   | 0.00     | 2.40           |
| 80.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.078 | 0.000            | 34.635   | 0.00     | 4.27           |



## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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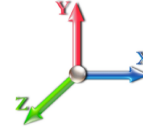


**Load Case:** 1.2D + 1.0W 125 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00

**Iterations** 28



| 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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 82.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.079 | 0.000            | 34.880   | 0.00     | 2.40           |
| 82.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.079 | 0.000            | 34.880   | 0.00     | 4.27           |
| 84.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 35.121   | 0.00     | 2.40           |
| 84.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.080 | 0.000            | 35.121   | 0.00     | 4.27           |
| 86.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 35.358   | 0.00     | 2.40           |
| 86.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.080 | 0.000            | 35.358   | 0.00     | 4.27           |
| 88.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.081 | 0.000            | 35.591   | 0.00     | 2.40           |
| 88.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.081 | 0.000            | 35.591   | 0.00     | 4.27           |
| 90.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.082 | 0.000            | 35.821   | 0.00     | 2.40           |
| 90.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.082 | 0.000            | 35.821   | 0.00     | 4.27           |
| 92.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.083 | 0.000            | 36.046   | 0.00     | 2.40           |
| 92.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.083 | 0.000            | 36.046   | 0.00     | 4.27           |
| 94.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.084 | 0.000            | 36.268   | 0.00     | 2.40           |
| 94.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.084 | 0.000            | 36.268   | 0.00     | 4.27           |
| 96.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 36.487   | 0.00     | 2.40           |
| 96.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.085 | 0.000            | 36.487   | 0.00     | 4.27           |
| 98.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 36.703   | 0.00     | 2.40           |
| 98.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.085 | 0.000            | 36.703   | 0.00     | 4.27           |
| 100.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.086 | 0.000            | 36.915   | 0.00     | 2.40           |
| 100.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.086 | 0.000            | 36.915   | 0.00     | 4.27           |
| 102.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.087 | 0.000            | 37.125   | 0.00     | 2.40           |
| 102.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.087 | 0.000            | 37.125   | 0.00     | 4.27           |
| 104.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.088 | 0.000            | 37.331   | 0.00     | 2.40           |
| 104.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.088 | 0.000            | 37.331   | 0.00     | 4.27           |
| 106.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.045 | 0.000            | 37.535   | 0.00     | 2.40           |
| 106.00        | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.045 | 0.000            | 37.535   | 0.00     | 2.14           |
| 108.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 37.736   | 0.00     | 2.40           |
| 110.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 37.934   | 0.00     | 2.40           |
| 112.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.130   | 0.00     | 2.40           |
| 114.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.324   | 0.00     | 2.40           |
| 115.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.419   | 0.00     | 1.20           |
| 116.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.514   | 0.00     | 1.20           |
| 118.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.703   | 0.00     | 2.40           |
| 120.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.889   | 0.00     | 2.40           |
| 122.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.073   | 0.00     | 2.40           |
| 124.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.255   | 0.00     | 2.40           |
| 125.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.346   | 0.00     | 1.20           |
| 126.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.435   | 0.00     | 1.20           |
| 128.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.613   | 0.00     | 2.40           |
| 130.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.789   | 0.00     | 2.40           |
| 132.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.963   | 0.00     | 2.40           |
| 134.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.135   | 0.00     | 2.40           |
| 136.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.305   | 0.00     | 2.40           |
| 137.50        | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.432   | 0.00     | 1.80           |
| 138.00        | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.474   | 0.00     | 0.60           |
| 140.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.640   | 0.00     | 2.40           |
| 142.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.805   | 0.00     | 2.40           |

## Linear Appurtenance Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |



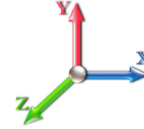
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**Load Case:** 1.2D + 1.0W 125 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00

**Iterations** 28



| 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) |
|----------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 144.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.969   | 0.00       | 2.40           |
| 146.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.131   | 0.00       | 2.40           |
| 148.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.291   | 0.00       | 2.40           |
| 150.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.449   | 0.00       | 2.40           |
| 152.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.607   | 0.00       | 2.40           |
| 154.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.762   | 0.00       | 2.40           |
| 155.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.840   | 0.00       | 1.20           |
| 156.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.917   | 0.00       | 1.20           |
| 158.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.069   | 0.00       | 2.40           |
| 160.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.221   | 0.00       | 2.40           |
| 162.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.371   | 0.00       | 2.40           |
| 164.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.520   | 0.00       | 2.40           |
| 165.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.594   | 0.00       | 1.20           |
| <b>Totals:</b> |             |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>422.3</b>   |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 1.2D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00          | -58.61           | -40.92           | 0.00                | -5245.5         | 0.00            | 5245.58                    | 4820.43       | 1324.26       | 5910.87          | 5262.50          | 0.00               | 0.000               | 0.000                | 0.620        |
| 2.00          | -57.83           | -40.73           | 0.00                | -5163.7         | 0.00            | 5163.75                    | 4803.04       | 1314.69       | 5825.82          | 5205.34          | 0.01               | -0.066              | 0.000                | 0.615        |
| 4.00          | -57.05           | -40.54           | 0.00                | -5082.2         | 0.00            | 5082.29                    | 4785.39       | 1305.13       | 5741.38          | 5148.19          | 0.06               | -0.132              | 0.000                | 0.610        |
| 6.00          | -56.28           | -40.36           | 0.00                | -5001.2         | 0.00            | 5001.21                    | 4767.50       | 1295.57       | 5657.56          | 5091.06          | 0.13               | -0.198              | 0.000                | 0.605        |
| 8.00          | -55.51           | -40.17           | 0.00                | -4920.5         | 0.00            | 4920.50                    | 4749.35       | 1286.01       | 5574.35          | 5033.93          | 0.22               | -0.264              | 0.000                | 0.600        |
| 10.00         | -54.75           | -39.98           | 0.00                | -4840.1         | 0.00            | 4840.16                    | 4730.95       | 1276.44       | 5491.76          | 4976.83          | 0.35               | -0.331              | 0.000                | 0.595        |
| 12.00         | -53.99           | -39.79           | 0.00                | -4760.2         | 0.00            | 4760.20                    | 4712.29       | 1266.88       | 5409.79          | 4919.76          | 0.50               | -0.397              | 0.000                | 0.590        |
| 14.00         | -53.24           | -39.61           | 0.00                | -4680.6         | 0.00            | 4680.62                    | 4693.38       | 1257.32       | 5328.43          | 4862.72          | 0.68               | -0.464              | 0.000                | 0.585        |
| 16.00         | -52.49           | -39.42           | 0.00                | -4601.4         | 0.00            | 4601.41                    | 4674.22       | 1247.76       | 5247.69          | 4805.72          | 0.89               | -0.531              | 0.000                | 0.580        |
| 18.00         | -51.75           | -39.24           | 0.00                | -4522.5         | 0.00            | 4522.57                    | 4654.80       | 1238.20       | 5167.57          | 4748.76          | 1.13               | -0.599              | 0.000                | 0.575        |
| 20.00         | -51.01           | -39.05           | 0.00                | -4444.1         | 0.00            | 4444.10                    | 4635.13       | 1228.63       | 5088.06          | 4691.86          | 1.39               | -0.666              | 0.000                | 0.570        |
| 22.00         | -50.28           | -38.87           | 0.00                | -4366.0         | 0.00            | 4366.00                    | 4615.21       | 1219.07       | 5009.17          | 4635.02          | 1.69               | -0.733              | 0.000                | 0.565        |
| 24.00         | -49.55           | -38.69           | 0.00                | -4288.2         | 0.00            | 4288.27                    | 4595.03       | 1209.51       | 4930.90          | 4578.24          | 2.01               | -0.801              | 0.000                | 0.669        |
| 26.00         | -48.82           | -38.51           | 0.00                | -4210.9         | 0.00            | 4210.90                    | 4574.60       | 1199.95       | 4853.24          | 4521.53          | 2.36               | -0.882              | 0.000                | 0.664        |
| 28.00         | -48.09           | -38.34           | 0.00                | -4133.8         | 0.00            | 4133.87                    | 4553.92       | 1190.38       | 4776.20          | 4464.90          | 2.75               | -0.963              | 0.000                | 0.658        |
| 30.00         | -47.37           | -38.17           | 0.00                | -4057.1         | 0.00            | 4057.18                    | 4532.98       | 1180.82       | 4699.78          | 4408.35          | 3.17               | -1.045              | 0.000                | 0.652        |
| 32.00         | -46.66           | -37.98           | 0.00                | -3980.8         | 0.00            | 3980.85                    | 4511.79       | 1171.26       | 4623.97          | 4351.89          | 3.63               | -1.126              | 0.000                | 0.647        |
| 33.50         | -46.14           | -37.83           | 0.00                | -3923.8         | 0.00            | 3923.87                    | 4495.73       | 1164.09       | 4567.52          | 4309.60          | 3.99               | -1.188              | 0.000                | 0.642        |
| 34.00         | -45.96           | -37.79           | 0.00                | -3904.9         | 0.00            | 3904.95                    | 4490.35       | 1161.70       | 4548.78          | 4295.52          | 4.12               | -1.208              | 0.000                | 0.640        |
| 34.75         | -45.70           | -37.72           | 0.00                | -3876.6         | 0.00            | 3876.61                    | 4482.24       | 1158.11       | 4520.74          | 4274.41          | 4.31               | -1.239              | 0.000                | 0.638        |
| 35.00         | -45.60           | -37.70           | 0.00                | -3867.1         | 0.00            | 3867.18                    | 4479.53       | 1156.92       | 4511.41          | 4267.38          | 4.37               | -1.248              | 0.000                | 0.532        |
| 36.00         | -45.25           | -37.61           | 0.00                | -3829.4         | 0.00            | 3829.48                    | 4468.65       | 1152.14       | 4474.20          | 4239.26          | 4.64               | -1.278              | 0.000                | 0.454        |
| 38.00         | -44.11           | -37.38           | 0.00                | -3754.2         | 0.00            | 3754.26                    | 4446.70       | 1142.57       | 4400.24          | 4183.10          | 5.19               | -1.336              | 0.000                | 0.569        |
| 39.00         | -43.53           | -37.27           | 0.00                | -3716.8         | 0.00            | 3716.89                    | 4435.63       | 1137.79       | 4363.49          | 4155.06          | 5.47               | -1.366              | 0.000                | 0.440        |
| 40.00         | -42.95           | -37.17           | 0.00                | -3679.6         | 0.00            | 3679.62                    | 4424.50       | 1133.01       | 4326.90          | 4127.05          | 5.76               | -1.395              | 0.000                | 0.512        |
| 42.00         | -41.81           | -36.95           | 0.00                | -3605.2         | 0.00            | 3605.28                    | 3554.53       | 980.17        | 3778.00          | 3351.15          | 6.36               | -1.462              | 0.000                | 0.556        |
| 44.00         | -41.20           | -36.74           | 0.00                | -3531.3         | 0.00            | 3531.38                    | 3539.83       | 971.98        | 3715.08          | 3309.16          | 6.99               | -1.530              | 0.000                | 0.581        |
| 46.00         | -40.59           | -36.53           | 0.00                | -3457.9         | 0.00            | 3457.91                    | 3524.88       | 963.78        | 3652.69          | 3267.17          | 7.64               | -1.602              | 0.000                | 0.574        |
| 48.00         | -40.00           | -36.30           | 0.00                | -3384.8         | 0.00            | 3384.85                    | 3509.67       | 955.59        | 3590.83          | 3225.18          | 8.33               | -1.674              | 0.000                | 0.566        |
| 48.50         | -39.84           | -36.25           | 0.00                | -3366.7         | 0.00            | 3366.70                    | 3505.83       | 953.54        | 3575.44          | 3214.69          | 8.51               | -1.692              | 0.000                | 0.565        |
| 49.75         | -39.48           | -36.11           | 0.00                | -3321.3         | 0.00            | 3321.38                    | 3496.16       | 948.41        | 3537.13          | 3188.45          | 8.95               | -1.737              | 0.000                | 0.643        |
| 50.00         | -39.38           | -36.11           | 0.00                | -3312.3         | 0.00            | 3312.36                    | 3494.22       | 947.39        | 3529.49          | 3183.21          | 9.05               | -1.747              | 0.000                | 0.686        |
| 52.00         | -38.77           | -35.90           | 0.00                | -3240.1         | 0.00            | 3240.14                    | 3478.50       | 939.19        | 3468.69          | 3141.25          | 9.80               | -1.835              | 0.000                | 0.677        |
| 54.00         | -38.11           | -35.57           | 0.00                | -3168.3         | 0.00            | 3168.33                    | 3462.54       | 931.00        | 3408.41          | 3099.32          | 10.58              | -1.924              | 0.000                | 0.669        |
| 56.00         | -37.52           | -35.36           | 0.00                | -3097.1         | 0.00            | 3097.19                    | 3446.32       | 922.80        | 3348.66          | 3057.41          | 11.41              | -2.012              | 0.000                | 0.661        |
| 58.00         | -36.92           | -35.15           | 0.00                | -3026.4         | 0.00            | 3026.47                    | 3429.84       | 914.61        | 3289.44          | 3015.54          | 12.27              | -2.100              | 0.000                | 0.652        |
| 60.00         | -36.34           | -34.94           | 0.00                | -2956.1         | 0.00            | 2956.17                    | 3413.12       | 906.41        | 3230.75          | 2973.71          | 13.17              | -2.188              | 0.000                | 0.644        |
| 62.00         | -35.75           | -34.72           | 0.00                | -2886.3         | 0.00            | 2886.30                    | 3396.14       | 898.21        | 3172.59          | 2931.93          | 14.10              | -2.276              | 0.000                | 0.635        |
| 64.00         | -35.18           | -34.50           | 0.00                | -2816.8         | 0.00            | 2816.86                    | 3378.91       | 890.02        | 3114.95          | 2890.20          | 15.08              | -2.364              | 0.000                | 0.626        |
| 66.00         | -34.60           | -34.29           | 0.00                | -2747.8         | 0.00            | 2747.85                    | 3361.42       | 881.82        | 3057.84          | 2848.53          | 16.09              | -2.452              | 0.000                | 0.618        |
| 68.00         | -34.03           | -34.07           | 0.00                | -2679.2         | 0.00            | 2679.28                    | 3343.68       | 873.62        | 3001.27          | 2806.93          | 17.13              | -2.540              | 0.000                | 0.609        |
| 70.00         | -33.48           | -33.84           | 0.00                | -2611.1         | 0.00            | 2611.15                    | 3325.69       | 865.43        | 2945.21          | 2765.40          | 18.21              | -2.627              | 0.000                | 0.600        |
| 71.25         | -32.88           | -33.67           | 0.00                | -2568.8         | 0.00            | 2568.86                    | 3314.31       | 860.31        | 2910.45          | 2739.48          | 18.91              | -2.682              | 0.000                | 0.587        |
| 72.00         | -32.51           | -33.59           | 0.00                | -2543.6         | 0.00            | 2543.60                    | 3307.44       | 857.23        | 2889.69          | 2723.94          | 19.33              | -2.706              | 0.000                | 0.583        |
| 74.00         | -31.55           | -33.34           | 0.00                | -2476.4         | 0.00            | 2476.42                    | 3288.94       | 849.04        | 2834.70          | 2682.57          | 20.49              | -2.792              | 0.000                | 0.574        |
| 76.00         | -30.60           | -33.09           | 0.00                | -2409.7         | 0.00            | 2409.73                    | 3306.32       | 856.73        | 2886.33          | 2721.42          | 21.67              | -2.878              | 0.000                | 0.580        |
| 78.00         | -30.05           | -32.86           | 0.00                | -2343.5         | 0.00            | 2343.55                    | 3287.81       | 848.54        | 2831.37          | 2680.05          | 22.90              | -2.964              | 0.000                | 0.551        |
| 80.00         | -29.50           | -32.62           | 0.00                | -2277.8         | 0.00            | 2277.83                    | 3269.04       | 840.34        | 2776.94          | 2638.78          | 24.16              | -3.047              | 0.000                | 0.542        |

## Calculated Forces

**Structure:** CT00680-S-SBA      **Code:** TIA-222-H      1/9/2023  
**Site Name:** Putnam      **Exposure:** B  
**Height:** 175.00 (ft)      **Crest Height:** 0.00  
**Base Elev:** 0.000 (ft)      **Site Class:** D - Stiff Soil  
**Gh:** 1.1      **Topography:** 1      **Struct Class:** II      Page: 20



|        |        |        |      |         |      |         |         |        |         |         |        |        |       |       |
|--------|--------|--------|------|---------|------|---------|---------|--------|---------|---------|--------|--------|-------|-------|
| 80.00  | -29.50 | -32.62 | 0.00 | -2277.8 | 0.00 | 2277.83 | 2504.08 | 701.39 | 2321.41 | 2027.68 | 24.16  | -3.047 | 0.000 | 0.591 |
| 82.00  | -29.02 | -32.39 | 0.00 | -2212.5 | 0.00 | 2212.58 | 2492.58 | 694.56 | 2276.42 | 1998.56 | 25.45  | -3.129 | 0.000 | 0.644 |
| 84.00  | -28.55 | -32.17 | 0.00 | -2147.8 | 0.00 | 2147.80 | 2480.83 | 687.73 | 2231.87 | 1969.42 | 26.78  | -3.220 | 0.000 | 0.632 |
| 86.00  | -28.08 | -31.93 | 0.00 | -2083.4 | 0.00 | 2083.47 | 2468.82 | 680.90 | 2187.76 | 1940.26 | 28.15  | -3.311 | 0.000 | 0.619 |
| 88.00  | -27.61 | -31.70 | 0.00 | -2019.6 | 0.00 | 2019.60 | 2456.55 | 674.07 | 2144.09 | 1911.10 | 29.55  | -3.384 | 0.000 | 0.757 |
| 90.00  | -27.13 | -31.48 | 0.00 | -1956.2 | 0.00 | 1956.20 | 2444.04 | 667.24 | 2100.86 | 1881.94 | 30.99  | -3.495 | 0.000 | 0.742 |
| 92.00  | -26.66 | -31.26 | 0.00 | -1893.2 | 0.00 | 1893.23 | 2431.27 | 660.41 | 2058.07 | 1852.79 | 32.48  | -3.607 | 0.000 | 0.727 |
| 94.00  | -26.19 | -31.04 | 0.00 | -1830.7 | 0.00 | 1830.71 | 2418.25 | 653.58 | 2015.72 | 1823.65 | 34.01  | -3.717 | 0.000 | 0.712 |
| 96.00  | -25.72 | -30.82 | 0.00 | -1768.6 | 0.00 | 1768.63 | 2404.97 | 646.75 | 1973.81 | 1794.53 | 35.59  | -3.827 | 0.000 | 0.696 |
| 98.00  | -25.26 | -30.60 | 0.00 | -1706.9 | 0.00 | 1706.99 | 2391.44 | 639.92 | 1932.34 | 1765.43 | 37.22  | -3.936 | 0.000 | 0.680 |
| 100.00 | -24.81 | -30.37 | 0.00 | -1645.8 | 0.00 | 1645.80 | 2377.66 | 633.09 | 1891.31 | 1736.36 | 38.89  | -4.044 | 0.000 | 0.664 |
| 102.00 | -24.36 | -30.15 | 0.00 | -1585.0 | 0.00 | 1585.05 | 2363.63 | 626.26 | 1850.72 | 1707.33 | 40.61  | -4.152 | 0.000 | 0.648 |
| 104.00 | -23.91 | -29.92 | 0.00 | -1524.7 | 0.00 | 1524.76 | 2349.34 | 619.43 | 1810.57 | 1678.33 | 42.37  | -4.258 | 0.000 | 0.632 |
| 106.00 | -23.46 | -29.71 | 0.00 | -1464.9 | 0.00 | 1464.91 | 2334.79 | 612.60 | 1770.86 | 1649.39 | 44.17  | -4.363 | 0.000 | 0.901 |
| 108.00 | -23.00 | -29.50 | 0.00 | -1405.5 | 0.00 | 1405.50 | 2320.00 | 605.77 | 1731.59 | 1620.50 | 46.03  | -4.515 | 0.000 | 0.880 |
| 110.00 | -22.55 | -29.30 | 0.00 | -1346.4 | 0.00 | 1346.49 | 2304.95 | 598.94 | 1692.77 | 1591.67 | 47.95  | -4.666 | 0.000 | 0.858 |
| 112.00 | -22.10 | -29.09 | 0.00 | -1287.9 | 0.00 | 1287.90 | 2289.65 | 592.11 | 1654.38 | 1562.91 | 49.94  | -4.816 | 0.000 | 0.836 |
| 114.00 | -21.68 | -28.86 | 0.00 | -1229.7 | 0.00 | 1229.73 | 2274.09 | 585.28 | 1616.43 | 1534.22 | 51.99  | -4.964 | 0.000 | 0.813 |
| 115.00 | -21.46 | -28.76 | 0.00 | -1200.8 | 0.00 | 1200.87 | 2266.22 | 581.86 | 1597.62 | 1519.90 | 53.03  | -5.038 | 0.000 | 0.802 |
| 116.00 | -21.09 | -28.65 | 0.00 | -1172.1 | 0.00 | 1172.11 | 2258.28 | 578.45 | 1578.92 | 1505.61 | 54.09  | -5.111 | 0.000 | 0.790 |
| 118.00 | -20.38 | -28.41 | 0.00 | -1114.8 | 0.00 | 1114.80 | 2242.22 | 571.62 | 1541.86 | 1477.08 | 56.26  | -5.256 | 0.000 | 0.766 |
| 120.00 | -19.69 | -28.17 | 0.00 | -1057.9 | 0.00 | 1057.97 | 2252.14 | 575.82 | 1564.64 | 1494.64 | 58.49  | -5.398 | 0.000 | 0.719 |
| 122.00 | -19.27 | -27.95 | 0.00 | -1001.6 | 0.00 | 1001.63 | 2235.98 | 568.99 | 1527.74 | 1466.15 | 60.78  | -5.537 | 0.000 | 0.694 |
| 124.00 | -18.87 | -27.72 | 0.00 | -945.74 | 0.00 | 945.74  | 2219.57 | 562.16 | 1491.28 | 1437.75 | 63.13  | -5.666 | 0.000 | 0.669 |
| 125.00 | -18.66 | -27.61 | 0.00 | -918.02 | 0.00 | 918.02  | 2211.27 | 558.75 | 1473.22 | 1423.59 | 64.32  | -5.730 | 0.000 | 0.656 |
| 125.00 | -18.66 | -27.61 | 0.00 | -918.02 | 0.00 | 918.02  | 1600.93 | 447.88 | 1183.23 | 1034.73 | 64.32  | -5.730 | 0.000 | 0.903 |
| 126.00 | -18.46 | -27.51 | 0.00 | -890.41 | 0.00 | 890.41  | 1596.33 | 445.15 | 1168.84 | 1025.42 | 65.52  | -5.793 | 0.000 | 0.884 |
| 128.00 | -18.09 | -27.30 | 0.00 | -835.39 | 0.00 | 835.39  | 1586.93 | 439.68 | 1140.32 | 1006.77 | 67.98  | -5.946 | 0.000 | 0.845 |
| 130.00 | -17.73 | -27.09 | 0.00 | -780.79 | 0.00 | 780.79  | 1577.27 | 434.22 | 1112.16 | 988.11  | 70.50  | -6.094 | 0.000 | 0.805 |
| 132.00 | -17.37 | -26.88 | 0.00 | -726.61 | 0.00 | 726.61  | 1567.36 | 428.76 | 1084.34 | 969.45  | 73.08  | -6.238 | 0.000 | 0.765 |
| 134.00 | -17.02 | -26.67 | 0.00 | -672.85 | 0.00 | 672.85  | 1557.20 | 423.29 | 1056.88 | 950.79  | 75.72  | -6.377 | 0.000 | 0.723 |
| 136.00 | -16.68 | -26.45 | 0.00 | -619.51 | 0.00 | 619.51  | 1546.79 | 417.83 | 1029.77 | 932.14  | 78.41  | -6.510 | 0.000 | 0.679 |
| 137.50 | -12.45 | -19.92 | 0.00 | -570.76 | 0.00 | 570.76  | 1538.81 | 413.73 | 1009.67 | 918.16  | 80.47  | -6.606 | 0.000 | 0.632 |
| 138.00 | -12.37 | -19.87 | 0.00 | -560.80 | 0.00 | 560.80  | 1536.12 | 412.36 | 1003.02 | 913.50  | 81.16  | -6.637 | 0.000 | 0.624 |
| 140.00 | -12.09 | -19.65 | 0.00 | -521.06 | 0.00 | 521.06  | 1525.20 | 406.90 | 976.61  | 894.88  | 83.96  | -6.758 | 0.000 | 0.593 |
| 142.00 | -11.82 | -19.44 | 0.00 | -481.75 | 0.00 | 481.75  | 1514.03 | 401.44 | 950.56  | 876.30  | 86.81  | -6.874 | 0.000 | 0.560 |
| 144.00 | -11.55 | -19.22 | 0.00 | -442.88 | 0.00 | 442.88  | 1502.60 | 395.97 | 924.86  | 857.74  | 89.71  | -6.986 | 0.000 | 0.526 |
| 146.00 | -11.28 | -19.00 | 0.00 | -404.44 | 0.00 | 404.44  | 1490.92 | 390.51 | 899.51  | 839.23  | 92.65  | -7.092 | 0.000 | 0.492 |
| 148.00 | -9.46  | -14.59 | 0.00 | -366.44 | 0.00 | 366.44  | 1478.99 | 385.04 | 874.51  | 820.76  | 95.64  | -7.193 | 0.000 | 0.454 |
| 150.00 | -9.24  | -14.38 | 0.00 | -337.25 | 0.00 | 337.25  | 1466.80 | 379.58 | 849.87  | 802.34  | 98.67  | -7.289 | 0.000 | 0.428 |
| 152.00 | -8.85  | -14.14 | 0.00 | -308.49 | 0.00 | 308.49  | 1454.36 | 374.12 | 825.58  | 783.97  | 101.73 | -7.382 | 0.000 | 0.401 |
| 154.00 | -8.48  | -13.90 | 0.00 | -280.22 | 0.00 | 280.22  | 1441.66 | 368.65 | 801.64  | 765.67  | 104.84 | -7.469 | 0.000 | 0.373 |
| 155.00 | -8.29  | -13.78 | 0.00 | -266.32 | 0.00 | 266.32  | 1451.75 | 372.98 | 820.59  | 780.18  | 106.40 | -7.512 | 0.000 | 0.348 |
| 156.00 | -8.18  | -13.67 | 0.00 | -252.54 | 0.00 | 252.54  | 1445.41 | 370.25 | 808.61  | 771.02  | 107.97 | -7.553 | 0.000 | 0.335 |
| 158.00 | -7.98  | -13.46 | 0.00 | -225.20 | 0.00 | 225.20  | 1432.53 | 364.79 | 784.92  | 752.77  | 111.15 | -7.627 | 0.000 | 0.306 |
| 160.00 | -7.78  | -13.24 | 0.00 | -198.29 | 0.00 | 198.29  | 1419.41 | 359.32 | 761.58  | 734.60  | 114.35 | -7.695 | 0.000 | 0.277 |
| 162.00 | -7.59  | -13.03 | 0.00 | -171.81 | 0.00 | 171.81  | 1406.03 | 353.86 | 738.59  | 716.50  | 117.57 | -7.757 | 0.000 | 0.247 |
| 164.00 | -7.40  | -12.82 | 0.00 | -145.75 | 0.00 | 145.75  | 1392.39 | 348.39 | 715.96  | 698.49  | 120.83 | -7.813 | 0.000 | 0.215 |
| 165.00 | -4.90  | -9.49  | 0.00 | -132.93 | 0.00 | 132.93  | 1385.48 | 345.66 | 704.77  | 689.51  | 122.46 | -7.839 | 0.000 | 0.197 |
| 166.00 | -4.81  | -9.39  | 0.00 | -123.44 | 0.00 | 123.44  | 1378.51 | 342.93 | 693.68  | 680.57  | 124.10 | -7.863 | 0.000 | 0.186 |
| 168.00 | -4.63  | -9.18  | 0.00 | -104.66 | 0.00 | 104.66  | 1364.37 | 337.47 | 671.75  | 662.74  | 127.39 | -7.907 | 0.000 | 0.162 |
| 170.00 | -4.46  | -8.97  | 0.00 | -86.30  | 0.00 | 86.30   | 1349.97 | 332.00 | 650.17  | 645.02  | 130.70 | -7.946 | 0.000 | 0.138 |
| 170.00 | -4.46  | -8.97  | 0.00 | -86.30  | 0.00 | 86.30   | 1349.97 | 332.00 | 650.17  | 645.02  | 130.70 | -7.946 | 0.000 | 0.138 |
| 172.00 | -4.29  | -8.78  | 0.00 | -68.35  | 0.00 | 68.35   | 1257.93 | 299.51 | 529.13  | 541.60  | 134.03 | -7.979 | 0.000 | 0.130 |
| 174.00 | -3.49  | -6.53  | 0.00 | -31.23  | 0.00 | 31.23   | 1121.46 | 267.01 | 420.55  | 429.85  | 137.37 | -8.014 | 0.000 | 0.076 |
| 175.00 | 0.00   | -5.98  | 0.00 | -24.70  | 0.00 | 24.70   | 1053.22 | 250.77 | 370.93  | 378.81  | 139.04 | -8.025 | 0.000 | 0.066 |

## Calculated Forces

|                   |               |                      |                |                         |
|-------------------|---------------|----------------------|----------------|-------------------------|
| <b>Structure:</b> | CT00680-S-SBA | <b>Code:</b>         | TIA-222-H      | 1/9/2023                |
| <b>Site Name:</b> | Putnam        | <b>Exposure:</b>     | B              |                         |
| <b>Height:</b>    | 175.00 (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: 21                |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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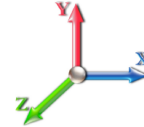


**Load Case:** 0.9D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



| Elev<br>(ft) | Description         | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Aa<br>(sf) | CfAa<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot<br>Dead<br>Load<br>(lb) |
|--------------|---------------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|-----------------------------|
| 0.00         | RB1 RB2             | 1.00 | 0.70 | 26.148      | 28.76         | 483.07        | 0.950 | 0.000                | 0.00              | 0.000      | 0.00         | 0.0                     | 0.0                      | 0.0                         |
| 2.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 479.61        | 0.950 | 0.000                | 2.00              | 9.284      | 8.82         | 253.7                   | 0.0                      | 460.5                       |
| 4.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 476.15        | 0.950 | 0.000                | 2.00              | 9.217      | 8.76         | 251.9                   | 0.0                      | 457.2                       |
| 6.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 472.69        | 0.950 | 0.000                | 2.00              | 9.151      | 8.69         | 250.0                   | 0.0                      | 453.8                       |
| 8.00         |                     | 1.00 | 0.70 | 26.148      | 28.76         | 469.23        | 0.950 | 0.000                | 2.00              | 9.084      | 8.63         | 248.2                   | 0.0                      | 450.5                       |
| 10.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 465.77        | 0.950 | 0.000                | 2.00              | 9.017      | 8.57         | 246.4                   | 0.0                      | 447.2                       |
| 12.00        | Appurtenance(s)     | 1.00 | 0.70 | 26.148      | 28.76         | 462.31        | 0.950 | 0.000                | 2.00              | 8.950      | 8.50         | 244.6                   | 0.0                      | 443.8                       |
| 14.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 458.85        | 0.950 | 0.000                | 2.00              | 8.884      | 8.44         | 242.7                   | 0.0                      | 440.5                       |
| 16.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 455.39        | 0.950 | 0.000                | 2.00              | 8.817      | 8.38         | 240.9                   | 0.0                      | 437.1                       |
| 18.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 451.93        | 0.950 | 0.000                | 2.00              | 8.750      | 8.31         | 239.1                   | 0.0                      | 433.8                       |
| 20.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 448.47        | 0.950 | 0.000                | 2.00              | 8.684      | 8.25         | 237.3                   | 0.0                      | 430.5                       |
| 22.00        | RT2                 | 1.00 | 0.70 | 26.148      | 28.76         | 445.01        | 0.950 | 0.000                | 2.00              | 8.617      | 8.19         | 235.5                   | 0.0                      | 427.1                       |
| 24.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 441.55        | 0.950 | 0.000                | 2.00              | 8.550      | 8.12         | 233.6                   | 0.0                      | 423.8                       |
| 26.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 438.09        | 0.950 | 0.000                | 2.00              | 8.483      | 8.06         | 231.8                   | 0.0                      | 420.5                       |
| 28.00        |                     | 1.00 | 0.70 | 26.148      | 28.76         | 434.63        | 0.950 | 0.000                | 2.00              | 8.417      | 8.00         | 230.0                   | 0.0                      | 417.1                       |
| 30.00        |                     | 1.00 | 0.70 | 26.171      | 28.79         | 431.35        | 0.950 | 0.000                | 2.00              | 8.350      | 7.93         | 228.4                   | 0.0                      | 413.8                       |
| 32.00        |                     | 1.00 | 0.71 | 26.658      | 29.32         | 431.86        | 0.950 | 0.000                | 2.00              | 8.283      | 7.87         | 230.7                   | 0.0                      | 410.4                       |
| 33.50        | RB3                 | 1.00 | 0.72 | 27.009      | 29.71         | 432.05        | 0.950 | 0.000                | 1.50              | 6.169      | 5.86         | 174.1                   | 0.0                      | 305.6                       |
| 34.00        |                     | 1.00 | 0.73 | 27.123      | 29.84         | 432.09        | 0.950 | 0.000                | 0.50              | 2.048      | 1.95         | 58.0                    | 0.0                      | 101.5                       |
| 34.75        | RB4                 | 1.00 | 0.73 | 27.293      | 30.02         | 432.11        | 0.950 | 0.000                | 0.75              | 3.064      | 2.91         | 87.4                    | 0.0                      | 151.8                       |
| 35.00        | RB5                 | 1.00 | 0.73 | 27.349      | 30.08         | 432.11        | 0.950 | 0.000                | 0.25              | 1.019      | 0.97         | 29.1                    | 0.0                      | 50.5                        |
| 36.00        | Bot - Section 2 RT1 | 1.00 | 0.74 | 27.570      | 30.33         | 432.08        | 0.950 | 0.000                | 1.00              | 4.066      | 3.86         | 117.2                   | 0.0                      | 201.5                       |
| 38.00        | RB6                 | 1.00 | 0.75 | 27.999      | 30.80         | 431.85        | 0.950 | 0.000                | 2.00              | 8.212      | 7.80         | 240.3                   | 0.0                      | 749.7                       |
| 39.00        | RT5                 | 1.00 | 0.76 | 28.208      | 31.03         | 431.66        | 0.950 | 0.000                | 1.00              | 4.081      | 3.88         | 120.3                   | 0.0                      | 372.5                       |
| 40.00        |                     | 1.00 | 0.76 | 28.413      | 31.25         | 431.42        | 0.950 | 0.000                | 1.00              | 4.064      | 3.86         | 120.7                   | 0.0                      | 371.0                       |
| 42.00        | Top - Section 1     | 1.00 | 0.77 | 28.811      | 31.69         | 430.80        | 0.950 | 0.000                | 2.00              | 8.079      | 7.67         | 243.2                   | 0.0                      | 737.3                       |
| 44.00        |                     | 1.00 | 0.78 | 29.197      | 32.12         | 437.11        | 0.950 | 0.000                | 2.00              | 8.012      | 7.61         | 244.5                   | 0.0                      | 340.7                       |
| 46.00        |                     | 1.00 | 0.79 | 29.570      | 32.53         | 436.21        | 0.950 | 0.000                | 2.00              | 7.945      | 7.55         | 245.5                   | 0.0                      | 337.8                       |
| 48.00        |                     | 1.00 | 0.80 | 29.932      | 32.92         | 435.17        | 0.950 | 0.000                | 2.00              | 7.879      | 7.48         | 246.4                   | 0.0                      | 334.9                       |
| 48.50        | RT3                 | 1.00 | 0.80 | 30.021      | 33.02         | 434.89        | 0.950 | 0.000                | 0.50              | 1.959      | 1.86         | 61.5                    | 0.0                      | 83.3                        |
| 49.75        | RT4                 | 1.00 | 0.81 | 30.240      | 33.26         | 434.15        | 0.950 | 0.000                | 1.25              | 4.880      | 4.64         | 154.2                   | 0.0                      | 207.4                       |
| 50.00        |                     | 1.00 | 0.81 | 30.283      | 33.31         | 434.00        | 0.950 | 0.000                | 0.25              | 0.973      | 0.92         | 30.8                    | 0.0                      | 41.4                        |
| 52.00        |                     | 1.00 | 0.82 | 30.624      | 33.69         | 432.69        | 0.950 | 0.000                | 2.00              | 7.745      | 7.36         | 247.9                   | 0.0                      | 329.2                       |
| 54.00        | Appurtenance(s)     | 1.00 | 0.83 | 30.956      | 34.05         | 431.26        | 0.950 | 0.000                | 2.00              | 7.678      | 7.29         | 248.4                   | 0.0                      | 326.4                       |
| 56.00        |                     | 1.00 | 0.84 | 31.280      | 34.41         | 429.73        | 0.950 | 0.000                | 2.00              | 7.612      | 7.23         | 248.8                   | 0.0                      | 323.5                       |
| 58.00        |                     | 1.00 | 0.85 | 31.595      | 34.75         | 428.08        | 0.950 | 0.000                | 2.00              | 7.545      | 7.17         | 249.1                   | 0.0                      | 320.6                       |
| 60.00        |                     | 1.00 | 0.85 | 31.902      | 35.09         | 426.34        | 0.950 | 0.000                | 2.00              | 7.478      | 7.10         | 249.3                   | 0.0                      | 317.8                       |
| 62.00        |                     | 1.00 | 0.86 | 32.203      | 35.42         | 424.50        | 0.950 | 0.000                | 2.00              | 7.411      | 7.04         | 249.4                   | 0.0                      | 314.9                       |
| 64.00        |                     | 1.00 | 0.87 | 32.496      | 35.75         | 422.57        | 0.950 | 0.000                | 2.00              | 7.345      | 6.98         | 249.4                   | 0.0                      | 312.0                       |
| 66.00        |                     | 1.00 | 0.88 | 32.783      | 36.06         | 420.56        | 0.950 | 0.000                | 2.00              | 7.278      | 6.91         | 249.3                   | 0.0                      | 309.2                       |
| 68.00        |                     | 1.00 | 0.89 | 33.064      | 36.37         | 418.47        | 0.950 | 0.000                | 2.00              | 7.211      | 6.85         | 249.2                   | 0.0                      | 306.3                       |
| 70.00        | Bot - Section 3     | 1.00 | 0.89 | 33.339      | 36.67         | 416.30        | 0.950 | 0.000                | 2.00              | 7.145      | 6.79         | 248.9                   | 0.0                      | 303.5                       |
| 71.25        | RT6 RB7             | 1.00 | 0.90 | 33.508      | 36.86         | 414.90        | 0.950 | 0.000                | 1.25              | 4.512      | 4.29         | 158.0                   | 0.0                      | 379.9                       |
| 72.00        |                     | 1.00 | 0.90 | 33.608      | 36.97         | 414.05        | 0.950 | 0.000                | 0.75              | 2.695      | 2.56         | 94.6                    | 0.0                      | 226.9                       |
| 74.00        |                     | 1.00 | 0.91 | 33.872      | 37.26         | 411.74        | 0.950 | 0.000                | 2.00              | 7.140      | 6.78         | 252.7                   | 0.0                      | 601.0                       |
| 76.00        | Top - Section 2     | 1.00 | 0.91 | 34.131      | 37.54         | 409.36        | 0.950 | 0.000                | 2.00              | 7.074      | 6.72         | 252.3                   | 0.0                      | 595.3                       |
| 78.00        |                     | 1.00 | 0.92 | 34.386      | 37.82         | 414.61        | 0.950 | 0.000                | 2.00              | 7.007      | 6.66         | 251.8                   | 0.0                      | 297.6                       |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|                        |      |      |        |       |        |       |       |      |       |      |       |     |       |
|------------------------|------|------|--------|-------|--------|-------|-------|------|-------|------|-------|-----|-------|
| 80.00 Top - Section 3  | 1.00 | 0.93 | 34.635 | 38.10 | 412.13 | 0.950 | 0.000 | 2.00 | 6.940 | 6.59 | 251.2 | 0.0 | 294.7 |
| 82.00                  | 1.00 | 0.93 | 34.880 | 38.37 | 409.59 | 0.950 | 0.000 | 2.00 | 6.874 | 6.53 | 250.5 | 0.0 | 243.6 |
| 84.00                  | 1.00 | 0.94 | 35.121 | 38.63 | 406.99 | 0.950 | 0.000 | 2.00 | 6.807 | 6.47 | 249.8 | 0.0 | 241.2 |
| 86.00 RT7 RB8          | 1.00 | 0.95 | 35.358 | 38.89 | 404.34 | 0.950 | 0.000 | 2.00 | 6.740 | 6.40 | 249.0 | 0.0 | 238.8 |
| 88.00                  | 1.00 | 0.95 | 35.591 | 39.15 | 401.63 | 0.950 | 0.000 | 2.00 | 6.673 | 6.34 | 248.2 | 0.0 | 236.4 |
| 90.00                  | 1.00 | 0.96 | 35.821 | 39.40 | 398.87 | 0.950 | 0.000 | 2.00 | 6.607 | 6.28 | 247.3 | 0.0 | 234.1 |
| 92.00                  | 1.00 | 0.96 | 36.046 | 39.65 | 396.07 | 0.950 | 0.000 | 2.00 | 6.540 | 6.21 | 246.3 | 0.0 | 231.7 |
| 94.00                  | 1.00 | 0.97 | 36.268 | 39.90 | 393.21 | 0.950 | 0.000 | 2.00 | 6.473 | 6.15 | 245.3 | 0.0 | 229.3 |
| 96.00                  | 1.00 | 0.98 | 36.487 | 40.14 | 390.31 | 0.950 | 0.000 | 2.00 | 6.406 | 6.09 | 244.3 | 0.0 | 226.9 |
| 98.00                  | 1.00 | 0.98 | 36.703 | 40.37 | 387.36 | 0.950 | 0.000 | 2.00 | 6.340 | 6.02 | 243.2 | 0.0 | 224.5 |
| 100.00                 | 1.00 | 0.99 | 36.915 | 40.61 | 384.37 | 0.950 | 0.000 | 2.00 | 6.273 | 5.96 | 242.0 | 0.0 | 222.1 |
| 102.00                 | 1.00 | 0.99 | 37.125 | 40.84 | 381.33 | 0.950 | 0.000 | 2.00 | 6.206 | 5.90 | 240.8 | 0.0 | 219.8 |
| 104.00 RT8             | 1.00 | 1.00 | 37.331 | 41.06 | 378.26 | 0.950 | 0.000 | 2.00 | 6.139 | 5.83 | 239.5 | 0.0 | 217.4 |
| 106.00                 | 1.00 | 1.00 | 37.535 | 41.29 | 375.14 | 0.950 | 0.000 | 2.00 | 6.073 | 5.77 | 238.2 | 0.0 | 215.0 |
| 108.00                 | 1.00 | 1.01 | 37.736 | 41.51 | 371.99 | 0.950 | 0.000 | 2.00 | 6.006 | 5.71 | 236.8 | 0.0 | 212.6 |
| 110.00                 | 1.00 | 1.02 | 37.934 | 41.73 | 368.80 | 0.950 | 0.000 | 2.00 | 5.939 | 5.64 | 235.4 | 0.0 | 210.2 |
| 112.00                 | 1.00 | 1.02 | 38.130 | 41.94 | 365.57 | 0.950 | 0.000 | 2.00 | 5.873 | 5.58 | 234.0 | 0.0 | 207.8 |
| 114.00                 | 1.00 | 1.03 | 38.324 | 42.16 | 362.31 | 0.950 | 0.000 | 2.00 | 5.806 | 5.52 | 232.5 | 0.0 | 205.5 |
| 115.00 Bot - Section 5 | 1.00 | 1.03 | 38.419 | 42.26 | 360.66 | 0.950 | 0.000 | 1.00 | 2.878 | 2.73 | 115.5 | 0.0 | 101.8 |
| 116.00                 | 1.00 | 1.03 | 38.514 | 42.37 | 359.01 | 0.950 | 0.000 | 1.00 | 2.915 | 2.77 | 117.3 | 0.0 | 204.4 |
| 118.00                 | 1.00 | 1.04 | 38.703 | 42.57 | 355.68 | 0.950 | 0.000 | 2.00 | 5.780 | 5.49 | 233.8 | 0.0 | 405.2 |
| 120.00 Top - Section 4 | 1.00 | 1.04 | 38.889 | 42.78 | 352.32 | 0.950 | 0.000 | 2.00 | 5.713 | 5.43 | 232.2 | 0.0 | 400.5 |
| 122.00                 | 1.00 | 1.05 | 39.073 | 42.98 | 355.75 | 0.950 | 0.000 | 2.00 | 5.647 | 5.36 | 230.6 | 0.0 | 199.8 |
| 124.00                 | 1.00 | 1.05 | 39.255 | 43.18 | 352.34 | 0.950 | 0.000 | 2.00 | 5.580 | 5.30 | 228.9 | 0.0 | 197.4 |
| 125.00 Top - Section 5 | 1.00 | 1.05 | 39.346 | 43.28 | 350.62 | 0.950 | 0.000 | 1.00 | 2.765 | 2.63 | 113.7 | 0.0 | 97.8  |
| 126.00                 | 1.00 | 1.06 | 39.435 | 43.38 | 348.90 | 0.950 | 0.000 | 1.00 | 2.748 | 2.61 | 113.3 | 0.0 | 77.9  |
| 128.00                 | 1.00 | 1.06 | 39.613 | 43.57 | 345.43 | 0.950 | 0.000 | 2.00 | 5.446 | 5.17 | 225.5 | 0.0 | 154.4 |
| 130.00                 | 1.00 | 1.07 | 39.789 | 43.77 | 341.92 | 0.950 | 0.000 | 2.00 | 5.380 | 5.11 | 223.7 | 0.0 | 152.5 |
| 132.00                 | 1.00 | 1.07 | 39.963 | 43.96 | 338.39 | 0.950 | 0.000 | 2.00 | 5.313 | 5.05 | 221.9 | 0.0 | 150.6 |
| 134.00                 | 1.00 | 1.07 | 40.135 | 44.15 | 334.83 | 0.950 | 0.000 | 2.00 | 5.246 | 4.98 | 220.0 | 0.0 | 148.7 |
| 136.00                 | 1.00 | 1.08 | 40.305 | 44.34 | 331.25 | 0.950 | 0.000 | 2.00 | 5.180 | 4.92 | 218.2 | 0.0 | 146.8 |
| 137.50 Appurtenance(s) | 1.00 | 1.08 | 40.432 | 44.47 | 328.54 | 0.950 | 0.000 | 1.50 | 3.841 | 3.65 | 162.3 | 0.0 | 108.8 |
| 138.00                 | 1.00 | 1.08 | 40.474 | 44.52 | 327.64 | 0.950 | 0.000 | 0.50 | 1.272 | 1.21 | 53.8  | 0.0 | 36.0  |
| 140.00                 | 1.00 | 1.09 | 40.640 | 44.70 | 324.00 | 0.950 | 0.000 | 2.00 | 5.046 | 4.79 | 214.3 | 0.0 | 143.0 |
| 142.00                 | 1.00 | 1.09 | 40.805 | 44.89 | 320.33 | 0.950 | 0.000 | 2.00 | 4.979 | 4.73 | 212.3 | 0.0 | 141.1 |
| 144.00                 | 1.00 | 1.10 | 40.969 | 45.07 | 316.64 | 0.950 | 0.000 | 2.00 | 4.913 | 4.67 | 210.3 | 0.0 | 139.1 |
| 146.00                 | 1.00 | 1.10 | 41.131 | 45.24 | 312.93 | 0.950 | 0.000 | 2.00 | 4.846 | 4.60 | 208.3 | 0.0 | 137.2 |
| 148.00 Appurtenance(s) | 1.00 | 1.11 | 41.291 | 45.42 | 309.19 | 0.950 | 0.000 | 2.00 | 4.779 | 4.54 | 206.2 | 0.0 | 135.3 |
| 150.00 Bot - Section 7 | 1.00 | 1.11 | 41.449 | 45.59 | 305.43 | 0.950 | 0.000 | 2.00 | 4.712 | 4.48 | 204.1 | 0.0 | 133.4 |
| 152.00                 | 1.00 | 1.11 | 41.607 | 45.77 | 301.64 | 0.950 | 0.000 | 2.00 | 4.732 | 4.50 | 205.7 | 0.0 | 265.5 |
| 154.00                 | 1.00 | 1.12 | 41.762 | 45.94 | 297.83 | 0.950 | 0.000 | 2.00 | 4.665 | 4.43 | 203.6 | 0.0 | 261.7 |
| 155.00 Top - Section 6 | 1.00 | 1.12 | 41.840 | 46.02 | 295.92 | 0.950 | 0.000 | 1.00 | 2.308 | 2.19 | 100.9 | 0.0 | 129.4 |
| 156.00                 | 1.00 | 1.12 | 41.917 | 46.11 | 299.66 | 0.950 | 0.000 | 1.00 | 2.291 | 2.18 | 100.3 | 0.0 | 64.8  |
| 158.00                 | 1.00 | 1.13 | 42.069 | 46.28 | 295.82 | 0.950 | 0.000 | 2.00 | 4.532 | 4.31 | 199.2 | 0.0 | 128.3 |
| 160.00                 | 1.00 | 1.13 | 42.221 | 46.44 | 291.96 | 0.950 | 0.000 | 2.00 | 4.465 | 4.24 | 197.0 | 0.0 | 126.4 |
| 162.00                 | 1.00 | 1.13 | 42.371 | 46.61 | 288.07 | 0.950 | 0.000 | 2.00 | 4.398 | 4.18 | 194.7 | 0.0 | 124.5 |
| 164.00                 | 1.00 | 1.14 | 42.520 | 46.77 | 284.16 | 0.950 | 0.000 | 2.00 | 4.332 | 4.11 | 192.5 | 0.0 | 122.5 |
| 165.00 Appurtenance(s) | 1.00 | 1.14 | 42.594 | 46.85 | 282.20 | 0.950 | 0.000 | 1.00 | 2.141 | 2.03 | 95.3  | 0.0 | 60.6  |
| 166.00                 | 1.00 | 1.14 | 42.667 | 46.93 | 280.24 | 0.950 | 0.000 | 1.00 | 2.124 | 2.02 | 94.7  | 0.0 | 60.1  |
| 168.00                 | 1.00 | 1.15 | 42.814 | 47.09 | 276.29 | 0.950 | 0.000 | 2.00 | 4.198 | 3.99 | 187.8 | 0.0 | 118.7 |
| 170.00 Top - Section 7 | 1.00 | 1.15 | 42.959 | 47.25 | 272.32 | 0.950 | 0.000 | 2.00 | 4.131 | 3.92 | 185.5 | 0.0 | 116.8 |
| 172.00                 | 1.00 | 1.15 | 43.102 | 47.41 | 246.36 | 0.950 | 0.000 | 2.00 | 3.900 | 3.70 | 175.6 | 0.0 | 110.2 |
| 174.00 Appurtenance(s) | 1.00 | 1.16 | 43.245 | 47.57 | 220.31 | 0.950 | 0.000 | 2.00 | 3.503 | 3.33 | 158.3 | 0.0 | 98.9  |
| 175.00 Appurtenance(s) | 1.00 | 1.16 | 43.316 | 47.65 | 207.25 | 0.950 | 0.000 | 1.00 | 1.603 | 1.52 | 72.5  | 0.0 | 45.2  |

**Totals: 175.00 20,221.5 25,975.3**

## Discrete Appurtenance Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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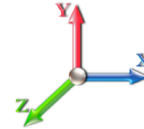


**Load Case:** 0.9D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



| No. | Elev<br>(ft) | Description           | Qty | qz<br>(psf) | qzGh<br>(psf) | Orient<br>Factor<br>x Ka | Ka   | Total<br>CaAa<br>(sf) | Dead<br>Load<br>(lb) | Horiz<br>Ecc<br>(ft) | Vert<br>Ecc<br>(ft) | Wind<br>FX<br>(lb) | Mom<br>Y<br>(lb-ft) | Mom<br>Z<br>(lb-ft) |
|-----|--------------|-----------------------|-----|-------------|---------------|--------------------------|------|-----------------------|----------------------|----------------------|---------------------|--------------------|---------------------|---------------------|
| 1   | 175.00       | Pipes                 | 12  | 43.316      | 47.647        | 0.56                     | 0.75 | 12.15                 | 356.40               | 0.000                | 0.000               | 578.92             | 0.00                | 0.00                |
| 2   | 175.00       | PRK-SFS-L             | 1   | 43.316      | 47.647        | 0.75                     | 0.75 | 5.78                  | 207.00               | 0.000                | 0.000               | 275.16             | 0.00                | 0.00                |
| 3   | 175.00       | Handrail              | 1   | 43.316      | 47.647        | 1.00                     | 1.00 | 6.50                  | 373.55               | 0.000                | 0.000               | 309.71             | 0.00                | 0.00                |
| 4   | 175.00       | PRK-1245L             | 1   | 43.316      | 47.647        | 0.75                     | 0.75 | 7.13                  | 418.42               | 0.000                | 0.000               | 339.49             | 0.00                | 0.00                |
| 5   | 175.00       | APXVTM14-C-I20        | 3   | 43.457      | 47.802        | 0.62                     | 0.80 | 11.72                 | 151.74               | 0.000                | 2.000               | 560.07             | 0.00                | 1120.14             |
| 6   | 175.00       | NNVV-65B-R4           | 3   | 43.457      | 47.802        | 0.59                     | 0.80 | 21.79                 | 208.98               | 0.000                | 2.000               | 1041.69            | 0.00                | 2083.37             |
| 7   | 175.00       | TD-RRH8x20-25         | 3   | 43.457      | 47.802        | 0.40                     | 0.80 | 4.86                  | 189.00               | 0.000                | 2.000               | 232.32             | 0.00                | 464.64              |
| 8   | 175.00       | E15S09P94             | 6   | 44.245      | 48.670        | 0.50                     | 1.00 | 1.98                  | 78.84                | 0.000                | 13.500              | 96.37              | 0.00                | 1300.95             |
| 9   | 175.00       | T-Arms                | 3   | 43.316      | 47.647        | 0.56                     | 0.75 | 18.56                 | 653.40               | 0.000                | 0.000               | 884.45             | 0.00                | 0.00                |
| 10  | 175.00       | 1900MHz               | 3   | 43.457      | 47.802        | 0.40                     | 0.80 | 3.32                  | 162.00               | 0.000                | 2.000               | 158.89             | 0.00                | 317.79              |
| 11  | 175.00       | 800 MHz               | 6   | 43.457      | 47.802        | 0.40                     | 0.80 | 5.98                  | 286.20               | 0.000                | 2.000               | 285.67             | 0.00                | 571.33              |
| 12  | 175.00       | DR65-18-02DPL2Q       | 6   | 44.445      | 48.890        | 0.67                     | 1.00 | 23.36                 | 129.60               | 0.000                | 16.500              | 1141.88            | 0.00                | 18841.07            |
| 13  | 174.00       | 4.5" x 24 FT Pipe     | 3   | 43.941      | 48.335        | 1.00                     | 1.00 | 40.50                 | 699.84               | 0.000                | 10.000              | 1957.57            | 0.00                | 19575.68            |
| 14  | 165.00       | MC-PK8-DSH            | 1   | 42.594      | 46.853        | 1.00                     | 1.00 | 35.00                 | 1554.30              | 0.000                | 0.000               | 1639.86            | 0.00                | 0.00                |
| 15  | 165.00       | MX08FRO665-21         | 3   | 42.594      | 46.853        | 0.55                     | 0.75 | 20.80                 | 174.15               | 0.000                | 0.000               | 974.35             | 0.00                | 0.00                |
| 16  | 165.00       | TA08025-B605          | 3   | 42.594      | 46.853        | 0.38                     | 0.75 | 2.21                  | 202.50               | 0.000                | 0.000               | 103.31             | 0.00                | 0.00                |
| 17  | 165.00       | TA08025-B604          | 3   | 42.594      | 46.853        | 0.38                     | 0.75 | 2.21                  | 172.53               | 0.000                | 0.000               | 103.31             | 0.00                | 0.00                |
| 18  | 165.00       | Raycap                | 1   | 42.594      | 46.853        | 0.38                     | 0.75 | 0.75                  | 19.71                | 0.000                | 0.000               | 35.32              | 0.00                | 0.00                |
| 19  | 148.00       | T-Arms                | 3   | 41.291      | 45.420        | 0.56                     | 0.75 | 18.56                 | 653.40               | 0.000                | 0.000               | 843.11             | 0.00                | 0.00                |
| 20  | 148.00       | RRH2X60-700           | 3   | 41.050      | 45.155        | 0.40                     | 0.80 | 4.20                  | 162.00               | 0.000                | -3.000              | 189.65             | 0.00                | -568.95             |
| 21  | 148.00       | RRH2X60-PCS           | 3   | 41.050      | 45.155        | 0.40                     | 0.80 | 2.64                  | 148.50               | 0.000                | -3.000              | 119.21             | 0.00                | -357.63             |
| 22  | 148.00       | RRH2X60-AWS           | 3   | 41.050      | 45.155        | 0.40                     | 0.80 | 4.20                  | 162.00               | 0.000                | -3.000              | 189.65             | 0.00                | -568.95             |
| 23  | 148.00       | DB-T1-6Z-8AB-OZ       | 2   | 41.291      | 45.420        | 0.40                     | 0.80 | 3.84                  | 79.20                | 0.000                | 0.000               | 174.41             | 0.00                | 0.00                |
| 24  | 148.00       | SBNHH-1D65B           | 6   | 41.291      | 45.420        | 0.66                     | 0.80 | 32.19                 | 273.83               | 0.000                | 0.000               | 1462.10            | 0.00                | 0.00                |
| 25  | 148.00       | BXA-80080-4CF         | 3   | 41.291      | 45.420        | 0.70                     | 0.80 | 7.43                  | 32.40                | 0.000                | 0.000               | 337.62             | 0.00                | 0.00                |
| 26  | 148.00       | BXA-70063-6CF-EDIN-X  | 3   | 41.291      | 45.420        | 0.58                     | 0.80 | 13.26                 | 45.90                | 0.000                | 0.000               | 602.39             | 0.00                | 0.00                |
| 27  | 148.00       | FD9R6004/2C-3L        | 6   | 41.291      | 45.420        | 0.40                     | 0.80 | 0.86                  | 16.74                | 0.000                | 0.000               | 39.24              | 0.00                | 0.00                |
| 28  | 137.50       | RRUS 11               | 3   | 40.432      | 44.475        | 0.38                     | 0.75 | 2.83                  | 136.89               | 0.000                | 0.000               | 126.09             | 0.00                | 0.00                |
| 29  | 137.50       | RRUS 4478 B14         | 3   | 40.432      | 44.475        | 0.38                     | 0.75 | 1.86                  | 160.38               | 0.000                | 0.000               | 82.56              | 0.00                | 0.00                |
| 30  | 137.50       | RRUS 32               | 6   | 40.432      | 44.475        | 0.38                     | 0.75 | 3.71                  | 415.80               | 0.000                | 0.000               | 165.11             | 0.00                | 0.00                |
| 31  | 137.50       | AM-X-CD-17-65-00T-RET | 3   | 40.723      | 44.795        | 0.56                     | 0.75 | 19.09                 | 160.65               | 0.000                | 3.500               | 854.95             | 0.00                | 2992.32             |
| 32  | 137.50       | 4426 B66              | 3   | 40.432      | 44.475        | 0.38                     | 0.75 | 1.29                  | 143.10               | 0.000                | 0.000               | 57.54              | 0.00                | 0.00                |
| 33  | 137.50       | 800 10966             | 3   | 40.432      | 44.475        | 0.54                     | 0.75 | 28.12                 | 310.50               | 0.000                | 0.000               | 1250.78            | 0.00                | 0.00                |
| 34  | 137.50       | 7770.00               | 3   | 40.723      | 44.795        | 0.55                     | 0.75 | 9.03                  | 94.50                | 0.000                | 3.500               | 404.67             | 0.00                | 1416.35             |
| 35  | 137.50       | dc6-48-60-18-8c       | 1   | 40.432      | 44.475        | 0.38                     | 0.75 | 0.47                  | 18.00                | 0.000                | 0.000               | 21.01              | 0.00                | 0.00                |
| 36  | 137.50       | dbc0061F1V51-2        | 6   | 40.432      | 44.475        | 0.38                     | 0.75 | 0.97                  | 137.16               | 0.000                | 0.000               | 43.03              | 0.00                | 0.00                |
| 37  | 137.50       | DC6-48-60-18-8F       | 1   | 40.432      | 44.475        | 0.38                     | 0.75 | 0.35                  | 29.52                | 0.000                | 0.000               | 15.34              | 0.00                | 0.00                |
| 38  | 137.50       | DC6-48-60-0-8C-EV     | 1   | 40.432      | 44.475        | 0.38                     | 0.75 | 1.79                  | 14.40                | 0.000                | 0.000               | 79.72              | 0.00                | 0.00                |
| 39  | 137.50       | LGP21401              | 6   | 40.723      | 44.795        | 0.38                     | 0.75 | 2.90                  | 94.50                | 0.000                | 3.500               | 130.02             | 0.00                | 455.07              |
| 40  | 137.50       | TPA-65R-LCUUUU-H8     | 3   | 40.723      | 44.795        | 0.62                     | 0.75 | 24.84                 | 202.50               | 0.000                | 3.500               | 1112.62            | 0.00                | 3894.16             |
| 41  | 137.50       | RRUS 4478 B5          | 3   | 40.723      | 44.795        | 0.38                     | 0.75 | 2.07                  | 162.00               | 0.000                | 3.500               | 92.73              | 0.00                | 324.54              |
| 42  | 137.50       | Platform w/ Hand Rail | 1   | 40.432      | 44.475        | 1.00                     | 1.00 | 32.00                 | 1440.00              | 0.000                | 0.000               | 1423.20            | 0.00                | 0.00                |
| 43  | 54.00        | Standoff              | 1   | 30.956      | 34.052        | 1.00                     | 1.00 | 2.63                  | 36.00                | 0.000                | 0.000               | 89.56              | 0.00                | 0.00                |
| 44  | 54.00        | GPS                   | 1   | 30.956      | 34.052        | 1.00                     | 1.00 | 1.00                  | 9.00                 | 0.000                | 0.000               | 34.05              | 0.00                | 0.00                |
| 45  | 12.00        | CS72188.01 LMU        | 1   | 26.148      | 28.763        | 1.00                     | 1.00 | 0.14                  | 0.90                 | 0.000                | 0.000               | 4.03               | 0.00                | 0.00                |

**Totals:** 11,177.94

**20,662.69**

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

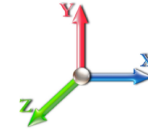


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**Load Case:** 0.9D + 1.0W 125 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



**Iterations** 28

| 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                    |
| 2.00         |                 | 253.69                    | 550.85                  | 0.00                     | 0.00                    |
| 4.00         |                 | 251.87                    | 547.52                  | 0.00                     | 0.00                    |
| 6.00         |                 | 250.04                    | 544.18                  | 0.00                     | 0.00                    |
| 8.00         |                 | 248.22                    | 540.84                  | 0.00                     | 0.00                    |
| 10.00        |                 | 246.40                    | 537.50                  | 0.00                     | 0.00                    |
| 12.00        | (1) attachments | 248.60                    | 535.07                  | 0.00                     | 0.00                    |
| 14.00        |                 | 242.75                    | 530.54                  | 0.00                     | 0.00                    |
| 16.00        |                 | 240.93                    | 527.20                  | 0.00                     | 0.00                    |
| 18.00        |                 | 239.10                    | 523.87                  | 0.00                     | 0.00                    |
| 20.00        |                 | 237.28                    | 520.53                  | 0.00                     | 0.00                    |
| 22.00        |                 | 235.45                    | 517.19                  | 0.00                     | 0.00                    |
| 24.00        |                 | 233.63                    | 513.86                  | 0.00                     | 0.00                    |
| 26.00        |                 | 231.81                    | 510.52                  | 0.00                     | 0.00                    |
| 28.00        |                 | 229.98                    | 507.18                  | 0.00                     | 0.00                    |
| 30.00        |                 | 228.35                    | 503.84                  | 0.00                     | 0.00                    |
| 32.00        |                 | 230.74                    | 500.51                  | 0.00                     | 0.00                    |
| 33.50        |                 | 174.10                    | 373.19                  | 0.00                     | 0.00                    |
| 34.00        |                 | 58.04                     | 123.98                  | 0.00                     | 0.00                    |
| 34.75        |                 | 87.39                     | 185.58                  | 0.00                     | 0.00                    |
| 35.00        |                 | 29.13                     | 61.76                   | 0.00                     | 0.00                    |
| 36.00        |                 | 117.16                    | 246.50                  | 0.00                     | 0.00                    |
| 38.00        |                 | 240.28                    | 839.73                  | 0.00                     | 0.00                    |
| 39.00        |                 | 120.30                    | 417.54                  | 0.00                     | 0.00                    |
| 40.00        |                 | 120.68                    | 415.99                  | 0.00                     | 0.00                    |
| 42.00        |                 | 243.24                    | 827.33                  | 0.00                     | 0.00                    |
| 44.00        |                 | 244.45                    | 430.72                  | 0.00                     | 0.00                    |
| 46.00        |                 | 245.52                    | 427.86                  | 0.00                     | 0.00                    |
| 48.00        |                 | 246.43                    | 425.00                  | 0.00                     | 0.00                    |
| 48.50        |                 | 61.46                     | 105.80                  | 0.00                     | 0.00                    |
| 49.75        |                 | 154.20                    | 263.72                  | 0.00                     | 0.00                    |
| 50.00        |                 | 30.79                     | 52.61                   | 0.00                     | 0.00                    |
| 52.00        |                 | 247.86                    | 419.28                  | 0.00                     | 0.00                    |
| 54.00        | (2) attachments | 372.00                    | 461.42                  | 0.00                     | 0.00                    |
| 56.00        |                 | 248.80                    | 413.27                  | 0.00                     | 0.00                    |
| 58.00        |                 | 249.11                    | 410.41                  | 0.00                     | 0.00                    |
| 60.00        |                 | 249.31                    | 407.55                  | 0.00                     | 0.00                    |
| 62.00        |                 | 249.41                    | 404.69                  | 0.00                     | 0.00                    |
| 64.00        |                 | 249.42                    | 401.83                  | 0.00                     | 0.00                    |
| 66.00        |                 | 249.33                    | 398.97                  | 0.00                     | 0.00                    |
| 68.00        |                 | 249.16                    | 396.10                  | 0.00                     | 0.00                    |
| 70.00        |                 | 248.91                    | 393.24                  | 0.00                     | 0.00                    |
| 71.25        |                 | 158.00                    | 436.01                  | 0.00                     | 0.00                    |
| 72.00        |                 | 94.65                     | 260.53                  | 0.00                     | 0.00                    |
| 74.00        |                 | 252.75                    | 690.82                  | 0.00                     | 0.00                    |
| 76.00        |                 | 252.30                    | 685.10                  | 0.00                     | 0.00                    |
| 78.00        |                 | 251.78                    | 387.35                  | 0.00                     | 0.00                    |

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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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|                |                  |                  |                  |             |                  |
|----------------|------------------|------------------|------------------|-------------|------------------|
| 80.00          |                  | 251.20           | 384.49           | 0.00        | 0.00             |
| 82.00          |                  | 250.54           | 333.37           | 0.00        | 0.00             |
| 84.00          |                  | 249.82           | 330.99           | 0.00        | 0.00             |
| 86.00          |                  | 249.04           | 328.60           | 0.00        | 0.00             |
| 88.00          |                  | 248.20           | 326.22           | 0.00        | 0.00             |
| 90.00          |                  | 247.30           | 323.84           | 0.00        | 0.00             |
| 92.00          |                  | 246.35           | 321.45           | 0.00        | 0.00             |
| 94.00          |                  | 245.34           | 319.07           | 0.00        | 0.00             |
| 96.00          |                  | 244.27           | 316.69           | 0.00        | 0.00             |
| 98.00          |                  | 243.15           | 314.30           | 0.00        | 0.00             |
| 100.00         |                  | 241.99           | 311.92           | 0.00        | 0.00             |
| 102.00         |                  | 240.77           | 309.53           | 0.00        | 0.00             |
| 104.00         |                  | 239.51           | 307.15           | 0.00        | 0.00             |
| 106.00         |                  | 238.20           | 303.16           | 0.00        | 0.00             |
| 108.00         |                  | 236.84           | 299.18           | 0.00        | 0.00             |
| 110.00         |                  | 235.44           | 296.80           | 0.00        | 0.00             |
| 112.00         |                  | 234.00           | 294.41           | 0.00        | 0.00             |
| 114.00         |                  | 232.51           | 292.03           | 0.00        | 0.00             |
| 115.00         |                  | 115.54           | 145.12           | 0.00        | 0.00             |
| 116.00         |                  | 117.33           | 247.69           | 0.00        | 0.00             |
| 118.00         |                  | 233.78           | 491.80           | 0.00        | 0.00             |
| 120.00         |                  | 232.19           | 487.03           | 0.00        | 0.00             |
| 122.00         |                  | 230.56           | 286.34           | 0.00        | 0.00             |
| 124.00         |                  | 228.90           | 283.96           | 0.00        | 0.00             |
| 125.00         |                  | 113.68           | 141.09           | 0.00        | 0.00             |
| 126.00         |                  | 113.26           | 121.20           | 0.00        | 0.00             |
| 128.00         |                  | 225.46           | 240.98           | 0.00        | 0.00             |
| 130.00         |                  | 223.69           | 239.07           | 0.00        | 0.00             |
| 132.00         |                  | 221.88           | 237.16           | 0.00        | 0.00             |
| 134.00         |                  | 220.03           | 235.26           | 0.00        | 0.00             |
| 136.00         |                  | 218.16           | 233.35           | 0.00        | 0.00             |
| 137.50         | (46) attachments | 6021.64          | 3693.66          | 0.00        | 9082.44          |
| 138.00         |                  | 53.80            | 49.96            | 0.00        | 0.00             |
| 140.00         |                  | 214.30           | 198.65           | 0.00        | 0.00             |
| 142.00         |                  | 212.33           | 196.74           | 0.00        | 0.00             |
| 144.00         |                  | 210.32           | 194.83           | 0.00        | 0.00             |
| 146.00         |                  | 208.28           | 192.93           | 0.00        | 0.00             |
| 148.00         | (32) attachments | 4163.59          | 1752.72          | 0.00        | -1495.53         |
| 150.00         |                  | 204.12           | 164.56           | 0.00        | 0.00             |
| 152.00         |                  | 205.74           | 296.64           | 0.00        | 0.00             |
| 154.00         |                  | 203.60           | 292.83           | 0.00        | 0.00             |
| 155.00         |                  | 100.89           | 144.98           | 0.00        | 0.00             |
| 156.00         |                  | 100.35           | 80.41            | 0.00        | 0.00             |
| 158.00         |                  | 199.23           | 159.40           | 0.00        | 0.00             |
| 160.00         |                  | 197.00           | 157.49           | 0.00        | 0.00             |
| 162.00         |                  | 194.75           | 155.58           | 0.00        | 0.00             |
| 164.00         |                  | 192.46           | 153.68           | 0.00        | 0.00             |
| 165.00         | (11) attachments | 2951.43          | 2199.31          | 0.00        | 0.00             |
| 166.00         |                  | 94.71            | 74.75            | 0.00        | 0.00             |
| 168.00         |                  | 187.82           | 148.06           | 0.00        | 0.00             |
| 170.00         |                  | 185.46           | 146.16           | 0.00        | 0.00             |
| 172.00         |                  | 175.64           | 139.53           | 0.00        | 0.00             |
| 174.00         | (3) attachments  | 2115.86          | 828.03           | 0.00        | 19575.68         |
| 175.00         | (48) attachments | 5977.15          | 3274.98          | 0.00        | 24699.28         |
| <b>Totals:</b> |                  | <b>40,884.21</b> | <b>43,974.18</b> | <b>0.00</b> | <b>51,861.87</b> |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

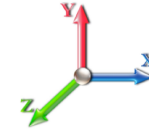
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**Load Case:** 0.9D + 1.0W 125 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



**Iterations** 28

| 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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 2.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.058 | 0.000            | 26.148   | 0.00     | 1.80           |
| 2.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.058 | 0.000            | 26.148   | 0.00     | 3.20           |
| 4.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 1.80           |
| 4.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 3.20           |
| 6.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 1.80           |
| 6.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.059 | 0.000            | 26.148   | 0.00     | 3.20           |
| 8.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 1.80           |
| 8.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 3.20           |
| 10.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 1.80           |
| 10.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.060 | 0.000            | 26.148   | 0.00     | 3.20           |
| 12.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 1.80           |
| 12.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 3.20           |
| 14.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 1.80           |
| 14.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 3.20           |
| 16.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 1.80           |
| 16.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 26.148   | 0.00     | 3.20           |
| 18.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 1.80           |
| 18.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 3.20           |
| 20.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 1.80           |
| 20.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.062 | 0.000            | 26.148   | 0.00     | 3.20           |
| 22.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 1.80           |
| 22.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 3.20           |
| 24.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 1.80           |
| 24.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.063 | 0.000            | 26.148   | 0.00     | 3.20           |
| 26.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 1.80           |
| 26.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 3.20           |
| 28.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 1.80           |
| 28.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.064 | 0.000            | 26.148   | 0.00     | 3.20           |
| 30.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 26.171   | 0.00     | 1.80           |
| 30.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.065 | 0.000            | 26.171   | 0.00     | 3.20           |
| 32.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 26.658   | 0.00     | 1.80           |
| 32.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.065 | 0.000            | 26.658   | 0.00     | 3.20           |
| 33.50         | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.009   | 0.00     | 1.35           |
| 33.50         | 3" Chanel   | Yes          | 1.50        | 0.000 | 3.25               | 0.41        | 0.00        | 0.066 | 0.000            | 27.009   | 0.00     | 2.40           |
| 34.00         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.123   | 0.00     | 0.45           |
| 34.00         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.14        | 0.00        | 0.066 | 0.000            | 27.123   | 0.00     | 0.80           |
| 34.75         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.293   | 0.00     | 0.68           |
| 34.75         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.20        | 0.00        | 0.066 | 0.000            | 27.293   | 0.00     | 1.20           |
| 35.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 27.349   | 0.00     | 0.23           |
| 35.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.07        | 0.00        | 0.066 | 0.000            | 27.349   | 0.00     | 0.40           |
| 36.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 27.570   | 0.00     | 0.90           |
| 36.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.067 | 0.000            | 27.570   | 0.00     | 1.60           |
| 38.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 27.999   | 0.00     | 1.80           |
| 38.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.067 | 0.000            | 27.999   | 0.00     | 3.20           |
| 39.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 28.208   | 0.00     | 0.90           |
| 39.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.067 | 0.000            | 28.208   | 0.00     | 1.60           |
| 40.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 28.413   | 0.00     | 0.90           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 0.9D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 0.90

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 40.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.068 | 0.000            | 28.413   | 0.00     | 1.60           |
| 42.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 28.811   | 0.00     | 1.80           |
| 42.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 28.811   | 0.00     | 3.20           |
| 44.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 29.197   | 0.00     | 1.80           |
| 44.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 29.197   | 0.00     | 3.20           |
| 46.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 29.570   | 0.00     | 1.80           |
| 46.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 29.570   | 0.00     | 3.20           |
| 48.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 29.932   | 0.00     | 1.80           |
| 48.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.069 | 0.000            | 29.932   | 0.00     | 3.20           |
| 48.50         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 30.021   | 0.00     | 0.45           |
| 48.50         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.14        | 0.00        | 0.069 | 0.000            | 30.021   | 0.00     | 0.80           |
| 49.75         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 30.240   | 0.00     | 1.13           |
| 49.75         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.34        | 0.00        | 0.069 | 0.000            | 30.240   | 0.00     | 2.00           |
| 50.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 30.283   | 0.00     | 0.23           |
| 50.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.07        | 0.00        | 0.070 | 0.000            | 30.283   | 0.00     | 0.40           |
| 52.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 30.624   | 0.00     | 1.80           |
| 52.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.070 | 0.000            | 30.624   | 0.00     | 3.20           |
| 54.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 30.956   | 0.00     | 1.80           |
| 54.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.071 | 0.000            | 30.956   | 0.00     | 3.20           |
| 56.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 31.280   | 0.00     | 1.80           |
| 56.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.071 | 0.000            | 31.280   | 0.00     | 3.20           |
| 58.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 31.595   | 0.00     | 1.80           |
| 58.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.072 | 0.000            | 31.595   | 0.00     | 3.20           |
| 60.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 31.902   | 0.00     | 1.80           |
| 60.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.072 | 0.000            | 31.902   | 0.00     | 3.20           |
| 62.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.073 | 0.000            | 32.203   | 0.00     | 1.80           |
| 62.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.073 | 0.000            | 32.203   | 0.00     | 3.20           |
| 64.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 32.496   | 0.00     | 1.80           |
| 64.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.074 | 0.000            | 32.496   | 0.00     | 3.20           |
| 66.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 32.783   | 0.00     | 1.80           |
| 66.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.074 | 0.000            | 32.783   | 0.00     | 3.20           |
| 68.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.075 | 0.000            | 33.064   | 0.00     | 1.80           |
| 68.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.075 | 0.000            | 33.064   | 0.00     | 3.20           |
| 70.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 33.339   | 0.00     | 1.80           |
| 70.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.076 | 0.000            | 33.339   | 0.00     | 3.20           |
| 71.25         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 33.508   | 0.00     | 1.13           |
| 71.25         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.34        | 0.00        | 0.076 | 0.000            | 33.508   | 0.00     | 2.00           |
| 72.00         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 33.608   | 0.00     | 0.68           |
| 72.00         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.20        | 0.00        | 0.077 | 0.000            | 33.608   | 0.00     | 1.20           |
| 74.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 33.872   | 0.00     | 1.80           |
| 74.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.077 | 0.000            | 33.872   | 0.00     | 3.20           |
| 76.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 34.131   | 0.00     | 1.80           |
| 76.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.078 | 0.000            | 34.131   | 0.00     | 3.20           |
| 78.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 34.386   | 0.00     | 1.80           |
| 78.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.077 | 0.000            | 34.386   | 0.00     | 3.20           |
| 80.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 34.635   | 0.00     | 1.80           |
| 80.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.078 | 0.000            | 34.635   | 0.00     | 3.20           |



## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

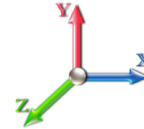
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**Load Case:** 0.9D + 1.0W 125 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



**Iterations** 28

| 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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 82.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.079 | 0.000            | 34.880   | 0.00     | 1.80           |
| 82.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.079 | 0.000            | 34.880   | 0.00     | 3.20           |
| 84.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 35.121   | 0.00     | 1.80           |
| 84.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.080 | 0.000            | 35.121   | 0.00     | 3.20           |
| 86.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 35.358   | 0.00     | 1.80           |
| 86.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.080 | 0.000            | 35.358   | 0.00     | 3.20           |
| 88.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.081 | 0.000            | 35.591   | 0.00     | 1.80           |
| 88.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.081 | 0.000            | 35.591   | 0.00     | 3.20           |
| 90.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.082 | 0.000            | 35.821   | 0.00     | 1.80           |
| 90.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.082 | 0.000            | 35.821   | 0.00     | 3.20           |
| 92.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.083 | 0.000            | 36.046   | 0.00     | 1.80           |
| 92.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.083 | 0.000            | 36.046   | 0.00     | 3.20           |
| 94.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.084 | 0.000            | 36.268   | 0.00     | 1.80           |
| 94.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.084 | 0.000            | 36.268   | 0.00     | 3.20           |
| 96.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 36.487   | 0.00     | 1.80           |
| 96.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.085 | 0.000            | 36.487   | 0.00     | 3.20           |
| 98.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 36.703   | 0.00     | 1.80           |
| 98.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.085 | 0.000            | 36.703   | 0.00     | 3.20           |
| 100.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.086 | 0.000            | 36.915   | 0.00     | 1.80           |
| 100.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.086 | 0.000            | 36.915   | 0.00     | 3.20           |
| 102.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.087 | 0.000            | 37.125   | 0.00     | 1.80           |
| 102.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.087 | 0.000            | 37.125   | 0.00     | 3.20           |
| 104.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.088 | 0.000            | 37.331   | 0.00     | 1.80           |
| 104.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.088 | 0.000            | 37.331   | 0.00     | 3.20           |
| 106.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.045 | 0.000            | 37.535   | 0.00     | 1.80           |
| 106.00        | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.045 | 0.000            | 37.535   | 0.00     | 1.60           |
| 108.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 37.736   | 0.00     | 1.80           |
| 110.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 37.934   | 0.00     | 1.80           |
| 112.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.130   | 0.00     | 1.80           |
| 114.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.324   | 0.00     | 1.80           |
| 115.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.419   | 0.00     | 0.90           |
| 116.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.514   | 0.00     | 0.90           |
| 118.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.703   | 0.00     | 1.80           |
| 120.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 38.889   | 0.00     | 1.80           |
| 122.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.073   | 0.00     | 1.80           |
| 124.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.255   | 0.00     | 1.80           |
| 125.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.346   | 0.00     | 0.90           |
| 126.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.435   | 0.00     | 0.90           |
| 128.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.613   | 0.00     | 1.80           |
| 130.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.789   | 0.00     | 1.80           |
| 132.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 39.963   | 0.00     | 1.80           |
| 134.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.135   | 0.00     | 1.80           |
| 136.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.305   | 0.00     | 1.80           |
| 137.50        | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.432   | 0.00     | 1.35           |
| 138.00        | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.474   | 0.00     | 0.45           |
| 140.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.640   | 0.00     | 1.80           |
| 142.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.805   | 0.00     | 1.80           |

## Linear Appurtenance Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

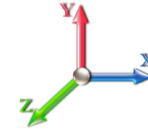


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**Load Case:** 0.9D + 1.0W 125 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



**Iterations** 28

| 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) |
|----------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 144.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 40.969   | 0.00       | 1.80           |
| 146.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.131   | 0.00       | 1.80           |
| 148.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.291   | 0.00       | 1.80           |
| 150.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.449   | 0.00       | 1.80           |
| 152.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.607   | 0.00       | 1.80           |
| 154.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.762   | 0.00       | 1.80           |
| 155.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.840   | 0.00       | 0.90           |
| 156.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 41.917   | 0.00       | 0.90           |
| 158.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.069   | 0.00       | 1.80           |
| 160.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.221   | 0.00       | 1.80           |
| 162.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.371   | 0.00       | 1.80           |
| 164.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.520   | 0.00       | 1.80           |
| 165.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 42.594   | 0.00       | 0.90           |
| <b>Totals:</b> |             |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>316.7</b>   |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 0.9D + 1.0W 125 mph Wind

**Iterations** 28

**Dead Load Factor** 0.90

**Wind Load Factor** 1.00



| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00          | -43.95           | -40.91           | 0.00                | -5182.1         | 0.00            | 5182.11                    | 4820.43       | 1324.26       | 5910.87          | 5262.50          | 0.00               | 0.000               | 0.000                | 0.611        |
| 2.00          | -43.35           | -40.70           | 0.00                | -5100.3         | 0.00            | 5100.30                    | 4803.04       | 1314.69       | 5825.82          | 5205.34          | 0.01               | -0.065              | 0.000                | 0.606        |
| 4.00          | -42.76           | -40.50           | 0.00                | -5018.8         | 0.00            | 5018.89                    | 4785.39       | 1305.13       | 5741.38          | 5148.19          | 0.06               | -0.130              | 0.000                | 0.601        |
| 6.00          | -42.17           | -40.30           | 0.00                | -4937.9         | 0.00            | 4937.90                    | 4767.50       | 1295.57       | 5657.56          | 5091.06          | 0.12               | -0.195              | 0.000                | 0.596        |
| 8.00          | -41.58           | -40.09           | 0.00                | -4857.3         | 0.00            | 4857.30                    | 4749.35       | 1286.01       | 5574.35          | 5033.93          | 0.22               | -0.261              | 0.000                | 0.591        |
| 10.00         | -41.00           | -39.89           | 0.00                | -4777.1         | 0.00            | 4777.12                    | 4730.95       | 1276.44       | 5491.76          | 4976.83          | 0.34               | -0.327              | 0.000                | 0.586        |
| 12.00         | -40.42           | -39.69           | 0.00                | -4697.3         | 0.00            | 4697.34                    | 4712.29       | 1266.88       | 5409.79          | 4919.76          | 0.50               | -0.392              | 0.000                | 0.581        |
| 14.00         | -39.85           | -39.48           | 0.00                | -4617.9         | 0.00            | 4617.97                    | 4693.38       | 1257.32       | 5328.43          | 4862.72          | 0.67               | -0.458              | 0.000                | 0.576        |
| 16.00         | -39.28           | -39.28           | 0.00                | -4539.0         | 0.00            | 4539.00                    | 4674.22       | 1247.76       | 5247.69          | 4805.72          | 0.88               | -0.525              | 0.000                | 0.571        |
| 18.00         | -38.71           | -39.09           | 0.00                | -4460.4         | 0.00            | 4460.43                    | 4654.80       | 1238.20       | 5167.57          | 4748.76          | 1.11               | -0.591              | 0.000                | 0.566        |
| 20.00         | -38.15           | -38.89           | 0.00                | -4382.2         | 0.00            | 4382.26                    | 4635.13       | 1228.63       | 5088.06          | 4691.86          | 1.38               | -0.657              | 0.000                | 0.561        |
| 22.00         | -37.59           | -38.69           | 0.00                | -4304.4         | 0.00            | 4304.49                    | 4615.21       | 1219.07       | 5009.17          | 4635.02          | 1.67               | -0.724              | 0.000                | 0.555        |
| 24.00         | -37.03           | -38.50           | 0.00                | -4227.1         | 0.00            | 4227.11                    | 4595.03       | 1209.51       | 4930.90          | 4578.24          | 1.98               | -0.790              | 0.000                | 0.658        |
| 26.00         | -36.47           | -38.31           | 0.00                | -4150.1         | 0.00            | 4150.12                    | 4574.60       | 1199.95       | 4853.24          | 4521.53          | 2.33               | -0.870              | 0.000                | 0.652        |
| 28.00         | -35.91           | -38.12           | 0.00                | -4073.5         | 0.00            | 4073.50                    | 4553.92       | 1190.38       | 4776.20          | 4464.90          | 2.71               | -0.950              | 0.000                | 0.647        |
| 30.00         | -35.36           | -37.93           | 0.00                | -3997.2         | 0.00            | 3997.26                    | 4532.98       | 1180.82       | 4699.78          | 4408.35          | 3.13               | -1.030              | 0.000                | 0.641        |
| 32.00         | -34.82           | -37.74           | 0.00                | -3921.4         | 0.00            | 3921.40                    | 4511.79       | 1171.26       | 4623.97          | 4351.89          | 3.58               | -1.111              | 0.000                | 0.635        |
| 33.50         | -34.42           | -37.58           | 0.00                | -3864.8         | 0.00            | 3864.80                    | 4495.73       | 1164.09       | 4567.52          | 4309.60          | 3.94               | -1.172              | 0.000                | 0.631        |
| 34.00         | -34.28           | -37.53           | 0.00                | -3846.0         | 0.00            | 3846.01                    | 4490.35       | 1161.70       | 4548.78          | 4295.52          | 4.06               | -1.192              | 0.000                | 0.629        |
| 34.75         | -34.09           | -37.45           | 0.00                | -3817.8         | 0.00            | 3817.86                    | 4482.24       | 1158.11       | 4520.74          | 4274.41          | 4.25               | -1.222              | 0.000                | 0.627        |
| 35.00         | -34.01           | -37.43           | 0.00                | -3808.5         | 0.00            | 3808.50                    | 4479.53       | 1156.92       | 4511.41          | 4267.38          | 4.32               | -1.231              | 0.000                | 0.523        |
| 36.00         | -33.74           | -37.34           | 0.00                | -3771.0         | 0.00            | 3771.06                    | 4468.65       | 1152.14       | 4474.20          | 4239.26          | 4.58               | -1.260              | 0.000                | 0.446        |
| 38.00         | -32.88           | -37.10           | 0.00                | -3696.3         | 0.00            | 3696.39                    | 4446.70       | 1142.57       | 4400.24          | 4183.10          | 5.12               | -1.318              | 0.000                | 0.559        |
| 39.00         | -32.44           | -36.99           | 0.00                | -3659.2         | 0.00            | 3659.29                    | 4435.63       | 1137.79       | 4363.49          | 4155.06          | 5.40               | -1.347              | 0.000                | 0.432        |
| 40.00         | -32.00           | -36.89           | 0.00                | -3622.3         | 0.00            | 3622.30                    | 4424.50       | 1133.01       | 4326.90          | 4127.05          | 5.68               | -1.375              | 0.000                | 0.503        |
| 42.00         | -31.14           | -36.66           | 0.00                | -3548.5         | 0.00            | 3548.53                    | 3554.53       | 980.17        | 3778.00          | 3351.15          | 6.27               | -1.442              | 0.000                | 0.546        |
| 44.00         | -30.67           | -36.44           | 0.00                | -3475.2         | 0.00            | 3475.21                    | 3539.83       | 971.98        | 3715.08          | 3309.16          | 6.89               | -1.509              | 0.000                | 0.570        |
| 46.00         | -30.20           | -36.22           | 0.00                | -3402.3         | 0.00            | 3402.34                    | 3524.88       | 963.78        | 3652.69          | 3267.17          | 7.54               | -1.579              | 0.000                | 0.563        |
| 48.00         | -29.76           | -35.98           | 0.00                | -3329.9         | 0.00            | 3329.90                    | 3509.67       | 955.59        | 3590.83          | 3225.18          | 8.22               | -1.650              | 0.000                | 0.556        |
| 48.50         | -29.63           | -35.94           | 0.00                | -3311.9         | 0.00            | 3311.91                    | 3505.83       | 953.54        | 3575.44          | 3214.69          | 8.39               | -1.668              | 0.000                | 0.554        |
| 49.75         | -29.36           | -35.79           | 0.00                | -3266.9         | 0.00            | 3266.99                    | 3496.16       | 948.41        | 3537.13          | 3188.45          | 8.83               | -1.712              | 0.000                | 0.631        |
| 50.00         | -29.28           | -35.78           | 0.00                | -3258.0         | 0.00            | 3258.04                    | 3494.22       | 947.39        | 3529.49          | 3183.21          | 8.92               | -1.722              | 0.000                | 0.672        |
| 52.00         | -28.81           | -35.56           | 0.00                | -3186.4         | 0.00            | 3186.48                    | 3478.50       | 939.19        | 3468.69          | 3141.25          | 9.66               | -1.809              | 0.000                | 0.664        |
| 54.00         | -28.31           | -35.22           | 0.00                | -3115.3         | 0.00            | 3115.35                    | 3462.54       | 931.00        | 3408.41          | 3099.32          | 10.44              | -1.896              | 0.000                | 0.656        |
| 56.00         | -27.85           | -35.00           | 0.00                | -3044.9         | 0.00            | 3044.92                    | 3446.32       | 922.80        | 3348.66          | 3057.41          | 11.25              | -1.982              | 0.000                | 0.648        |
| 58.00         | -27.40           | -34.78           | 0.00                | -2974.9         | 0.00            | 2974.92                    | 3429.84       | 914.61        | 3289.44          | 3015.54          | 12.10              | -2.069              | 0.000                | 0.639        |
| 60.00         | -26.95           | -34.55           | 0.00                | -2905.3         | 0.00            | 2905.37                    | 3413.12       | 906.41        | 3230.75          | 2973.71          | 12.99              | -2.155              | 0.000                | 0.631        |
| 62.00         | -26.50           | -34.33           | 0.00                | -2836.2         | 0.00            | 2836.26                    | 3396.14       | 898.21        | 3172.59          | 2931.93          | 13.91              | -2.242              | 0.000                | 0.622        |
| 64.00         | -26.06           | -34.10           | 0.00                | -2767.6         | 0.00            | 2767.60                    | 3378.91       | 890.02        | 3114.95          | 2890.20          | 14.87              | -2.328              | 0.000                | 0.614        |
| 66.00         | -25.62           | -33.88           | 0.00                | -2699.4         | 0.00            | 2699.40                    | 3361.42       | 881.82        | 3057.84          | 2848.53          | 15.86              | -2.415              | 0.000                | 0.605        |
| 68.00         | -25.18           | -33.65           | 0.00                | -2631.6         | 0.00            | 2631.65                    | 3343.68       | 873.62        | 3001.27          | 2806.93          | 16.89              | -2.501              | 0.000                | 0.596        |
| 70.00         | -24.76           | -33.41           | 0.00                | -2564.3         | 0.00            | 2564.35                    | 3325.69       | 865.43        | 2945.21          | 2765.40          | 17.96              | -2.587              | 0.000                | 0.588        |
| 71.25         | -24.31           | -33.25           | 0.00                | -2522.5         | 0.00            | 2522.59                    | 3314.31       | 860.31        | 2910.45          | 2739.48          | 18.64              | -2.641              | 0.000                | 0.575        |
| 72.00         | -24.02           | -33.17           | 0.00                | -2497.6         | 0.00            | 2497.65                    | 3307.44       | 857.23        | 2889.69          | 2723.94          | 19.06              | -2.664              | 0.000                | 0.571        |
| 74.00         | -23.30           | -32.92           | 0.00                | -2431.3         | 0.00            | 2431.32                    | 3288.94       | 849.04        | 2834.70          | 2682.57          | 20.19              | -2.749              | 0.000                | 0.562        |
| 76.00         | -22.58           | -32.66           | 0.00                | -2365.4         | 0.00            | 2365.49                    | 3306.32       | 856.73        | 2886.33          | 2721.42          | 21.36              | -2.833              | 0.000                | 0.568        |
| 78.00         | -22.15           | -32.43           | 0.00                | -2300.1         | 0.00            | 2300.16                    | 3287.81       | 848.54        | 2831.37          | 2680.05          | 22.57              | -2.918              | 0.000                | 0.539        |
| 80.00         | -21.74           | -32.19           | 0.00                | -2235.3         | 0.00            | 2235.31                    | 3269.04       | 840.34        | 2776.94          | 2638.78          | 23.80              | -2.999              | 0.000                | 0.530        |

## Calculated Forces

**Structure:** CT00680-S-SBA      **Code:** TIA-222-H      1/9/2023  
**Site Name:** Putnam      **Exposure:** B  
**Height:** 175.00 (ft)      **Crest Height:** 0.00  
**Base Elev:** 0.000 (ft)      **Site Class:** D - Stiff Soil  
**Gh:** 1.1      **Topography:** 1      **Struct Class:** II      Page: 32



|        |        |        |      |         |      |         |         |        |         |         |        |        |       |       |
|--------|--------|--------|------|---------|------|---------|---------|--------|---------|---------|--------|--------|-------|-------|
| 80.00  | -21.74 | -32.19 | 0.00 | -2235.3 | 0.00 | 2235.31 | 2504.08 | 701.39 | 2321.41 | 2027.68 | 23.80  | -2.999 | 0.000 | 0.578 |
| 82.00  | -21.37 | -31.95 | 0.00 | -2170.9 | 0.00 | 2170.94 | 2492.58 | 694.56 | 2276.42 | 1998.56 | 25.08  | -3.079 | 0.000 | 0.630 |
| 84.00  | -21.00 | -31.71 | 0.00 | -2107.0 | 0.00 | 2107.04 | 2480.83 | 687.73 | 2231.87 | 1969.42 | 26.39  | -3.169 | 0.000 | 0.618 |
| 86.00  | -20.65 | -31.48 | 0.00 | -2043.6 | 0.00 | 2043.62 | 2468.82 | 680.90 | 2187.76 | 1940.26 | 27.73  | -3.258 | 0.000 | 0.605 |
| 88.00  | -20.29 | -31.24 | 0.00 | -1980.6 | 0.00 | 1980.66 | 2456.55 | 674.07 | 2144.09 | 1911.10 | 29.11  | -3.329 | 0.000 | 0.740 |
| 90.00  | -19.92 | -31.01 | 0.00 | -1918.1 | 0.00 | 1918.18 | 2444.04 | 667.24 | 2100.86 | 1881.94 | 30.53  | -3.439 | 0.000 | 0.726 |
| 92.00  | -19.55 | -30.79 | 0.00 | -1856.1 | 0.00 | 1856.15 | 2431.27 | 660.41 | 2058.07 | 1852.79 | 31.99  | -3.548 | 0.000 | 0.711 |
| 94.00  | -19.19 | -30.56 | 0.00 | -1794.5 | 0.00 | 1794.58 | 2418.25 | 653.58 | 2015.72 | 1823.65 | 33.50  | -3.657 | 0.000 | 0.696 |
| 96.00  | -18.84 | -30.33 | 0.00 | -1733.4 | 0.00 | 1733.47 | 2404.97 | 646.75 | 1973.81 | 1794.53 | 35.06  | -3.764 | 0.000 | 0.680 |
| 98.00  | -18.48 | -30.10 | 0.00 | -1672.8 | 0.00 | 1672.81 | 2391.44 | 639.92 | 1932.34 | 1765.43 | 36.66  | -3.871 | 0.000 | 0.665 |
| 100.00 | -18.13 | -29.87 | 0.00 | -1612.6 | 0.00 | 1612.62 | 2377.66 | 633.09 | 1891.31 | 1736.36 | 38.30  | -3.977 | 0.000 | 0.649 |
| 102.00 | -17.79 | -29.64 | 0.00 | -1552.8 | 0.00 | 1552.88 | 2363.63 | 626.26 | 1850.72 | 1707.33 | 39.99  | -4.082 | 0.000 | 0.633 |
| 104.00 | -17.44 | -29.41 | 0.00 | -1493.6 | 0.00 | 1493.60 | 2349.34 | 619.43 | 1810.57 | 1678.33 | 41.72  | -4.186 | 0.000 | 0.617 |
| 106.00 | -17.10 | -29.19 | 0.00 | -1434.7 | 0.00 | 1434.78 | 2334.79 | 612.60 | 1770.86 | 1649.39 | 43.49  | -4.289 | 0.000 | 0.879 |
| 108.00 | -16.74 | -28.97 | 0.00 | -1376.4 | 0.00 | 1376.40 | 2320.00 | 605.77 | 1731.59 | 1620.50 | 45.32  | -4.439 | 0.000 | 0.859 |
| 110.00 | -16.39 | -28.76 | 0.00 | -1318.4 | 0.00 | 1318.46 | 2304.95 | 598.94 | 1692.77 | 1591.67 | 47.21  | -4.586 | 0.000 | 0.838 |
| 112.00 | -16.04 | -28.54 | 0.00 | -1260.9 | 0.00 | 1260.94 | 2289.65 | 592.11 | 1654.38 | 1562.91 | 49.16  | -4.733 | 0.000 | 0.816 |
| 114.00 | -15.72 | -28.32 | 0.00 | -1203.8 | 0.00 | 1203.86 | 2274.09 | 585.28 | 1616.43 | 1534.22 | 51.17  | -4.878 | 0.000 | 0.794 |
| 115.00 | -15.55 | -28.21 | 0.00 | -1175.5 | 0.00 | 1175.54 | 2266.22 | 581.86 | 1597.62 | 1519.90 | 52.20  | -4.950 | 0.000 | 0.783 |
| 116.00 | -15.26 | -28.10 | 0.00 | -1147.3 | 0.00 | 1147.34 | 2258.28 | 578.45 | 1578.92 | 1505.61 | 53.25  | -5.022 | 0.000 | 0.771 |
| 118.00 | -14.72 | -27.86 | 0.00 | -1091.1 | 0.00 | 1091.15 | 2242.22 | 571.62 | 1541.86 | 1477.08 | 55.38  | -5.163 | 0.000 | 0.748 |
| 120.00 | -14.19 | -27.62 | 0.00 | -1035.4 | 0.00 | 1035.43 | 2252.14 | 575.82 | 1564.64 | 1494.64 | 57.57  | -5.302 | 0.000 | 0.701 |
| 122.00 | -13.86 | -27.39 | 0.00 | -980.20 | 0.00 | 980.20  | 2235.98 | 568.99 | 1527.74 | 1466.15 | 59.82  | -5.439 | 0.000 | 0.677 |
| 124.00 | -13.56 | -27.16 | 0.00 | -925.42 | 0.00 | 925.42  | 2219.57 | 562.16 | 1491.28 | 1437.75 | 62.12  | -5.565 | 0.000 | 0.652 |
| 125.00 | -13.40 | -27.05 | 0.00 | -898.26 | 0.00 | 898.26  | 2211.27 | 558.75 | 1473.22 | 1423.59 | 63.29  | -5.627 | 0.000 | 0.639 |
| 125.00 | -13.40 | -27.05 | 0.00 | -898.26 | 0.00 | 898.26  | 1600.93 | 447.88 | 1183.23 | 1034.73 | 63.29  | -5.627 | 0.000 | 0.880 |
| 126.00 | -13.24 | -26.95 | 0.00 | -871.22 | 0.00 | 871.22  | 1596.33 | 445.15 | 1168.84 | 1025.42 | 64.47  | -5.689 | 0.000 | 0.862 |
| 128.00 | -12.95 | -26.73 | 0.00 | -817.33 | 0.00 | 817.33  | 1586.93 | 439.68 | 1140.32 | 1006.77 | 66.89  | -5.839 | 0.000 | 0.824 |
| 130.00 | -12.67 | -26.52 | 0.00 | -763.87 | 0.00 | 763.87  | 1577.27 | 434.22 | 1112.16 | 988.11  | 69.36  | -5.984 | 0.000 | 0.785 |
| 132.00 | -12.40 | -26.30 | 0.00 | -710.84 | 0.00 | 710.84  | 1567.36 | 428.76 | 1084.34 | 969.45  | 71.89  | -6.125 | 0.000 | 0.745 |
| 134.00 | -12.13 | -26.08 | 0.00 | -658.24 | 0.00 | 658.24  | 1557.20 | 423.29 | 1056.88 | 950.79  | 74.49  | -6.260 | 0.000 | 0.704 |
| 136.00 | -11.87 | -25.86 | 0.00 | -606.07 | 0.00 | 606.07  | 1546.79 | 417.83 | 1029.77 | 932.14  | 77.13  | -6.390 | 0.000 | 0.662 |
| 137.50 | -8.85  | -19.48 | 0.00 | -558.20 | 0.00 | 558.20  | 1538.81 | 413.73 | 1009.67 | 918.16  | 79.15  | -6.485 | 0.000 | 0.616 |
| 138.00 | -8.78  | -19.43 | 0.00 | -548.46 | 0.00 | 548.46  | 1536.12 | 412.36 | 1003.02 | 913.50  | 79.83  | -6.515 | 0.000 | 0.608 |
| 140.00 | -8.57  | -19.21 | 0.00 | -509.60 | 0.00 | 509.60  | 1525.20 | 406.90 | 976.61  | 894.88  | 82.58  | -6.633 | 0.000 | 0.577 |
| 142.00 | -8.37  | -18.99 | 0.00 | -471.18 | 0.00 | 471.18  | 1514.03 | 401.44 | 950.56  | 876.30  | 85.38  | -6.747 | 0.000 | 0.545 |
| 144.00 | -8.16  | -18.78 | 0.00 | -433.20 | 0.00 | 433.20  | 1502.60 | 395.97 | 924.86  | 857.74  | 88.22  | -6.856 | 0.000 | 0.513 |
| 146.00 | -7.96  | -18.56 | 0.00 | -395.65 | 0.00 | 395.65  | 1490.92 | 390.51 | 899.51  | 839.23  | 91.11  | -6.960 | 0.000 | 0.479 |
| 148.00 | -6.71  | -14.22 | 0.00 | -358.53 | 0.00 | 358.53  | 1478.99 | 385.04 | 874.51  | 820.76  | 94.04  | -7.059 | 0.000 | 0.443 |
| 150.00 | -6.55  | -14.01 | 0.00 | -330.08 | 0.00 | 330.08  | 1466.80 | 379.58 | 849.87  | 802.34  | 97.01  | -7.153 | 0.000 | 0.417 |
| 152.00 | -6.26  | -13.78 | 0.00 | -302.05 | 0.00 | 302.05  | 1454.36 | 374.12 | 825.58  | 783.97  | 100.02 | -7.243 | 0.000 | 0.391 |
| 154.00 | -5.98  | -13.55 | 0.00 | -274.49 | 0.00 | 274.49  | 1441.66 | 368.65 | 801.64  | 765.67  | 103.06 | -7.329 | 0.000 | 0.364 |
| 155.00 | -5.84  | -13.43 | 0.00 | -260.94 | 0.00 | 260.94  | 1451.75 | 372.98 | 820.59  | 780.18  | 104.60 | -7.371 | 0.000 | 0.340 |
| 156.00 | -5.76  | -13.33 | 0.00 | -247.51 | 0.00 | 247.51  | 1445.41 | 370.25 | 808.61  | 771.02  | 106.14 | -7.411 | 0.000 | 0.326 |
| 158.00 | -5.61  | -13.12 | 0.00 | -220.85 | 0.00 | 220.85  | 1432.53 | 364.79 | 784.92  | 752.77  | 109.26 | -7.483 | 0.000 | 0.299 |
| 160.00 | -5.46  | -12.91 | 0.00 | -194.61 | 0.00 | 194.61  | 1419.41 | 359.32 | 761.58  | 734.60  | 112.40 | -7.550 | 0.000 | 0.270 |
| 162.00 | -5.32  | -12.70 | 0.00 | -168.79 | 0.00 | 168.79  | 1406.03 | 353.86 | 738.59  | 716.50  | 115.56 | -7.611 | 0.000 | 0.241 |
| 164.00 | -5.19  | -12.49 | 0.00 | -143.39 | 0.00 | 143.39  | 1392.39 | 348.39 | 715.96  | 698.49  | 118.76 | -7.666 | 0.000 | 0.210 |
| 165.00 | -3.40  | -9.28  | 0.00 | -130.90 | 0.00 | 130.90  | 1385.48 | 345.66 | 704.77  | 689.51  | 120.36 | -7.692 | 0.000 | 0.193 |
| 166.00 | -3.33  | -9.17  | 0.00 | -121.62 | 0.00 | 121.62  | 1378.51 | 342.93 | 693.68  | 680.57  | 121.97 | -7.716 | 0.000 | 0.182 |
| 168.00 | -3.20  | -8.97  | 0.00 | -103.28 | 0.00 | 103.28  | 1364.37 | 337.47 | 671.75  | 662.74  | 125.20 | -7.759 | 0.000 | 0.159 |
| 170.00 | -3.08  | -8.77  | 0.00 | -85.34  | 0.00 | 85.34   | 1349.97 | 332.00 | 650.17  | 645.02  | 128.45 | -7.798 | 0.000 | 0.135 |
| 170.00 | -3.08  | -8.77  | 0.00 | -85.34  | 0.00 | 85.34   | 1349.97 | 332.00 | 650.17  | 645.02  | 128.45 | -7.798 | 0.000 | 0.135 |
| 172.00 | -2.96  | -8.58  | 0.00 | -67.80  | 0.00 | 67.80   | 1257.93 | 299.51 | 529.13  | 541.60  | 131.71 | -7.830 | 0.000 | 0.128 |
| 174.00 | -2.43  | -6.37  | 0.00 | -31.07  | 0.00 | 31.07   | 1121.46 | 267.01 | 420.55  | 429.85  | 134.99 | -7.865 | 0.000 | 0.075 |
| 175.00 | 0.00   | -5.98  | 0.00 | -24.70  | 0.00 | 24.70   | 1053.22 | 250.77 | 370.93  | 378.81  | 136.64 | -7.876 | 0.000 | 0.066 |

## Calculated Forces

|                   |               |                      |                |                         |
|-------------------|---------------|----------------------|----------------|-------------------------|
| <b>Structure:</b> | CT00680-S-SBA | <b>Code:</b>         | TIA-222-H      | 1/9/2023                |
| <b>Site Name:</b> | Putnam        | <b>Exposure:</b>     | B              |                         |
| <b>Height:</b>    | 175.00 (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: 33                |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



| Elev<br>(ft) | Description         | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Aa<br>(sf) | CfAa<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot<br>Dead<br>Load<br>(lb) |
|--------------|---------------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|-----------------------------|
| 0.00         | RB1 RB2             | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.000                | 0.00              | 0.000      | 0.00         | 0.0                     | 0.0                      | 0.0                         |
| 2.00         |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.756                | 2.00              | 9.536      | 11.44        | 52.7                    | 106.5                    | 720.5                       |
| 4.00         |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.810                | 2.00              | 9.487      | 11.38        | 52.4                    | 113.4                    | 722.9                       |
| 6.00         |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.843                | 2.00              | 9.432      | 11.32        | 52.1                    | 117.3                    | 722.4                       |
| 8.00         |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.868                | 2.00              | 9.373      | 11.25        | 51.8                    | 119.9                    | 720.6                       |
| 10.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.887                | 2.00              | 9.313      | 11.18        | 51.4                    | 121.8                    | 718.0                       |
| 12.00        | Appurtenance(s)     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.904                | 2.00              | 9.252      | 11.10        | 51.1                    | 123.1                    | 714.9                       |
| 14.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.918                | 2.00              | 9.190      | 11.03        | 50.8                    | 124.2                    | 711.5                       |
| 16.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.930                | 2.00              | 9.127      | 10.95        | 50.4                    | 124.9                    | 707.8                       |
| 18.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.941                | 2.00              | 9.064      | 10.88        | 50.1                    | 125.5                    | 703.9                       |
| 20.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.951                | 2.00              | 9.001      | 10.80        | 49.7                    | 125.9                    | 699.9                       |
| 22.00        | RT2                 | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.960                | 2.00              | 8.937      | 10.72        | 49.4                    | 126.2                    | 695.7                       |
| 24.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.969                | 2.00              | 8.873      | 10.65        | 49.0                    | 126.3                    | 691.4                       |
| 26.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.976                | 2.00              | 8.809      | 10.57        | 48.6                    | 126.4                    | 687.0                       |
| 28.00        |                     | 1.00 | 0.70 | 4.184       | 4.60          | 0.00          | 1.200 | 0.984                | 2.00              | 8.744      | 10.49        | 48.3                    | 126.3                    | 682.5                       |
| 30.00        |                     | 1.00 | 0.70 | 4.187       | 4.61          | 0.00          | 1.200 | 0.991                | 2.00              | 8.680      | 10.42        | 48.0                    | 126.2                    | 677.9                       |
| 32.00        |                     | 1.00 | 0.71 | 4.265       | 4.69          | 0.00          | 1.200 | 0.997                | 2.00              | 8.615      | 10.34        | 48.5                    | 126.1                    | 673.3                       |
| 33.50        | RB3                 | 1.00 | 0.72 | 4.321       | 4.75          | 0.00          | 1.200 | 1.002                | 1.50              | 6.419      | 7.70         | 36.6                    | 94.4                     | 502.0                       |
| 34.00        |                     | 1.00 | 0.73 | 4.340       | 4.77          | 0.00          | 1.200 | 1.003                | 0.50              | 2.131      | 2.56         | 12.2                    | 31.5                     | 166.7                       |
| 34.75        | RB4                 | 1.00 | 0.73 | 4.367       | 4.80          | 0.00          | 1.200 | 1.005                | 0.75              | 3.190      | 3.83         | 18.4                    | 47.2                     | 249.6                       |
| 35.00        | RB5                 | 1.00 | 0.73 | 4.376       | 4.81          | 0.00          | 1.200 | 1.006                | 0.25              | 1.061      | 1.27         | 6.1                     | 15.7                     | 83.0                        |
| 36.00        | Bot - Section 2 RT1 | 1.00 | 0.74 | 4.411       | 4.85          | 0.00          | 1.200 | 1.009                | 1.00              | 4.235      | 5.08         | 24.7                    | 62.8                     | 331.4                       |
| 38.00        | RB6                 | 1.00 | 0.75 | 4.480       | 4.93          | 0.00          | 1.200 | 1.014                | 2.00              | 8.550      | 10.26        | 50.6                    | 127.2                    | 1126.8                      |
| 39.00        | RT5                 | 1.00 | 0.76 | 4.513       | 4.96          | 0.00          | 1.200 | 1.017                | 1.00              | 4.251      | 5.10         | 25.3                    | 63.5                     | 560.2                       |
| 40.00        |                     | 1.00 | 0.76 | 4.546       | 5.00          | 0.00          | 1.200 | 1.019                | 1.00              | 4.234      | 5.08         | 25.4                    | 63.4                     | 558.0                       |
| 42.00        | Top - Section 1     | 1.00 | 0.77 | 4.610       | 5.07          | 0.00          | 1.200 | 1.024                | 2.00              | 8.420      | 10.10        | 51.2                    | 126.5                    | 1109.5                      |
| 44.00        |                     | 1.00 | 0.78 | 4.671       | 5.14          | 0.00          | 1.200 | 1.029                | 2.00              | 8.355      | 10.03        | 51.5                    | 126.0                    | 580.3                       |
| 46.00        |                     | 1.00 | 0.79 | 4.731       | 5.20          | 0.00          | 1.200 | 1.034                | 2.00              | 8.290      | 9.95         | 51.8                    | 125.6                    | 576.0                       |
| 48.00        |                     | 1.00 | 0.80 | 4.789       | 5.27          | 0.00          | 1.200 | 1.038                | 2.00              | 8.225      | 9.87         | 52.0                    | 125.1                    | 571.7                       |
| 48.50        | RT3                 | 1.00 | 0.80 | 4.803       | 5.28          | 0.00          | 1.200 | 1.039                | 0.50              | 2.046      | 2.46         | 13.0                    | 31.2                     | 142.3                       |
| 49.75        | RT4                 | 1.00 | 0.81 | 4.838       | 5.32          | 0.00          | 1.200 | 1.042                | 1.25              | 5.097      | 6.12         | 32.6                    | 77.9                     | 354.5                       |
| 50.00        |                     | 1.00 | 0.81 | 4.845       | 5.33          | 0.00          | 1.200 | 1.042                | 0.25              | 1.016      | 1.22         | 6.5                     | 15.6                     | 70.7                        |
| 52.00        |                     | 1.00 | 0.82 | 4.900       | 5.39          | 0.00          | 1.200 | 1.047                | 2.00              | 8.094      | 9.71         | 52.4                    | 124.0                    | 563.0                       |
| 54.00        | Appurtenance(s)     | 1.00 | 0.83 | 4.953       | 5.45          | 0.00          | 1.200 | 1.050                | 2.00              | 8.029      | 9.63         | 52.5                    | 123.4                    | 558.6                       |
| 56.00        |                     | 1.00 | 0.84 | 5.005       | 5.51          | 0.00          | 1.200 | 1.054                | 2.00              | 7.963      | 9.56         | 52.6                    | 122.8                    | 554.2                       |
| 58.00        |                     | 1.00 | 0.85 | 5.055       | 5.56          | 0.00          | 1.200 | 1.058                | 2.00              | 7.898      | 9.48         | 52.7                    | 122.2                    | 549.7                       |
| 60.00        |                     | 1.00 | 0.85 | 5.104       | 5.61          | 0.00          | 1.200 | 1.062                | 2.00              | 7.832      | 9.40         | 52.8                    | 121.6                    | 545.3                       |
| 62.00        |                     | 1.00 | 0.86 | 5.152       | 5.67          | 0.00          | 1.200 | 1.065                | 2.00              | 7.767      | 9.32         | 52.8                    | 120.9                    | 540.8                       |
| 64.00        |                     | 1.00 | 0.87 | 5.199       | 5.72          | 0.00          | 1.200 | 1.068                | 2.00              | 7.701      | 9.24         | 52.9                    | 120.2                    | 536.3                       |
| 66.00        |                     | 1.00 | 0.88 | 5.245       | 5.77          | 0.00          | 1.200 | 1.072                | 2.00              | 7.635      | 9.16         | 52.9                    | 119.6                    | 531.8                       |
| 68.00        |                     | 1.00 | 0.89 | 5.290       | 5.82          | 0.00          | 1.200 | 1.075                | 2.00              | 7.570      | 9.08         | 52.9                    | 118.8                    | 527.3                       |
| 70.00        | Bot - Section 3     | 1.00 | 0.89 | 5.334       | 5.87          | 0.00          | 1.200 | 1.078                | 2.00              | 7.504      | 9.00         | 52.8                    | 118.1                    | 522.7                       |
| 71.25        | RT6 RB7             | 1.00 | 0.90 | 5.361       | 5.90          | 0.00          | 1.200 | 1.080                | 1.25              | 4.737      | 5.68         | 33.5                    | 74.8                     | 581.4                       |
| 72.00        |                     | 1.00 | 0.90 | 5.377       | 5.92          | 0.00          | 1.200 | 1.081                | 0.75              | 2.830      | 3.40         | 20.1                    | 44.8                     | 347.3                       |
| 74.00        |                     | 1.00 | 0.91 | 5.420       | 5.96          | 0.00          | 1.200 | 1.084                | 2.00              | 7.502      | 9.00         | 53.7                    | 118.7                    | 920.1                       |
| 76.00        | Top - Section 2     | 1.00 | 0.91 | 5.461       | 6.01          | 0.00          | 1.200 | 1.087                | 2.00              | 7.436      | 8.92         | 53.6                    | 118.0                    | 911.7                       |
| 78.00        |                     | 1.00 | 0.92 | 5.502       | 6.05          | 0.00          | 1.200 | 1.090                | 2.00              | 7.370      | 8.84         | 53.5                    | 117.2                    | 513.9                       |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|                        |      |      |       |      |      |       |       |      |       |      |      |       |       |
|------------------------|------|------|-------|------|------|-------|-------|------|-------|------|------|-------|-------|
| 80.00 Top - Section 3  | 1.00 | 0.93 | 5.542 | 6.10 | 0.00 | 1.200 | 1.093 | 2.00 | 7.304 | 8.77 | 53.4 | 116.4 | 509.3 |
| 82.00                  | 1.00 | 0.93 | 5.581 | 6.14 | 0.00 | 1.200 | 1.095 | 2.00 | 7.239 | 8.69 | 53.3 | 115.6 | 440.4 |
| 84.00                  | 1.00 | 0.94 | 5.619 | 6.18 | 0.00 | 1.200 | 1.098 | 2.00 | 7.173 | 8.61 | 53.2 | 114.8 | 436.4 |
| 86.00 RT7 RB8          | 1.00 | 0.95 | 5.657 | 6.22 | 0.00 | 1.200 | 1.101 | 2.00 | 7.107 | 8.53 | 53.1 | 113.9 | 432.4 |
| 88.00                  | 1.00 | 0.95 | 5.695 | 6.26 | 0.00 | 1.200 | 1.103 | 2.00 | 7.041 | 8.45 | 52.9 | 113.1 | 428.4 |
| 90.00                  | 1.00 | 0.96 | 5.731 | 6.30 | 0.00 | 1.200 | 1.106 | 2.00 | 6.975 | 8.37 | 52.8 | 112.3 | 424.3 |
| 92.00                  | 1.00 | 0.96 | 5.767 | 6.34 | 0.00 | 1.200 | 1.108 | 2.00 | 6.909 | 8.29 | 52.6 | 111.4 | 420.3 |
| 94.00                  | 1.00 | 0.97 | 5.803 | 6.38 | 0.00 | 1.200 | 1.110 | 2.00 | 6.843 | 8.21 | 52.4 | 110.5 | 416.3 |
| 96.00                  | 1.00 | 0.98 | 5.838 | 6.42 | 0.00 | 1.200 | 1.113 | 2.00 | 6.777 | 8.13 | 52.2 | 109.7 | 412.2 |
| 98.00                  | 1.00 | 0.98 | 5.872 | 6.46 | 0.00 | 1.200 | 1.115 | 2.00 | 6.711 | 8.05 | 52.0 | 108.8 | 408.1 |
| 100.00                 | 1.00 | 0.99 | 5.906 | 6.50 | 0.00 | 1.200 | 1.117 | 2.00 | 6.645 | 7.97 | 51.8 | 107.9 | 404.1 |
| 102.00                 | 1.00 | 0.99 | 5.940 | 6.53 | 0.00 | 1.200 | 1.119 | 2.00 | 6.579 | 7.90 | 51.6 | 107.0 | 400.0 |
| 104.00 RT8             | 1.00 | 1.00 | 5.973 | 6.57 | 0.00 | 1.200 | 1.122 | 2.00 | 6.513 | 7.82 | 51.4 | 106.1 | 395.9 |
| 106.00                 | 1.00 | 1.00 | 6.006 | 6.61 | 0.00 | 1.200 | 1.124 | 2.00 | 6.447 | 7.74 | 51.1 | 105.1 | 391.8 |
| 108.00                 | 1.00 | 1.01 | 6.038 | 6.64 | 0.00 | 1.200 | 1.126 | 2.00 | 6.381 | 7.66 | 50.9 | 104.2 | 387.7 |
| 110.00                 | 1.00 | 1.02 | 6.070 | 6.68 | 0.00 | 1.200 | 1.128 | 2.00 | 6.315 | 7.58 | 50.6 | 103.3 | 383.6 |
| 112.00                 | 1.00 | 1.02 | 6.101 | 6.71 | 0.00 | 1.200 | 1.130 | 2.00 | 6.249 | 7.50 | 50.3 | 102.3 | 379.5 |
| 114.00                 | 1.00 | 1.03 | 6.132 | 6.74 | 0.00 | 1.200 | 1.132 | 2.00 | 6.183 | 7.42 | 50.0 | 101.4 | 375.3 |
| 115.00 Bot - Section 5 | 1.00 | 1.03 | 6.147 | 6.76 | 0.00 | 1.200 | 1.133 | 1.00 | 3.067 | 3.68 | 24.9 | 50.5  | 186.2 |
| 116.00                 | 1.00 | 1.03 | 6.162 | 6.78 | 0.00 | 1.200 | 1.134 | 1.00 | 3.104 | 3.72 | 25.2 | 51.1  | 323.7 |
| 118.00                 | 1.00 | 1.04 | 6.192 | 6.81 | 0.00 | 1.200 | 1.136 | 2.00 | 6.159 | 7.39 | 50.3 | 101.3 | 641.6 |
| 120.00 Top - Section 4 | 1.00 | 1.04 | 6.222 | 6.84 | 0.00 | 1.200 | 1.138 | 2.00 | 6.093 | 7.31 | 50.0 | 100.4 | 634.3 |
| 122.00                 | 1.00 | 1.05 | 6.252 | 6.88 | 0.00 | 1.200 | 1.140 | 2.00 | 6.027 | 7.23 | 49.7 | 99.4  | 365.7 |
| 124.00                 | 1.00 | 1.05 | 6.281 | 6.91 | 0.00 | 1.200 | 1.142 | 2.00 | 5.960 | 7.15 | 49.4 | 98.4  | 361.6 |
| 125.00 Top - Section 5 | 1.00 | 1.05 | 6.295 | 6.92 | 0.00 | 1.200 | 1.142 | 1.00 | 2.955 | 3.55 | 24.6 | 49.0  | 179.4 |
| 126.00                 | 1.00 | 1.06 | 6.310 | 6.94 | 0.00 | 1.200 | 1.143 | 1.00 | 2.939 | 3.53 | 24.5 | 48.7  | 152.6 |
| 128.00                 | 1.00 | 1.06 | 6.338 | 6.97 | 0.00 | 1.200 | 1.145 | 2.00 | 5.828 | 6.99 | 48.8 | 96.4  | 302.3 |
| 130.00                 | 1.00 | 1.07 | 6.366 | 7.00 | 0.00 | 1.200 | 1.147 | 2.00 | 5.762 | 6.91 | 48.4 | 95.4  | 298.8 |
| 132.00                 | 1.00 | 1.07 | 6.394 | 7.03 | 0.00 | 1.200 | 1.149 | 2.00 | 5.696 | 6.84 | 48.1 | 94.4  | 295.2 |
| 134.00                 | 1.00 | 1.07 | 6.422 | 7.06 | 0.00 | 1.200 | 1.150 | 2.00 | 5.630 | 6.76 | 47.7 | 93.4  | 291.7 |
| 136.00                 | 1.00 | 1.08 | 6.449 | 7.09 | 0.00 | 1.200 | 1.152 | 2.00 | 5.564 | 6.68 | 47.4 | 92.4  | 288.1 |
| 137.50 Appurtenance(s) | 1.00 | 1.08 | 6.469 | 7.12 | 0.00 | 1.200 | 1.153 | 1.50 | 4.129 | 4.96 | 35.3 | 68.7  | 213.9 |
| 138.00                 | 1.00 | 1.08 | 6.476 | 7.12 | 0.00 | 1.200 | 1.154 | 0.50 | 1.368 | 1.64 | 11.7 | 22.9  | 70.9  |
| 140.00                 | 1.00 | 1.09 | 6.502 | 7.15 | 0.00 | 1.200 | 1.155 | 2.00 | 5.431 | 6.52 | 46.6 | 90.4  | 281.0 |
| 142.00                 | 1.00 | 1.09 | 6.529 | 7.18 | 0.00 | 1.200 | 1.157 | 2.00 | 5.365 | 6.44 | 46.2 | 89.4  | 277.4 |
| 144.00                 | 1.00 | 1.10 | 6.555 | 7.21 | 0.00 | 1.200 | 1.159 | 2.00 | 5.299 | 6.36 | 45.8 | 88.3  | 273.9 |
| 146.00                 | 1.00 | 1.10 | 6.581 | 7.24 | 0.00 | 1.200 | 1.160 | 2.00 | 5.233 | 6.28 | 45.5 | 87.3  | 270.3 |
| 148.00 Appurtenance(s) | 1.00 | 1.11 | 6.607 | 7.27 | 0.00 | 1.200 | 1.162 | 2.00 | 5.166 | 6.20 | 45.1 | 86.2  | 266.7 |
| 150.00 Bot - Section 7 | 1.00 | 1.11 | 6.632 | 7.30 | 0.00 | 1.200 | 1.163 | 2.00 | 5.100 | 6.12 | 44.6 | 85.2  | 263.1 |
| 152.00                 | 1.00 | 1.11 | 6.657 | 7.32 | 0.00 | 1.200 | 1.165 | 2.00 | 5.120 | 6.14 | 45.0 | 85.7  | 439.7 |
| 154.00                 | 1.00 | 1.12 | 6.682 | 7.35 | 0.00 | 1.200 | 1.167 | 2.00 | 5.054 | 6.06 | 44.6 | 84.6  | 433.5 |
| 155.00 Top - Section 6 | 1.00 | 1.12 | 6.694 | 7.36 | 0.00 | 1.200 | 1.167 | 1.00 | 2.502 | 3.00 | 22.1 | 42.0  | 214.6 |
| 156.00                 | 1.00 | 1.12 | 6.707 | 7.38 | 0.00 | 1.200 | 1.168 | 1.00 | 2.486 | 2.98 | 22.0 | 41.8  | 128.2 |
| 158.00                 | 1.00 | 1.13 | 6.731 | 7.40 | 0.00 | 1.200 | 1.170 | 2.00 | 4.922 | 5.91 | 43.7 | 82.5  | 253.5 |
| 160.00                 | 1.00 | 1.13 | 6.755 | 7.43 | 0.00 | 1.200 | 1.171 | 2.00 | 4.855 | 5.83 | 43.3 | 81.4  | 249.9 |
| 162.00                 | 1.00 | 1.13 | 6.779 | 7.46 | 0.00 | 1.200 | 1.172 | 2.00 | 4.789 | 5.75 | 42.9 | 80.3  | 246.3 |
| 164.00                 | 1.00 | 1.14 | 6.803 | 7.48 | 0.00 | 1.200 | 1.174 | 2.00 | 4.723 | 5.67 | 42.4 | 79.3  | 242.7 |
| 165.00 Appurtenance(s) | 1.00 | 1.14 | 6.815 | 7.50 | 0.00 | 1.200 | 1.175 | 1.00 | 2.337 | 2.80 | 21.0 | 39.4  | 120.1 |
| 166.00                 | 1.00 | 1.14 | 6.827 | 7.51 | 0.00 | 1.200 | 1.175 | 1.00 | 2.320 | 2.78 | 20.9 | 39.1  | 119.2 |
| 168.00                 | 1.00 | 1.15 | 6.850 | 7.54 | 0.00 | 1.200 | 1.177 | 2.00 | 4.590 | 5.51 | 41.5 | 77.1  | 235.4 |
| 170.00 Top - Section 7 | 1.00 | 1.15 | 6.873 | 7.56 | 0.00 | 1.200 | 1.178 | 2.00 | 4.524 | 5.43 | 41.0 | 76.0  | 231.8 |
| 172.00                 | 1.00 | 1.15 | 6.896 | 7.59 | 0.00 | 1.200 | 1.180 | 2.00 | 4.293 | 5.15 | 39.1 | 69.1  | 216.0 |
| 174.00 Appurtenance(s) | 1.00 | 1.16 | 6.919 | 7.61 | 0.00 | 1.200 | 1.181 | 2.00 | 3.896 | 4.68 | 35.6 | 62.1  | 193.9 |
| 175.00 Appurtenance(s) | 1.00 | 1.16 | 6.931 | 7.62 | 0.00 | 1.200 | 1.182 | 1.00 | 1.799 | 2.16 | 16.5 | 29.3  | 89.6  |

**Totals: 175.00 4,320.6 44,035.4**

## Discrete Appurtenance Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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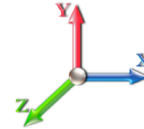


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



| No. | Elev<br>(ft) | Description           | Qty | qz<br>(psf) | qzGh<br>(psf) | Orient<br>Factor<br>x Ka | Ka   | Total<br>CaAa<br>(sf) | Dead<br>Load<br>(lb) | Horiz<br>Ecc<br>(ft) | Vert<br>Ecc<br>(ft) | Wind<br>FX<br>(lb) | Mom<br>Y<br>(lb-ft) | Mom<br>Z<br>(lb-ft) |
|-----|--------------|-----------------------|-----|-------------|---------------|--------------------------|------|-----------------------|----------------------|----------------------|---------------------|--------------------|---------------------|---------------------|
| 1   | 175.00       | Pipes                 | 12  | 6.931       | 7.624         | 0.56                     | 0.75 | 22.43                 | -133.05              | 0.000                | 0.000               | 170.99             | 0.00                | 0.00                |
| 2   | 175.00       | PRK-SFS-L             | 1   | 6.931       | 7.624         | 0.75                     | 0.75 | 9.87                  | 392.41               | 0.000                | 0.000               | 75.24              | 0.00                | 0.00                |
| 3   | 175.00       | Handrail              | 1   | 6.931       | 7.624         | 1.00                     | 1.00 | 12.03                 | 587.76               | 0.000                | 0.000               | 91.71              | 0.00                | 0.00                |
| 4   | 175.00       | PRK-1245L             | 1   | 6.931       | 7.624         | 0.75                     | 0.75 | 12.18                 | 682.53               | 0.000                | 0.000               | 92.83              | 0.00                | 0.00                |
| 5   | 175.00       | APXVTM14-C-I20        | 3   | 6.953       | 7.648         | 0.62                     | 0.80 | 13.08                 | 507.13               | 0.000                | 2.000               | 100.04             | 0.00                | 200.09              |
| 6   | 175.00       | NNVV-65B-R4           | 3   | 6.953       | 7.648         | 0.59                     | 0.80 | 23.54                 | 661.23               | 0.000                | 2.000               | 180.06             | 0.00                | 360.12              |
| 7   | 175.00       | TD-RRH8x20-25         | 3   | 6.953       | 7.648         | 0.40                     | 0.80 | 5.50                  | 461.53               | 0.000                | 2.000               | 42.09              | 0.00                | 84.18               |
| 8   | 175.00       | E15S09P94             | 6   | 7.079       | 7.787         | 0.50                     | 1.00 | 3.21                  | 145.77               | 0.000                | 13.500              | 24.96              | 0.00                | 337.02              |
| 9   | 175.00       | T-Arms                | 3   | 6.931       | 7.624         | 0.56                     | 0.75 | 34.31                 | 1112.47              | 0.000                | 0.000               | 261.56             | 0.00                | 0.00                |
| 10  | 175.00       | 1900MHz               | 3   | 6.953       | 7.648         | 0.40                     | 0.80 | 4.35                  | 313.76               | 0.000                | 2.000               | 33.31              | 0.00                | 66.61               |
| 11  | 175.00       | 800 MHz               | 6   | 6.953       | 7.648         | 0.40                     | 0.80 | 7.83                  | 555.44               | 0.000                | 2.000               | 59.92              | 0.00                | 119.84              |
| 12  | 175.00       | DR65-18-02DPL2Q       | 6   | 7.111       | 7.822         | 0.67                     | 1.00 | 26.15                 | 670.43               | 0.000                | 16.500              | 204.58             | 0.00                | 3375.51             |
| 13  | 174.00       | 4.5" x 24 FT Pipe     | 3   | 7.031       | 7.734         | 1.00                     | 1.00 | 54.67                 | 1221.19              | 0.000                | 10.000              | 422.80             | 0.00                | 4228.00             |
| 14  | 165.00       | MC-PK8-DSH            | 1   | 6.815       | 7.496         | 1.00                     | 1.00 | 64.60                 | 2835.40              | 0.000                | 0.000               | 484.28             | 0.00                | 0.00                |
| 15  | 165.00       | MX08FRO665-21         | 3   | 6.815       | 7.496         | 0.55                     | 0.75 | 22.44                 | 617.91               | 0.000                | 0.000               | 168.20             | 0.00                | 0.00                |
| 16  | 165.00       | TA08025-B605          | 3   | 6.815       | 7.496         | 0.38                     | 0.75 | 2.63                  | 337.81               | 0.000                | 0.000               | 19.71              | 0.00                | 0.00                |
| 17  | 165.00       | TA08025-B604          | 3   | 6.815       | 7.496         | 0.38                     | 0.75 | 2.63                  | 295.97               | 0.000                | 0.000               | 19.71              | 0.00                | 0.00                |
| 18  | 165.00       | Raycap                | 1   | 6.815       | 7.496         | 0.38                     | 0.75 | 0.90                  | 49.42                | 0.000                | 0.000               | 6.73               | 0.00                | 0.00                |
| 19  | 148.00       | T-Arms                | 3   | 6.607       | 7.267         | 0.56                     | 0.75 | 34.05                 | 1105.52              | 0.000                | 0.000               | 247.43             | 0.00                | 0.00                |
| 20  | 148.00       | RRH2X60-700           | 3   | 6.568       | 7.225         | 0.40                     | 0.80 | 4.83                  | 330.04               | 0.000                | -3.000              | 34.90              | 0.00                | -104.70             |
| 21  | 148.00       | RRH2X60-PCS           | 3   | 6.568       | 7.225         | 0.40                     | 0.80 | 3.13                  | 353.86               | 0.000                | -3.000              | 22.63              | 0.00                | -67.89              |
| 22  | 148.00       | RRH2X60-AWS           | 3   | 6.568       | 7.225         | 0.40                     | 0.80 | 4.83                  | 330.04               | 0.000                | -3.000              | 34.90              | 0.00                | -104.70             |
| 23  | 148.00       | DB-T1-6Z-8AB-OZ       | 2   | 6.607       | 7.267         | 0.40                     | 0.80 | 4.29                  | 285.77               | 0.000                | 0.000               | 31.21              | 0.00                | 0.00                |
| 24  | 148.00       | SBNHH-1D65B           | 6   | 6.607       | 7.267         | 0.66                     | 0.80 | 35.53                 | 1119.42              | 0.000                | 0.000               | 258.23             | 0.00                | 0.00                |
| 25  | 148.00       | BXA-80080-4CF         | 3   | 6.607       | 7.267         | 0.70                     | 0.80 | 9.99                  | 151.62               | 0.000                | 0.000               | 72.62              | 0.00                | 0.00                |
| 26  | 148.00       | BXA-70063-6CF-EDIN-X  | 3   | 6.607       | 7.267         | 0.58                     | 0.80 | 16.49                 | 238.77               | 0.000                | 0.000               | 119.81             | 0.00                | 0.00                |
| 27  | 148.00       | FD9R6004/2C-3L        | 6   | 6.607       | 7.267         | 0.40                     | 0.80 | 1.57                  | 44.18                | 0.000                | 0.000               | 11.43              | 0.00                | 0.00                |
| 28  | 137.50       | RRUS 11               | 3   | 6.469       | 7.116         | 0.38                     | 0.75 | 3.30                  | 346.14               | 0.000                | 0.000               | 23.52              | 0.00                | 0.00                |
| 29  | 137.50       | RRUS 4478 B14         | 3   | 6.469       | 7.116         | 0.38                     | 0.75 | 2.24                  | 267.85               | 0.000                | 0.000               | 15.95              | 0.00                | 0.00                |
| 30  | 137.50       | RRUS 32               | 6   | 6.469       | 7.116         | 0.38                     | 0.75 | 4.55                  | 725.71               | 0.000                | 0.000               | 32.36              | 0.00                | 0.00                |
| 31  | 137.50       | AM-X-CD-17-65-00T-RET | 3   | 6.516       | 7.167         | 0.56                     | 0.75 | 23.81                 | 632.67               | 0.000                | 3.500               | 170.68             | 0.00                | 597.39              |
| 32  | 137.50       | 4426 B66              | 3   | 6.469       | 7.116         | 0.38                     | 0.75 | 3.61                  | 342.12               | 0.000                | 0.000               | 25.69              | 0.00                | 0.00                |
| 33  | 137.50       | 800 10966             | 3   | 6.469       | 7.116         | 0.54                     | 0.75 | 30.03                 | 1088.88              | 0.000                | 0.000               | 213.69             | 0.00                | 0.00                |
| 34  | 137.50       | 7770.00               | 3   | 6.516       | 7.167         | 0.55                     | 0.75 | 10.17                 | 373.62               | 0.000                | 3.500               | 72.86              | 0.00                | 255.00              |
| 35  | 137.50       | dc6-48-60-18-8c       | 1   | 6.469       | 7.116         | 0.38                     | 0.75 | 0.64                  | 43.77                | 0.000                | 0.000               | 4.53               | 0.00                | 0.00                |
| 36  | 137.50       | dbc0061F1V51-2        | 6   | 6.469       | 7.116         | 0.38                     | 0.75 | 1.39                  | 219.54               | 0.000                | 0.000               | 9.90               | 0.00                | 0.00                |
| 37  | 137.50       | DC6-48-60-18-8F       | 1   | 6.469       | 7.116         | 0.38                     | 0.75 | 0.45                  | 64.80                | 0.000                | 0.000               | 3.23               | 0.00                | 0.00                |
| 38  | 137.50       | DC6-48-60-0-8C-EV     | 1   | 6.469       | 7.116         | 0.38                     | 0.75 | 2.01                  | 71.17                | 0.000                | 0.000               | 14.31              | 0.00                | 0.00                |
| 39  | 137.50       | LGP21401              | 6   | 6.516       | 7.167         | 0.38                     | 0.75 | 4.15                  | 226.84               | 0.000                | 3.500               | 29.71              | 0.00                | 103.98              |
| 40  | 137.50       | TPA-65R-LCUUUU-H8     | 3   | 6.516       | 7.167         | 0.62                     | 0.75 | 26.82                 | 855.72               | 0.000                | 3.500               | 192.25             | 0.00                | 672.89              |
| 41  | 137.50       | RRUS 4478 B5          | 3   | 6.516       | 7.167         | 0.38                     | 0.75 | 2.48                  | 278.28               | 0.000                | 3.500               | 17.76              | 0.00                | 62.16               |
| 42  | 137.50       | Platform w/ Hand Rail | 1   | 6.469       | 7.116         | 1.00                     | 1.00 | 50.45                 | 2707.77              | 0.000                | 0.000               | 359.03             | 0.00                | 0.00                |
| 43  | 54.00        | Standoff              | 1   | 4.953       | 5.448         | 1.00                     | 1.00 | 6.22                  | 73.32                | 0.000                | 0.000               | 33.90              | 0.00                | 0.00                |
| 44  | 54.00        | GPS                   | 1   | 4.953       | 5.448         | 1.00                     | 1.00 | 1.43                  | 21.65                | 0.000                | 0.000               | 7.78               | 0.00                | 0.00                |
| 45  | 12.00        | CS72188.01 LMU        | 1   | 4.184       | 4.602         | 1.00                     | 1.00 | 0.25                  | 2.93                 | 0.000                | 0.000               | 1.16               | 0.00                | 0.00                |

**Totals:** 23,617.14

**4,520.19**

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

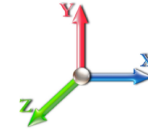


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



**Iterations** 27

| 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                    |
| 2.00         |                 | 52.66                     | 851.09                  | 0.00                     | 0.00                    |
| 4.00         |                 | 52.39                     | 854.39                  | 0.00                     | 0.00                    |
| 6.00         |                 | 52.09                     | 854.37                  | 0.00                     | 0.00                    |
| 8.00         |                 | 51.76                     | 852.91                  | 0.00                     | 0.00                    |
| 10.00        |                 | 51.43                     | 850.63                  | 0.00                     | 0.00                    |
| 12.00        | (1) attachments | 52.25                     | 850.73                  | 0.00                     | 0.00                    |
| 14.00        |                 | 50.75                     | 844.22                  | 0.00                     | 0.00                    |
| 16.00        |                 | 50.40                     | 840.74                  | 0.00                     | 0.00                    |
| 18.00        |                 | 50.06                     | 837.03                  | 0.00                     | 0.00                    |
| 20.00        |                 | 49.71                     | 833.15                  | 0.00                     | 0.00                    |
| 22.00        |                 | 49.35                     | 829.11                  | 0.00                     | 0.00                    |
| 24.00        |                 | 49.00                     | 824.95                  | 0.00                     | 0.00                    |
| 26.00        |                 | 48.65                     | 820.69                  | 0.00                     | 0.00                    |
| 28.00        |                 | 48.29                     | 816.33                  | 0.00                     | 0.00                    |
| 30.00        |                 | 47.98                     | 811.90                  | 0.00                     | 0.00                    |
| 32.00        |                 | 48.51                     | 807.39                  | 0.00                     | 0.00                    |
| 33.50        |                 | 36.62                     | 602.56                  | 0.00                     | 0.00                    |
| 34.00        |                 | 12.21                     | 200.29                  | 0.00                     | 0.00                    |
| 34.75        |                 | 18.39                     | 299.89                  | 0.00                     | 0.00                    |
| 35.00        |                 | 6.13                      | 99.82                   | 0.00                     | 0.00                    |
| 36.00        |                 | 24.66                     | 398.54                  | 0.00                     | 0.00                    |
| 38.00        |                 | 50.56                     | 1261.13                 | 0.00                     | 0.00                    |
| 39.00        |                 | 25.32                     | 627.40                  | 0.00                     | 0.00                    |
| 40.00        |                 | 25.41                     | 625.27                  | 0.00                     | 0.00                    |
| 42.00        |                 | 51.24                     | 1244.03                 | 0.00                     | 0.00                    |
| 44.00        |                 | 51.52                     | 714.86                  | 0.00                     | 0.00                    |
| 46.00        |                 | 51.77                     | 710.66                  | 0.00                     | 0.00                    |
| 48.00        |                 | 51.99                     | 706.43                  | 0.00                     | 0.00                    |
| 48.50        |                 | 12.97                     | 175.98                  | 0.00                     | 0.00                    |
| 49.75        |                 | 32.55                     | 438.74                  | 0.00                     | 0.00                    |
| 50.00        |                 | 6.50                      | 87.56                   | 0.00                     | 0.00                    |
| 52.00        |                 | 52.35                     | 697.87                  | 0.00                     | 0.00                    |
| 54.00        | (2) attachments | 94.18                     | 788.53                  | 0.00                     | 0.00                    |
| 56.00        |                 | 52.61                     | 688.83                  | 0.00                     | 0.00                    |
| 58.00        |                 | 52.70                     | 684.46                  | 0.00                     | 0.00                    |
| 60.00        |                 | 52.77                     | 680.07                  | 0.00                     | 0.00                    |
| 62.00        |                 | 52.82                     | 675.66                  | 0.00                     | 0.00                    |
| 64.00        |                 | 52.85                     | 671.22                  | 0.00                     | 0.00                    |
| 66.00        |                 | 52.86                     | 666.77                  | 0.00                     | 0.00                    |
| 68.00        |                 | 52.86                     | 662.30                  | 0.00                     | 0.00                    |
| 70.00        |                 | 52.84                     | 657.82                  | 0.00                     | 0.00                    |
| 71.25        |                 | 33.53                     | 665.82                  | 0.00                     | 0.00                    |
| 72.00        |                 | 20.09                     | 397.96                  | 0.00                     | 0.00                    |
| 74.00        |                 | 53.67                     | 1055.29                 | 0.00                     | 0.00                    |
| 76.00        |                 | 53.60                     | 1046.95                 | 0.00                     | 0.00                    |
| 78.00        |                 | 53.52                     | 649.23                  | 0.00                     | 0.00                    |

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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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|                |                  |                 |                  |             |                  |
|----------------|------------------|-----------------|------------------|-------------|------------------|
| 80.00          |                  | 53.43           | 644.67           | 0.00        | 0.00             |
| 82.00          |                  | 53.33           | 575.76           | 0.00        | 0.00             |
| 84.00          |                  | 53.21           | 571.82           | 0.00        | 0.00             |
| 86.00          |                  | 53.07           | 567.86           | 0.00        | 0.00             |
| 88.00          |                  | 52.93           | 563.89           | 0.00        | 0.00             |
| 90.00          |                  | 52.77           | 559.91           | 0.00        | 0.00             |
| 92.00          |                  | 52.60           | 555.92           | 0.00        | 0.00             |
| 94.00          |                  | 52.42           | 551.91           | 0.00        | 0.00             |
| 96.00          |                  | 52.23           | 547.90           | 0.00        | 0.00             |
| 98.00          |                  | 52.02           | 543.88           | 0.00        | 0.00             |
| 100.00         |                  | 51.81           | 539.85           | 0.00        | 0.00             |
| 102.00         |                  | 51.59           | 535.81           | 0.00        | 0.00             |
| 104.00         |                  | 51.35           | 531.76           | 0.00        | 0.00             |
| 106.00         |                  | 51.11           | 520.62           | 0.00        | 0.00             |
| 108.00         |                  | 50.86           | 509.45           | 0.00        | 0.00             |
| 110.00         |                  | 50.60           | 505.36           | 0.00        | 0.00             |
| 112.00         |                  | 50.33           | 501.25           | 0.00        | 0.00             |
| 114.00         |                  | 50.05           | 497.14           | 0.00        | 0.00             |
| 115.00         |                  | 24.88           | 247.15           | 0.00        | 0.00             |
| 116.00         |                  | 25.25           | 384.59           | 0.00        | 0.00             |
| 118.00         |                  | 50.34           | 763.46           | 0.00        | 0.00             |
| 120.00         |                  | 50.04           | 756.15           | 0.00        | 0.00             |
| 122.00         |                  | 49.73           | 487.62           | 0.00        | 0.00             |
| 124.00         |                  | 49.42           | 483.47           | 0.00        | 0.00             |
| 125.00         |                  | 24.56           | 240.30           | 0.00        | 0.00             |
| 126.00         |                  | 24.48           | 213.55           | 0.00        | 0.00             |
| 128.00         |                  | 48.76           | 424.22           | 0.00        | 0.00             |
| 130.00         |                  | 48.42           | 420.70           | 0.00        | 0.00             |
| 132.00         |                  | 48.07           | 417.17           | 0.00        | 0.00             |
| 134.00         |                  | 47.72           | 413.63           | 0.00        | 0.00             |
| 136.00         |                  | 47.36           | 410.09           | 0.00        | 0.00             |
| 137.50         | (46) attachments | 1220.74         | 8550.25          | 0.00        | 1691.42          |
| 138.00         |                  | 11.69           | 91.10            | 0.00        | 0.00             |
| 140.00         |                  | 46.62           | 361.81           | 0.00        | 0.00             |
| 142.00         |                  | 46.24           | 358.25           | 0.00        | 0.00             |
| 144.00         |                  | 45.85           | 354.69           | 0.00        | 0.00             |
| 146.00         |                  | 45.45           | 351.12           | 0.00        | 0.00             |
| 148.00         | (32) attachments | 878.21          | 4290.41          | 0.00        | -277.29          |
| 150.00         |                  | 44.65           | 311.24           | 0.00        | 0.00             |
| 152.00         |                  | 44.99           | 487.82           | 0.00        | 0.00             |
| 154.00         |                  | 44.58           | 481.69           | 0.00        | 0.00             |
| 155.00         |                  | 22.11           | 238.68           | 0.00        | 0.00             |
| 156.00         |                  | 22.00           | 152.32           | 0.00        | 0.00             |
| 158.00         |                  | 43.73           | 301.69           | 0.00        | 0.00             |
| 160.00         |                  | 43.30           | 298.10           | 0.00        | 0.00             |
| 162.00         |                  | 42.86           | 294.49           | 0.00        | 0.00             |
| 164.00         |                  | 42.41           | 290.89           | 0.00        | 0.00             |
| 165.00         | (11) attachments | 719.65          | 4280.73          | 0.00        | 0.00             |
| 166.00         |                  | 20.91           | 138.76           | 0.00        | 0.00             |
| 168.00         |                  | 41.51           | 274.53           | 0.00        | 0.00             |
| 170.00         |                  | 41.05           | 270.90           | 0.00        | 0.00             |
| 172.00         |                  | 39.08           | 255.13           | 0.00        | 0.00             |
| 174.00         | (3) attachments  | 458.39          | 1454.23          | 0.00        | 4228.00          |
| 175.00         | (48) attachments | 1353.74         | 6066.52          | 0.00        | 4543.38          |
| <b>Totals:</b> |                  | <b>8,840.84</b> | <b>77,703.77</b> | <b>0.00</b> | <b>10,185.51</b> |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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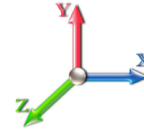


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 2.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.058 | 0.000            | 4.184    | 0.00     | 6.10           |
| 2.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.79        | 0.00        | 0.058 | 0.000            | 4.184    | 0.00     | 10.74          |
| 4.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 4.184    | 0.00     | 6.44           |
| 4.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.81        | 0.00        | 0.059 | 0.000            | 4.184    | 0.00     | 11.20          |
| 6.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 4.184    | 0.00     | 6.66           |
| 6.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.82        | 0.00        | 0.059 | 0.000            | 4.184    | 0.00     | 11.49          |
| 8.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 4.184    | 0.00     | 6.83           |
| 8.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.83        | 0.00        | 0.060 | 0.000            | 4.184    | 0.00     | 11.71          |
| 10.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 4.184    | 0.00     | 6.96           |
| 10.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.84        | 0.00        | 0.060 | 0.000            | 4.184    | 0.00     | 11.89          |
| 12.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 4.184    | 0.00     | 7.07           |
| 12.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.84        | 0.00        | 0.061 | 0.000            | 4.184    | 0.00     | 12.04          |
| 14.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 4.184    | 0.00     | 7.17           |
| 14.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.85        | 0.00        | 0.061 | 0.000            | 4.184    | 0.00     | 12.16          |
| 16.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 4.184    | 0.00     | 7.26           |
| 16.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.85        | 0.00        | 0.061 | 0.000            | 4.184    | 0.00     | 12.28          |
| 18.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 4.184    | 0.00     | 7.33           |
| 18.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.86        | 0.00        | 0.062 | 0.000            | 4.184    | 0.00     | 12.38          |
| 20.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 4.184    | 0.00     | 7.41           |
| 20.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.86        | 0.00        | 0.062 | 0.000            | 4.184    | 0.00     | 12.47          |
| 22.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 4.184    | 0.00     | 7.47           |
| 22.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.86        | 0.00        | 0.063 | 0.000            | 4.184    | 0.00     | 12.56          |
| 24.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 4.184    | 0.00     | 7.53           |
| 24.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.86        | 0.00        | 0.063 | 0.000            | 4.184    | 0.00     | 12.64          |
| 26.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 4.184    | 0.00     | 7.59           |
| 26.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.87        | 0.00        | 0.064 | 0.000            | 4.184    | 0.00     | 12.71          |
| 28.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 4.184    | 0.00     | 7.64           |
| 28.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.87        | 0.00        | 0.064 | 0.000            | 4.184    | 0.00     | 12.78          |
| 30.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 4.187    | 0.00     | 7.69           |
| 30.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.87        | 0.00        | 0.065 | 0.000            | 4.187    | 0.00     | 12.84          |
| 32.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 4.265    | 0.00     | 7.74           |
| 32.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.87        | 0.00        | 0.065 | 0.000            | 4.265    | 0.00     | 12.91          |
| 33.50         | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 4.321    | 0.00     | 5.83           |
| 33.50         | 3" Chanel   | Yes          | 1.50        | 0.000 | 3.25               | 0.66        | 0.00        | 0.066 | 0.000            | 4.321    | 0.00     | 9.71           |
| 34.00         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 4.340    | 0.00     | 1.95           |
| 34.00         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.22        | 0.00        | 0.066 | 0.000            | 4.340    | 0.00     | 3.24           |
| 34.75         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 4.367    | 0.00     | 2.92           |
| 34.75         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.33        | 0.00        | 0.066 | 0.000            | 4.367    | 0.00     | 4.87           |
| 35.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 4.376    | 0.00     | 0.98           |
| 35.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.11        | 0.00        | 0.066 | 0.000            | 4.376    | 0.00     | 1.62           |
| 36.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 4.411    | 0.00     | 3.91           |
| 36.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.44        | 0.00        | 0.067 | 0.000            | 4.411    | 0.00     | 6.51           |
| 38.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 4.480    | 0.00     | 7.86           |
| 38.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.88        | 0.00        | 0.067 | 0.000            | 4.480    | 0.00     | 13.07          |
| 39.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 4.513    | 0.00     | 3.94           |
| 39.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.44        | 0.00        | 0.067 | 0.000            | 4.513    | 0.00     | 6.55           |
| 40.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 4.546    | 0.00     | 3.95           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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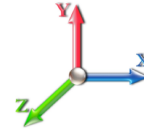


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 40.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.44        | 0.00        | 0.068 | 0.000            | 4.546    | 0.00     | 6.56           |
| 42.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 4.610    | 0.00     | 7.94           |
| 42.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.88        | 0.00        | 0.068 | 0.000            | 4.610    | 0.00     | 13.17          |
| 44.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 4.671    | 0.00     | 7.98           |
| 44.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.88        | 0.00        | 0.068 | 0.000            | 4.671    | 0.00     | 13.22          |
| 46.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 4.731    | 0.00     | 8.01           |
| 46.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.89        | 0.00        | 0.068 | 0.000            | 4.731    | 0.00     | 13.26          |
| 48.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 4.789    | 0.00     | 8.04           |
| 48.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.89        | 0.00        | 0.069 | 0.000            | 4.789    | 0.00     | 13.31          |
| 48.50         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 4.803    | 0.00     | 2.01           |
| 48.50         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.22        | 0.00        | 0.069 | 0.000            | 4.803    | 0.00     | 3.33           |
| 49.75         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 4.838    | 0.00     | 5.05           |
| 49.75         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.56        | 0.00        | 0.069 | 0.000            | 4.838    | 0.00     | 8.34           |
| 50.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 4.845    | 0.00     | 1.01           |
| 50.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.11        | 0.00        | 0.070 | 0.000            | 4.845    | 0.00     | 1.67           |
| 52.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 4.900    | 0.00     | 8.11           |
| 52.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.89        | 0.00        | 0.070 | 0.000            | 4.900    | 0.00     | 13.39          |
| 54.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 4.953    | 0.00     | 8.14           |
| 54.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.89        | 0.00        | 0.071 | 0.000            | 4.953    | 0.00     | 13.43          |
| 56.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 5.005    | 0.00     | 8.17           |
| 56.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.89        | 0.00        | 0.071 | 0.000            | 5.005    | 0.00     | 13.46          |
| 58.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 5.055    | 0.00     | 8.20           |
| 58.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.89        | 0.00        | 0.072 | 0.000            | 5.055    | 0.00     | 13.50          |
| 60.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 5.104    | 0.00     | 8.22           |
| 60.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.072 | 0.000            | 5.104    | 0.00     | 13.54          |
| 62.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.073 | 0.000            | 5.152    | 0.00     | 8.25           |
| 62.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.073 | 0.000            | 5.152    | 0.00     | 13.57          |
| 64.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 5.199    | 0.00     | 8.28           |
| 64.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.074 | 0.000            | 5.199    | 0.00     | 13.60          |
| 66.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 5.245    | 0.00     | 8.30           |
| 66.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.074 | 0.000            | 5.245    | 0.00     | 13.64          |
| 68.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.075 | 0.000            | 5.290    | 0.00     | 8.33           |
| 68.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.075 | 0.000            | 5.290    | 0.00     | 13.67          |
| 70.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 5.334    | 0.00     | 8.35           |
| 70.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.076 | 0.000            | 5.334    | 0.00     | 13.70          |
| 71.25         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 5.361    | 0.00     | 5.23           |
| 71.25         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.56        | 0.00        | 0.076 | 0.000            | 5.361    | 0.00     | 8.57           |
| 72.00         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 5.377    | 0.00     | 3.14           |
| 72.00         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.34        | 0.00        | 0.077 | 0.000            | 5.377    | 0.00     | 5.15           |
| 74.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 5.420    | 0.00     | 8.40           |
| 74.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.077 | 0.000            | 5.420    | 0.00     | 13.76          |
| 76.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 5.461    | 0.00     | 8.42           |
| 76.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.078 | 0.000            | 5.461    | 0.00     | 13.79          |
| 78.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 5.502    | 0.00     | 8.44           |
| 78.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.90        | 0.00        | 0.077 | 0.000            | 5.502    | 0.00     | 13.82          |
| 80.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 5.542    | 0.00     | 8.46           |
| 80.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.078 | 0.000            | 5.542    | 0.00     | 13.84          |



## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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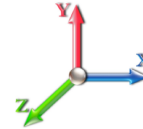


**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 82.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.079 | 0.000            | 5.581    | 0.00     | 8.48           |
| 82.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.079 | 0.000            | 5.581    | 0.00     | 13.87          |
| 84.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 5.619    | 0.00     | 8.51           |
| 84.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.080 | 0.000            | 5.619    | 0.00     | 13.90          |
| 86.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 5.657    | 0.00     | 8.53           |
| 86.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.080 | 0.000            | 5.657    | 0.00     | 13.92          |
| 88.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.081 | 0.000            | 5.695    | 0.00     | 8.55           |
| 88.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.081 | 0.000            | 5.695    | 0.00     | 13.95          |
| 90.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.082 | 0.000            | 5.731    | 0.00     | 8.57           |
| 90.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.082 | 0.000            | 5.731    | 0.00     | 13.97          |
| 92.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.083 | 0.000            | 5.767    | 0.00     | 8.58           |
| 92.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.083 | 0.000            | 5.767    | 0.00     | 14.00          |
| 94.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.084 | 0.000            | 5.803    | 0.00     | 8.60           |
| 94.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.084 | 0.000            | 5.803    | 0.00     | 14.02          |
| 96.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 5.838    | 0.00     | 8.62           |
| 96.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.085 | 0.000            | 5.838    | 0.00     | 14.05          |
| 98.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 5.872    | 0.00     | 8.64           |
| 98.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.085 | 0.000            | 5.872    | 0.00     | 14.07          |
| 100.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.086 | 0.000            | 5.906    | 0.00     | 8.66           |
| 100.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.086 | 0.000            | 5.906    | 0.00     | 14.09          |
| 102.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.087 | 0.000            | 5.940    | 0.00     | 8.68           |
| 102.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.91        | 0.00        | 0.087 | 0.000            | 5.940    | 0.00     | 14.12          |
| 104.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.088 | 0.000            | 5.973    | 0.00     | 8.69           |
| 104.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.92        | 0.00        | 0.088 | 0.000            | 5.973    | 0.00     | 14.14          |
| 106.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.045 | 0.000            | 6.006    | 0.00     | 8.71           |
| 106.00        | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.46        | 0.00        | 0.045 | 0.000            | 6.006    | 0.00     | 7.08           |
| 108.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.038    | 0.00     | 8.73           |
| 110.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.070    | 0.00     | 8.74           |
| 112.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.101    | 0.00     | 8.76           |
| 114.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.132    | 0.00     | 8.78           |
| 115.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.147    | 0.00     | 4.39           |
| 116.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.162    | 0.00     | 4.40           |
| 118.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.192    | 0.00     | 8.81           |
| 120.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.222    | 0.00     | 8.82           |
| 122.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.252    | 0.00     | 8.84           |
| 124.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.281    | 0.00     | 8.85           |
| 125.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.295    | 0.00     | 4.43           |
| 126.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.310    | 0.00     | 4.43           |
| 128.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.338    | 0.00     | 8.88           |
| 130.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.366    | 0.00     | 8.90           |
| 132.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.394    | 0.00     | 8.91           |
| 134.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.422    | 0.00     | 8.92           |
| 136.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.449    | 0.00     | 8.94           |
| 137.50        | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.469    | 0.00     | 6.71           |
| 138.00        | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.476    | 0.00     | 2.24           |
| 140.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.502    | 0.00     | 8.97           |
| 142.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.529    | 0.00     | 8.98           |

## Linear Appurtenance Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

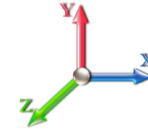


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



**Iterations** 27

| 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) |
|----------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 144.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.555    | 0.00       | 8.99           |
| 146.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.581    | 0.00       | 9.01           |
| 148.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.607    | 0.00       | 9.02           |
| 150.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.632    | 0.00       | 9.03           |
| 152.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.657    | 0.00       | 9.04           |
| 154.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.682    | 0.00       | 9.06           |
| 155.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.694    | 0.00       | 4.53           |
| 156.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.707    | 0.00       | 4.53           |
| 158.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.731    | 0.00       | 9.08           |
| 160.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.755    | 0.00       | 9.09           |
| 162.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.779    | 0.00       | 9.10           |
| 164.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.803    | 0.00       | 9.12           |
| 165.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 6.815    | 0.00       | 4.56           |
| <b>Totals:</b> |             |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>1,378.9</b> |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00          | -77.70           | -8.85            | 0.00                | -1171.2         | 0.00            | 1171.22                    | 4820.43       | 1324.26       | 5910.87          | 5262.50          | 0.00               | 0.000               | 0.000                | 0.146        |
| 2.00          | -76.85           | -8.82            | 0.00                | -1153.5         | 0.00            | 1153.52                    | 4803.04       | 1314.69       | 5825.82          | 5205.34          | 0.00               | -0.015              | 0.000                | 0.145        |
| 4.00          | -75.99           | -8.78            | 0.00                | -1135.8         | 0.00            | 1135.88                    | 4785.39       | 1305.13       | 5741.38          | 5148.19          | 0.01               | -0.029              | 0.000                | 0.144        |
| 6.00          | -75.14           | -8.75            | 0.00                | -1118.3         | 0.00            | 1118.32                    | 4767.50       | 1295.57       | 5657.56          | 5091.06          | 0.03               | -0.044              | 0.000                | 0.143        |
| 8.00          | -74.28           | -8.72            | 0.00                | -1100.8         | 0.00            | 1100.82                    | 4749.35       | 1286.01       | 5574.35          | 5033.93          | 0.05               | -0.059              | 0.000                | 0.142        |
| 10.00         | -73.43           | -8.68            | 0.00                | -1083.3         | 0.00            | 1083.38                    | 4730.95       | 1276.44       | 5491.76          | 4976.83          | 0.08               | -0.074              | 0.000                | 0.141        |
| 12.00         | -72.58           | -8.65            | 0.00                | -1066.0         | 0.00            | 1066.02                    | 4712.29       | 1266.88       | 5409.79          | 4919.76          | 0.11               | -0.089              | 0.000                | 0.139        |
| 14.00         | -71.73           | -8.62            | 0.00                | -1048.7         | 0.00            | 1048.72                    | 4693.38       | 1257.32       | 5328.43          | 4862.72          | 0.15               | -0.104              | 0.000                | 0.138        |
| 16.00         | -70.89           | -8.58            | 0.00                | -1031.4         | 0.00            | 1031.49                    | 4674.22       | 1247.76       | 5247.69          | 4805.72          | 0.20               | -0.119              | 0.000                | 0.137        |
| 18.00         | -70.05           | -8.55            | 0.00                | -1014.3         | 0.00            | 1014.32                    | 4654.80       | 1238.20       | 5167.57          | 4748.76          | 0.25               | -0.134              | 0.000                | 0.136        |
| 20.00         | -69.21           | -8.52            | 0.00                | -997.23         | 0.00            | 997.23                     | 4635.13       | 1228.63       | 5088.06          | 4691.86          | 0.31               | -0.149              | 0.000                | 0.135        |
| 22.00         | -68.38           | -8.48            | 0.00                | -980.20         | 0.00            | 980.20                     | 4615.21       | 1219.07       | 5009.17          | 4635.02          | 0.38               | -0.164              | 0.000                | 0.134        |
| 24.00         | -67.55           | -8.45            | 0.00                | -963.23         | 0.00            | 963.23                     | 4595.03       | 1209.51       | 4930.90          | 4578.24          | 0.45               | -0.179              | 0.000                | 0.159        |
| 26.00         | -66.73           | -8.42            | 0.00                | -946.33         | 0.00            | 946.33                     | 4574.60       | 1199.95       | 4853.24          | 4521.53          | 0.53               | -0.198              | 0.000                | 0.158        |
| 28.00         | -65.91           | -8.39            | 0.00                | -929.49         | 0.00            | 929.49                     | 4553.92       | 1190.38       | 4776.20          | 4464.90          | 0.62               | -0.216              | 0.000                | 0.156        |
| 30.00         | -65.10           | -8.36            | 0.00                | -912.71         | 0.00            | 912.71                     | 4532.98       | 1180.82       | 4699.78          | 4408.35          | 0.71               | -0.234              | 0.000                | 0.155        |
| 32.00         | -64.29           | -8.33            | 0.00                | -896.00         | 0.00            | 896.00                     | 4511.79       | 1171.26       | 4623.97          | 4351.89          | 0.81               | -0.253              | 0.000                | 0.154        |
| 33.50         | -63.68           | -8.30            | 0.00                | -883.51         | 0.00            | 883.51                     | 4495.73       | 1164.09       | 4567.52          | 4309.60          | 0.89               | -0.266              | 0.000                | 0.153        |
| 34.00         | -63.48           | -8.29            | 0.00                | -879.36         | 0.00            | 879.36                     | 4490.35       | 1161.70       | 4548.78          | 4295.52          | 0.92               | -0.271              | 0.000                | 0.152        |
| 34.75         | -63.18           | -8.27            | 0.00                | -873.14         | 0.00            | 873.14                     | 4482.24       | 1158.11       | 4520.74          | 4274.41          | 0.96               | -0.278              | 0.000                | 0.151        |
| 35.00         | -63.08           | -8.27            | 0.00                | -871.07         | 0.00            | 871.07                     | 4479.53       | 1156.92       | 4511.41          | 4267.38          | 0.98               | -0.280              | 0.000                | 0.127        |
| 36.00         | -62.68           | -8.26            | 0.00                | -862.80         | 0.00            | 862.80                     | 4468.65       | 1152.14       | 4474.20          | 4239.26          | 1.04               | -0.287              | 0.000                | 0.108        |
| 38.00         | -61.42           | -8.21            | 0.00                | -846.29         | 0.00            | 846.29                     | 4446.70       | 1142.57       | 4400.24          | 4183.10          | 1.16               | -0.300              | 0.000                | 0.136        |
| 39.00         | -60.79           | -8.19            | 0.00                | -838.08         | 0.00            | 838.08                     | 4435.63       | 1137.79       | 4363.49          | 4155.06          | 1.23               | -0.306              | 0.000                | 0.105        |
| 40.00         | -60.16           | -8.17            | 0.00                | -829.89         | 0.00            | 829.89                     | 4424.50       | 1133.01       | 4326.90          | 4127.05          | 1.29               | -0.313              | 0.000                | 0.122        |
| 42.00         | -58.92           | -8.13            | 0.00                | -813.54         | 0.00            | 813.54                     | 3554.53       | 980.17        | 3778.00          | 3351.15          | 1.42               | -0.328              | 0.000                | 0.132        |
| 44.00         | -58.20           | -8.09            | 0.00                | -797.29         | 0.00            | 797.29                     | 3539.83       | 971.98        | 3715.08          | 3309.16          | 1.57               | -0.344              | 0.000                | 0.139        |
| 46.00         | -57.49           | -8.05            | 0.00                | -781.11         | 0.00            | 781.11                     | 3524.88       | 963.78        | 3652.69          | 3267.17          | 1.71               | -0.360              | 0.000                | 0.137        |
| 48.00         | -56.78           | -8.00            | 0.00                | -765.01         | 0.00            | 765.01                     | 3509.67       | 955.59        | 3590.83          | 3225.18          | 1.87               | -0.376              | 0.000                | 0.135        |
| 48.50         | -56.60           | -8.00            | 0.00                | -761.01         | 0.00            | 761.01                     | 3505.83       | 953.54        | 3575.44          | 3214.69          | 1.91               | -0.380              | 0.000                | 0.135        |
| 49.75         | -56.17           | -7.97            | 0.00                | -751.01         | 0.00            | 751.01                     | 3496.16       | 948.41        | 3537.13          | 3188.45          | 2.01               | -0.390              | 0.000                | 0.153        |
| 50.00         | -56.08           | -7.97            | 0.00                | -749.02         | 0.00            | 749.02                     | 3494.22       | 947.39        | 3529.49          | 3183.21          | 2.03               | -0.393              | 0.000                | 0.164        |
| 52.00         | -55.38           | -7.93            | 0.00                | -733.08         | 0.00            | 733.08                     | 3478.50       | 939.19        | 3468.69          | 3141.25          | 2.20               | -0.413              | 0.000                | 0.162        |
| 54.00         | -54.59           | -7.85            | 0.00                | -717.21         | 0.00            | 717.21                     | 3462.54       | 931.00        | 3408.41          | 3099.32          | 2.37               | -0.432              | 0.000                | 0.160        |
| 56.00         | -53.89           | -7.81            | 0.00                | -701.51         | 0.00            | 701.51                     | 3446.32       | 922.80        | 3348.66          | 3057.41          | 2.56               | -0.452              | 0.000                | 0.158        |
| 58.00         | -53.21           | -7.77            | 0.00                | -685.88         | 0.00            | 685.88                     | 3429.84       | 914.61        | 3289.44          | 3015.54          | 2.75               | -0.472              | 0.000                | 0.156        |
| 60.00         | -52.53           | -7.73            | 0.00                | -670.34         | 0.00            | 670.34                     | 3413.12       | 906.41        | 3230.75          | 2973.71          | 2.96               | -0.492              | 0.000                | 0.154        |
| 62.00         | -51.85           | -7.69            | 0.00                | -654.87         | 0.00            | 654.87                     | 3396.14       | 898.21        | 3172.59          | 2931.93          | 3.17               | -0.512              | 0.000                | 0.152        |
| 64.00         | -51.17           | -7.65            | 0.00                | -639.49         | 0.00            | 639.49                     | 3378.91       | 890.02        | 3114.95          | 2890.20          | 3.39               | -0.532              | 0.000                | 0.150        |
| 66.00         | -50.51           | -7.61            | 0.00                | -624.19         | 0.00            | 624.19                     | 3361.42       | 881.82        | 3057.84          | 2848.53          | 3.61               | -0.552              | 0.000                | 0.148        |
| 68.00         | -49.84           | -7.57            | 0.00                | -608.97         | 0.00            | 608.97                     | 3343.68       | 873.62        | 3001.27          | 2806.93          | 3.85               | -0.572              | 0.000                | 0.146        |
| 70.00         | -49.18           | -7.52            | 0.00                | -593.83         | 0.00            | 593.83                     | 3325.69       | 865.43        | 2945.21          | 2765.40          | 4.09               | -0.592              | 0.000                | 0.144        |
| 71.25         | -48.51           | -7.49            | 0.00                | -584.43         | 0.00            | 584.43                     | 3314.31       | 860.31        | 2910.45          | 2739.48          | 4.25               | -0.605              | 0.000                | 0.141        |
| 72.00         | -48.12           | -7.48            | 0.00                | -578.82         | 0.00            | 578.82                     | 3307.44       | 857.23        | 2889.69          | 2723.94          | 4.34               | -0.610              | 0.000                | 0.140        |
| 74.00         | -47.06           | -7.43            | 0.00                | -563.87         | 0.00            | 563.87                     | 3288.94       | 849.04        | 2834.70          | 2682.57          | 4.60               | -0.630              | 0.000                | 0.138        |
| 76.00         | -46.01           | -7.38            | 0.00                | -549.01         | 0.00            | 549.01                     | 3306.32       | 856.73        | 2886.33          | 2721.42          | 4.87               | -0.649              | 0.000                | 0.140        |
| 78.00         | -45.36           | -7.33            | 0.00                | -534.26         | 0.00            | 534.26                     | 3287.81       | 848.54        | 2831.37          | 2680.05          | 5.15               | -0.669              | 0.000                | 0.133        |
| 80.00         | -44.71           | -7.28            | 0.00                | -519.60         | 0.00            | 519.60                     | 3269.04       | 840.34        | 2776.94          | 2638.78          | 5.43               | -0.688              | 0.000                | 0.131        |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|        |        |       |      |         |      |        |         |        |         |         |       |        |       |       |
|--------|--------|-------|------|---------|------|--------|---------|--------|---------|---------|-------|--------|-------|-------|
| 80.00  | -44.71 | -7.28 | 0.00 | -519.60 | 0.00 | 519.60 | 2504.08 | 701.39 | 2321.41 | 2027.68 | 5.43  | -0.688 | 0.000 | 0.143 |
| 82.00  | -44.13 | -7.24 | 0.00 | -505.03 | 0.00 | 505.03 | 2492.58 | 694.56 | 2276.42 | 1998.56 | 5.73  | -0.706 | 0.000 | 0.156 |
| 84.00  | -43.56 | -7.19 | 0.00 | -490.55 | 0.00 | 490.55 | 2480.83 | 687.73 | 2231.87 | 1969.42 | 6.03  | -0.727 | 0.000 | 0.153 |
| 86.00  | -42.99 | -7.15 | 0.00 | -476.16 | 0.00 | 476.16 | 2468.82 | 680.90 | 2187.76 | 1940.26 | 6.33  | -0.748 | 0.000 | 0.150 |
| 88.00  | -42.43 | -7.10 | 0.00 | -461.87 | 0.00 | 461.87 | 2456.55 | 674.07 | 2144.09 | 1911.10 | 6.65  | -0.765 | 0.000 | 0.184 |
| 90.00  | -41.86 | -7.06 | 0.00 | -447.66 | 0.00 | 447.66 | 2444.04 | 667.24 | 2100.86 | 1881.94 | 6.98  | -0.790 | 0.000 | 0.180 |
| 92.00  | -41.31 | -7.02 | 0.00 | -433.54 | 0.00 | 433.54 | 2431.27 | 660.41 | 2058.07 | 1852.79 | 7.31  | -0.816 | 0.000 | 0.177 |
| 94.00  | -40.75 | -6.98 | 0.00 | -419.50 | 0.00 | 419.50 | 2418.25 | 653.58 | 2015.72 | 1823.65 | 7.66  | -0.841 | 0.000 | 0.173 |
| 96.00  | -40.20 | -6.93 | 0.00 | -405.54 | 0.00 | 405.54 | 2404.97 | 646.75 | 1973.81 | 1794.53 | 8.02  | -0.866 | 0.000 | 0.170 |
| 98.00  | -39.65 | -6.89 | 0.00 | -391.67 | 0.00 | 391.67 | 2391.44 | 639.92 | 1932.34 | 1765.43 | 8.39  | -0.891 | 0.000 | 0.166 |
| 100.00 | -39.11 | -6.85 | 0.00 | -377.89 | 0.00 | 377.89 | 2377.66 | 633.09 | 1891.31 | 1736.36 | 8.77  | -0.916 | 0.000 | 0.162 |
| 102.00 | -38.58 | -6.80 | 0.00 | -364.19 | 0.00 | 364.19 | 2363.63 | 626.26 | 1850.72 | 1707.33 | 9.16  | -0.941 | 0.000 | 0.159 |
| 104.00 | -38.04 | -6.76 | 0.00 | -350.58 | 0.00 | 350.58 | 2349.34 | 619.43 | 1810.57 | 1678.33 | 9.55  | -0.965 | 0.000 | 0.155 |
| 106.00 | -37.52 | -6.72 | 0.00 | -337.06 | 0.00 | 337.06 | 2334.79 | 612.60 | 1770.86 | 1649.39 | 9.96  | -0.989 | 0.000 | 0.221 |
| 108.00 | -37.01 | -6.68 | 0.00 | -323.62 | 0.00 | 323.62 | 2320.00 | 605.77 | 1731.59 | 1620.50 | 10.39 | -1.024 | 0.000 | 0.216 |
| 110.00 | -36.50 | -6.65 | 0.00 | -310.26 | 0.00 | 310.26 | 2304.95 | 598.94 | 1692.77 | 1591.67 | 10.82 | -1.059 | 0.000 | 0.211 |
| 112.00 | -35.99 | -6.61 | 0.00 | -296.97 | 0.00 | 296.97 | 2289.65 | 592.11 | 1654.38 | 1562.91 | 11.27 | -1.094 | 0.000 | 0.206 |
| 114.00 | -35.49 | -6.56 | 0.00 | -283.75 | 0.00 | 283.75 | 2274.09 | 585.28 | 1616.43 | 1534.22 | 11.74 | -1.128 | 0.000 | 0.201 |
| 115.00 | -35.25 | -6.54 | 0.00 | -277.19 | 0.00 | 277.19 | 2266.22 | 581.86 | 1597.62 | 1519.90 | 11.98 | -1.145 | 0.000 | 0.198 |
| 116.00 | -34.86 | -6.53 | 0.00 | -270.65 | 0.00 | 270.65 | 2258.28 | 578.45 | 1578.92 | 1505.61 | 12.22 | -1.162 | 0.000 | 0.195 |
| 118.00 | -34.09 | -6.48 | 0.00 | -257.59 | 0.00 | 257.59 | 2242.22 | 571.62 | 1541.86 | 1477.08 | 12.71 | -1.195 | 0.000 | 0.190 |
| 120.00 | -33.33 | -6.43 | 0.00 | -244.64 | 0.00 | 244.64 | 2252.14 | 575.82 | 1564.64 | 1494.64 | 13.22 | -1.228 | 0.000 | 0.179 |
| 122.00 | -32.84 | -6.39 | 0.00 | -231.77 | 0.00 | 231.77 | 2235.98 | 568.99 | 1527.74 | 1466.15 | 13.74 | -1.260 | 0.000 | 0.173 |
| 124.00 | -32.36 | -6.34 | 0.00 | -218.99 | 0.00 | 218.99 | 2219.57 | 562.16 | 1491.28 | 1437.75 | 14.28 | -1.290 | 0.000 | 0.167 |
| 125.00 | -32.12 | -6.32 | 0.00 | -212.65 | 0.00 | 212.65 | 2211.27 | 558.75 | 1473.22 | 1423.59 | 14.55 | -1.305 | 0.000 | 0.164 |
| 125.00 | -32.12 | -6.32 | 0.00 | -212.65 | 0.00 | 212.65 | 1600.93 | 447.88 | 1183.23 | 1034.73 | 14.55 | -1.305 | 0.000 | 0.226 |
| 126.00 | -31.90 | -6.31 | 0.00 | -206.33 | 0.00 | 206.33 | 1596.33 | 445.15 | 1168.84 | 1025.42 | 14.82 | -1.319 | 0.000 | 0.221 |
| 128.00 | -31.48 | -6.27 | 0.00 | -193.71 | 0.00 | 193.71 | 1586.93 | 439.68 | 1140.32 | 1006.77 | 15.38 | -1.355 | 0.000 | 0.212 |
| 130.00 | -31.05 | -6.23 | 0.00 | -181.18 | 0.00 | 181.18 | 1577.27 | 434.22 | 1112.16 | 988.11  | 15.96 | -1.389 | 0.000 | 0.203 |
| 132.00 | -30.63 | -6.19 | 0.00 | -168.73 | 0.00 | 168.73 | 1567.36 | 428.76 | 1084.34 | 969.45  | 16.55 | -1.423 | 0.000 | 0.194 |
| 134.00 | -30.22 | -6.14 | 0.00 | -156.36 | 0.00 | 156.36 | 1557.20 | 423.29 | 1056.88 | 950.79  | 17.15 | -1.455 | 0.000 | 0.184 |
| 136.00 | -29.81 | -6.10 | 0.00 | -144.07 | 0.00 | 144.07 | 1546.79 | 417.83 | 1029.77 | 932.14  | 17.77 | -1.486 | 0.000 | 0.174 |
| 137.50 | -21.29 | -4.66 | 0.00 | -133.23 | 0.00 | 133.23 | 1538.81 | 413.73 | 1009.67 | 918.16  | 18.24 | -1.508 | 0.000 | 0.159 |
| 138.00 | -21.20 | -4.65 | 0.00 | -130.90 | 0.00 | 130.90 | 1536.12 | 412.36 | 1003.02 | 913.50  | 18.40 | -1.516 | 0.000 | 0.157 |
| 140.00 | -20.83 | -4.61 | 0.00 | -121.59 | 0.00 | 121.59 | 1525.20 | 406.90 | 976.61  | 894.88  | 19.04 | -1.544 | 0.000 | 0.150 |
| 142.00 | -20.48 | -4.56 | 0.00 | -112.38 | 0.00 | 112.38 | 1514.03 | 401.44 | 950.56  | 876.30  | 19.69 | -1.571 | 0.000 | 0.142 |
| 144.00 | -20.12 | -4.52 | 0.00 | -103.25 | 0.00 | 103.25 | 1502.60 | 395.97 | 924.86  | 857.74  | 20.36 | -1.597 | 0.000 | 0.134 |
| 146.00 | -19.77 | -4.47 | 0.00 | -94.22  | 0.00 | 94.22  | 1490.92 | 390.51 | 899.51  | 839.23  | 21.03 | -1.622 | 0.000 | 0.126 |
| 148.00 | -15.50 | -3.47 | 0.00 | -85.29  | 0.00 | 85.29  | 1478.99 | 385.04 | 874.51  | 820.76  | 21.71 | -1.645 | 0.000 | 0.114 |
| 150.00 | -15.19 | -3.43 | 0.00 | -78.34  | 0.00 | 78.34  | 1466.80 | 379.58 | 849.87  | 802.34  | 22.41 | -1.668 | 0.000 | 0.108 |
| 152.00 | -14.71 | -3.37 | 0.00 | -71.49  | 0.00 | 71.49  | 1454.36 | 374.12 | 825.58  | 783.97  | 23.11 | -1.689 | 0.000 | 0.101 |
| 154.00 | -14.22 | -3.32 | 0.00 | -64.74  | 0.00 | 64.74  | 1441.66 | 368.65 | 801.64  | 765.67  | 23.82 | -1.709 | 0.000 | 0.095 |
| 155.00 | -13.99 | -3.29 | 0.00 | -61.42  | 0.00 | 61.42  | 1451.75 | 372.98 | 820.59  | 780.18  | 24.18 | -1.719 | 0.000 | 0.088 |
| 156.00 | -13.83 | -3.27 | 0.00 | -58.13  | 0.00 | 58.13  | 1445.41 | 370.25 | 808.61  | 771.02  | 24.54 | -1.729 | 0.000 | 0.085 |
| 158.00 | -13.53 | -3.22 | 0.00 | -51.60  | 0.00 | 51.60  | 1432.53 | 364.79 | 784.92  | 752.77  | 25.27 | -1.745 | 0.000 | 0.078 |
| 160.00 | -13.23 | -3.17 | 0.00 | -45.16  | 0.00 | 45.16  | 1419.41 | 359.32 | 761.58  | 734.60  | 26.01 | -1.761 | 0.000 | 0.071 |
| 162.00 | -12.94 | -3.12 | 0.00 | -38.83  | 0.00 | 38.83  | 1406.03 | 353.86 | 738.59  | 716.50  | 26.75 | -1.775 | 0.000 | 0.063 |
| 164.00 | -12.65 | -3.07 | 0.00 | -32.58  | 0.00 | 32.58  | 1392.39 | 348.39 | 715.96  | 698.49  | 27.49 | -1.788 | 0.000 | 0.056 |
| 165.00 | -8.39  | -2.22 | 0.00 | -29.51  | 0.00 | 29.51  | 1385.48 | 345.66 | 704.77  | 689.51  | 27.87 | -1.793 | 0.000 | 0.049 |
| 166.00 | -8.26  | -2.19 | 0.00 | -27.30  | 0.00 | 27.30  | 1378.51 | 342.93 | 693.68  | 680.57  | 28.24 | -1.799 | 0.000 | 0.046 |
| 168.00 | -7.98  | -2.15 | 0.00 | -22.91  | 0.00 | 22.91  | 1364.37 | 337.47 | 671.75  | 662.74  | 29.00 | -1.809 | 0.000 | 0.040 |
| 170.00 | -7.71  | -2.10 | 0.00 | -18.61  | 0.00 | 18.61  | 1349.97 | 332.00 | 650.17  | 645.02  | 29.76 | -1.817 | 0.000 | 0.035 |
| 170.00 | -7.71  | -2.10 | 0.00 | -18.61  | 0.00 | 18.61  | 1349.97 | 332.00 | 650.17  | 645.02  | 29.76 | -1.817 | 0.000 | 0.035 |
| 172.00 | -7.46  | -2.05 | 0.00 | -14.42  | 0.00 | 14.42  | 1257.93 | 299.51 | 529.13  | 541.60  | 30.52 | -1.824 | 0.000 | 0.033 |
| 174.00 | -6.02  | -1.55 | 0.00 | -6.09   | 0.00 | 6.09   | 1121.46 | 267.01 | 420.55  | 429.85  | 31.29 | -1.831 | 0.000 | 0.020 |
| 175.00 | 0.00   | -1.35 | 0.00 | -4.54   | 0.00 | 4.54   | 1053.22 | 250.77 | 370.93  | 378.81  | 31.67 | -1.833 | 0.000 | 0.012 |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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## Seismic Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 + 1.0Ev + 1.0Eh

**Iterations** 24

**Gust Response Factor** 1.10

**Sds** 0.20

**Ss** 0.18

**Dead Load Factor** 1.20 **Seismic Load Factor** 1.00

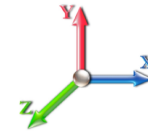
**Sd1** 0.09

**S1** 0.06

**Wind Load Factor** 0.00 **Structure Frequency (f1)** 0.26

**SA** 0.02

**Seismic Importance Factor** 1.00



| Top Elev (ft) | Description         | Wz (lb) | Hz (lb) | Vertical Ev (lb) | Lateral Fs (lb) | R: 1.50 |
|---------------|---------------------|---------|---------|------------------|-----------------|---------|
| 0.00          | RB1 RB2             | 0.00    | 0.00    | 0.00             | 0.00            |         |
| 2.00          |                     | 632.14  | 1.00    | 24.81            | 0.00            |         |
| 4.00          |                     | 628.43  | 3.00    | 24.67            | 0.00            |         |
| 6.00          |                     | 624.72  | 5.00    | 24.52            | 0.01            |         |
| 8.00          |                     | 621.01  | 7.00    | 24.38            | 0.01            |         |
| 10.00         |                     | 617.31  | 9.00    | 24.23            | 0.02            |         |
| 12.00         | Appurtenance(s)     | 614.60  | 11.00   | 24.12            | 0.03            |         |
| 14.00         |                     | 609.51  | 13.00   | 23.93            | 0.04            |         |
| 16.00         |                     | 605.80  | 15.00   | 23.78            | 0.05            |         |
| 18.00         |                     | 602.09  | 17.00   | 23.63            | 0.06            |         |
| 20.00         |                     | 598.38  | 19.00   | 23.49            | 0.08            |         |
| 22.00         | RT2                 | 594.67  | 21.00   | 23.34            | 0.09            |         |
| 24.00         |                     | 590.97  | 23.00   | 23.20            | 0.11            |         |
| 26.00         |                     | 587.26  | 25.00   | 23.05            | 0.13            |         |
| 28.00         |                     | 583.55  | 27.00   | 22.91            | 0.14            |         |
| 30.00         |                     | 579.84  | 29.00   | 22.76            | 0.17            |         |
| 32.00         |                     | 576.13  | 31.00   | 22.62            | 0.19            |         |
| 33.50         | RB3                 | 429.67  | 32.75   | 16.87            | 0.12            |         |
| 34.00         |                     | 142.76  | 33.75   | 5.60             | 0.01            |         |
| 34.75         | RB4                 | 213.70  | 34.38   | 8.39             | 0.03            |         |
| 35.00         | RB5                 | 71.12   | 34.88   | 2.79             | 0.00            |         |
| 36.00         | Bot - Section 2 RT1 | 283.89  | 35.50   | 11.14            | 0.06            |         |
| 38.00         | RB6                 | 953.05  | 37.00   | 37.41            | 0.73            |         |
| 39.00         | RT5                 | 473.94  | 38.50   | 18.60            | 0.19            |         |
| 40.00         |                     | 472.22  | 39.50   | 18.54            | 0.20            |         |
| 42.00         | Top - Section 1     | 939.28  | 41.00   | 36.87            | 0.87            |         |
| 44.00         |                     | 498.59  | 43.00   | 19.57            | 0.27            |         |
| 46.00         |                     | 495.41  | 45.00   | 19.45            | 0.29            |         |
| 48.00         |                     | 492.23  | 47.00   | 19.32            | 0.31            |         |
| 48.50         | RT3                 | 122.56  | 48.25   | 4.81             | 0.02            |         |
| 49.75         | RT4                 | 305.54  | 49.13   | 11.99            | 0.13            |         |
| 50.00         |                     | 60.96   | 49.88   | 2.39             | 0.01            |         |
| 52.00         |                     | 485.88  | 51.00   | 19.07            | 0.36            |         |
| 54.00         | Appurtenance(s)     | 532.70  | 53.00   | 20.91            | 0.47            |         |
| 56.00         |                     | 479.14  | 55.00   | 18.81            | 0.41            |         |
| 58.00         |                     | 475.96  | 57.00   | 18.68            | 0.43            |         |
| 60.00         |                     | 472.78  | 59.00   | 18.56            | 0.45            |         |
| 62.00         |                     | 469.60  | 61.00   | 18.43            | 0.48            |         |
| 64.00         |                     | 466.42  | 63.00   | 18.31            | 0.50            |         |
| 66.00         |                     | 463.24  | 65.00   | 18.18            | 0.53            |         |
| 68.00         |                     | 460.07  | 67.00   | 18.06            | 0.55            |         |
| 70.00         | Bot - Section 3     | 456.89  | 69.00   | 17.93            | 0.58            |         |
| 71.25         | RT6 RB7             | 496.92  | 70.63   | 19.51            | 0.72            |         |
| 72.00         |                     | 296.96  | 71.63   | 11.66            | 0.26            |         |
| 74.00         |                     | 787.52  | 73.00   | 30.91            | 1.93            |         |
| 76.00         | Top - Section 2     | 781.17  | 75.00   | 30.66            | 2.00            |         |



## Seismic Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|                |                 |                 |        |                |              |
|----------------|-----------------|-----------------|--------|----------------|--------------|
| 78.00          |                 | 450.34          | 77.00  | 17.68          | 0.70         |
| 80.00          | Top - Section 3 | 447.16          | 79.00  | 17.55          | 0.73         |
| 82.00          |                 | 390.36          | 81.00  | 15.32          | 0.58         |
| 84.00          |                 | 387.71          | 83.00  | 15.22          | 0.60         |
| 86.00          | RT7 RB8         | 385.07          | 85.00  | 15.12          | 0.63         |
| 88.00          |                 | 382.42          | 87.00  | 15.01          | 0.65         |
| 90.00          |                 | 379.77          | 89.00  | 14.91          | 0.67         |
| 92.00          |                 | 377.12          | 91.00  | 14.80          | 0.69         |
| 94.00          |                 | 374.47          | 93.00  | 14.70          | 0.71         |
| 96.00          |                 | 371.82          | 95.00  | 14.60          | 0.73         |
| 98.00          |                 | 369.17          | 97.00  | 14.49          | 0.75         |
| 100.00         |                 | 366.53          | 99.00  | 14.39          | 0.77         |
| 102.00         |                 | 363.88          | 101.00 | 14.28          | 0.79         |
| 104.00         | RT8             | 361.23          | 103.00 | 14.18          | 0.81         |
| 106.00         |                 | 356.44          | 105.00 | 13.99          | 0.82         |
| 108.00         |                 | 351.66          | 107.00 | 13.80          | 0.83         |
| 110.00         |                 | 349.01          | 109.00 | 13.70          | 0.84         |
| 112.00         |                 | 346.36          | 111.00 | 13.60          | 0.86         |
| 114.00         |                 | 343.71          | 113.00 | 13.49          | 0.88         |
| 115.00         | Bot - Section 5 | 170.86          | 114.50 | 6.71           | 0.22         |
| 116.00         |                 | 284.83          | 115.50 | 11.18          | 0.63         |
| 118.00         |                 | 565.68          | 117.00 | 22.20          | 2.56         |
| 120.00         | Top - Section 4 | 560.39          | 119.00 | 22.00          | 2.60         |
| 122.00         |                 | 337.40          | 121.00 | 13.24          | 0.97         |
| 124.00         |                 | 334.75          | 123.00 | 13.14          | 0.99         |
| 125.00         | Top - Section 5 | 166.38          | 124.50 | 6.53           | 0.25         |
| 126.00         |                 | 144.29          | 125.50 | 5.66           | 0.19         |
| 128.00         |                 | 286.99          | 127.00 | 11.27          | 0.78         |
| 130.00         |                 | 284.87          | 129.00 | 11.18          | 0.79         |
| 132.00         |                 | 282.75          | 131.00 | 11.10          | 0.80         |
| 134.00         |                 | 280.63          | 133.00 | 11.02          | 0.81         |
| 136.00         |                 | 278.52          | 135.00 | 10.93          | 0.83         |
| 137.50         | Appurtenance(s) | 4118.5          | 136.75 | 161.66         | 185.15       |
| 138.00         |                 | 58.60           | 137.75 | 2.30           | 0.04         |
| 140.00         |                 | 233.09          | 139.00 | 9.15           | 0.61         |
| 142.00         |                 | 230.98          | 141.00 | 9.07           | 0.62         |
| 144.00         |                 | 228.86          | 143.00 | 8.98           | 0.63         |
| 146.00         |                 | 226.74          | 145.00 | 8.90           | 0.63         |
| 148.00         | Appurtenance(s) | 1957.1          | 147.00 | 76.82          | 48.31        |
| 150.00         | Bot - Section 7 | 189.76          | 149.00 | 7.45           | 0.47         |
| 152.00         |                 | 336.52          | 151.00 | 13.21          | 1.51         |
| 154.00         |                 | 332.28          | 153.00 | 13.04          | 1.51         |
| 155.00         | Top - Section 6 | 164.55          | 154.50 | 6.46           | 0.38         |
| 156.00         |                 | 92.81           | 155.50 | 3.64           | 0.12         |
| 158.00         |                 | 184.03          | 157.00 | 7.22           | 0.49         |
| 160.00         |                 | 181.91          | 159.00 | 7.14           | 0.49         |
| 162.00         |                 | 179.79          | 161.00 | 7.06           | 0.49         |
| 164.00         |                 | 177.67          | 163.00 | 6.97           | 0.49         |
| 165.00         | Appurtenance(s) | 2447.1          | 164.50 | 96.06          | 94.59        |
| 166.00         |                 | 86.31           | 165.50 | 3.39           | 0.12         |
| 168.00         |                 | 171.03          | 167.00 | 6.71           | 0.48         |
| 170.00         | Top - Section 7 | 168.91          | 169.00 | 6.63           | 0.48         |
| 172.00         |                 | 161.55          | 171.00 | 6.34           | 0.45         |
| 174.00         | Appurtenance(s) | 926.55          | 173.00 | 36.37          | 15.00        |
| 175.00         | Appurtenance(s) | 3642.1          | 174.50 | 142.97         | 235.77       |
| <b>Totals:</b> |                 | <b>50,376.0</b> |        | <b>1,977.4</b> | <b>629.3</b> |

**Total Wind:** 40,884.2

## Seismic Segment Forces (Factored)

|                   |               |                      |                |                         |
|-------------------|---------------|----------------------|----------------|-------------------------|
| <b>Structure:</b> | CT00680-S-SBA | <b>Code:</b>         | TIA-222-H      | 1/9/2023                |
| <b>Site Name:</b> | Putnam        | <b>Exposure:</b>     | B              |                         |
| <b>Height:</b>    | 175.00 (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: 48                |



## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 1.2D + 1.0Ev + 1.0Eh

**Iterations** 24

**Gust Response Factor** 1.10

**Sds** 0.20

**Ss** 0.18

**Dead Load Factor** 1.20

**Seismic Load Factor** 1.00

**Sd1** 0.09

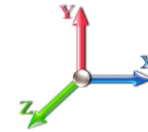
**S1** 0.06

**Wind Load Factor** 0.00

**Structure Frequency (f1)** 0.26

**SA** 0.02

**Seismic Importance Factor** 1.00



| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00          | -60.61           | -0.63            | 0.00                | -102.44         | 0.00            | 102.44                     | 4820.43       | 1324.26       | 5910.87          | 5262.50          | 0.00               | 0.00                | 0.00                 | 0.019        |
| 2.00          | -59.85           | -0.63            | 0.00                | -101.19         | 0.00            | 101.19                     | 4803.04       | 1314.69       | 5825.82          | 5205.34          | 0.00               | 0.00                | 0.00                 | 0.019        |
| 4.00          | -59.10           | -0.63            | 0.00                | -99.93          | 0.00            | 99.93                      | 4785.39       | 1305.13       | 5741.38          | 5148.19          | 0.00               | 0.00                | 0.00                 | 0.019        |
| 6.00          | -58.35           | -0.63            | 0.00                | -98.67          | 0.00            | 98.67                      | 4767.50       | 1295.57       | 5657.56          | 5091.06          | 0.00               | 0.00                | 0.00                 | 0.019        |
| 8.00          | -57.60           | -0.63            | 0.00                | -97.41          | 0.00            | 97.41                      | 4749.35       | 1286.01       | 5574.35          | 5033.93          | 0.00               | -0.01               | 0.019                | 0.019        |
| 10.00         | -56.86           | -0.63            | 0.00                | -96.14          | 0.00            | 96.14                      | 4730.95       | 1276.44       | 5491.76          | 4976.83          | 0.01               | -0.01               | 0.019                | 0.019        |
| 12.00         | -56.12           | -0.64            | 0.00                | -94.87          | 0.00            | 94.87                      | 4712.29       | 1266.88       | 5409.79          | 4919.76          | 0.01               | -0.01               | 0.018                | 0.018        |
| 14.00         | -55.39           | -0.64            | 0.00                | -93.60          | 0.00            | 93.60                      | 4693.38       | 1257.32       | 5328.43          | 4862.72          | 0.01               | -0.01               | 0.018                | 0.018        |
| 16.00         | -54.66           | -0.64            | 0.00                | -92.33          | 0.00            | 92.33                      | 4674.22       | 1247.76       | 5247.69          | 4805.72          | 0.02               | -0.01               | 0.018                | 0.018        |
| 18.00         | -53.94           | -0.64            | 0.00                | -91.05          | 0.00            | 91.05                      | 4654.80       | 1238.20       | 5167.57          | 4748.76          | 0.02               | -0.01               | 0.018                | 0.018        |
| 20.00         | -53.22           | -0.64            | 0.00                | -89.78          | 0.00            | 89.78                      | 4635.13       | 1228.63       | 5088.06          | 4691.86          | 0.03               | -0.01               | 0.018                | 0.018        |
| 22.00         | -52.51           | -0.64            | 0.00                | -88.50          | 0.00            | 88.50                      | 4615.21       | 1219.07       | 5009.17          | 4635.02          | 0.03               | -0.01               | 0.018                | 0.018        |
| 24.00         | -51.80           | -0.64            | 0.00                | -87.21          | 0.00            | 87.21                      | 4595.03       | 1209.51       | 4930.90          | 4578.24          | 0.04               | -0.02               | 0.022                | 0.022        |
| 26.00         | -51.10           | -0.64            | 0.00                | -85.93          | 0.00            | 85.93                      | 4574.60       | 1199.95       | 4853.24          | 4521.53          | 0.05               | -0.02               | 0.021                | 0.021        |
| 28.00         | -50.40           | -0.64            | 0.00                | -84.65          | 0.00            | 84.65                      | 4553.92       | 1190.38       | 4776.20          | 4464.90          | 0.05               | -0.02               | 0.021                | 0.021        |
| 30.00         | -49.70           | -0.65            | 0.00                | -83.36          | 0.00            | 83.36                      | 4532.98       | 1180.82       | 4699.78          | 4408.35          | 0.06               | -0.02               | 0.021                | 0.021        |
| 32.00         | -49.01           | -0.65            | 0.00                | -82.07          | 0.00            | 82.07                      | 4511.79       | 1171.26       | 4623.97          | 4351.89          | 0.07               | -0.02               | 0.021                | 0.021        |
| 33.50         | -48.50           | -0.65            | 0.00                | -81.10          | 0.00            | 81.10                      | 4495.73       | 1164.09       | 4567.52          | 4309.60          | 0.08               | -0.02               | 0.021                | 0.021        |
| 34.00         | -48.33           | -0.65            | 0.00                | -80.77          | 0.00            | 80.77                      | 4490.35       | 1161.70       | 4548.78          | 4295.52          | 0.08               | -0.02               | 0.020                | 0.020        |
| 34.75         | -48.07           | -0.65            | 0.00                | -80.29          | 0.00            | 80.29                      | 4482.24       | 1158.11       | 4520.74          | 4274.41          | 0.09               | -0.02               | 0.020                | 0.020        |
| 35.00         | -47.99           | -0.65            | 0.00                | -80.13          | 0.00            | 80.13                      | 4479.53       | 1156.92       | 4511.41          | 4267.38          | 0.09               | -0.03               | 0.017                | 0.017        |
| 36.00         | -47.65           | -0.65            | 0.00                | -79.48          | 0.00            | 79.48                      | 4468.65       | 1152.14       | 4474.20          | 4239.26          | 0.09               | -0.03               | 0.015                | 0.015        |
| 38.00         | -46.49           | -0.65            | 0.00                | -78.19          | 0.00            | 78.19                      | 4446.70       | 1142.57       | 4400.24          | 4183.10          | 0.10               | -0.03               | 0.018                | 0.018        |
| 39.00         | -45.92           | -0.65            | 0.00                | -77.54          | 0.00            | 77.54                      | 4435.63       | 1137.79       | 4363.49          | 4155.06          | 0.11               | -0.03               | 0.014                | 0.014        |
| 40.00         | -45.34           | -0.65            | 0.00                | -76.89          | 0.00            | 76.89                      | 4424.50       | 1133.01       | 4326.90          | 4127.05          | 0.12               | -0.03               | 0.017                | 0.017        |
| 42.00         | -44.20           | -0.65            | 0.00                | -75.60          | 0.00            | 75.60                      | 3554.53       | 980.17        | 3778.00          | 3351.15          | 0.13               | -0.03               | 0.018                | 0.018        |
| 44.00         | -43.61           | -0.65            | 0.00                | -74.30          | 0.00            | 74.30                      | 3539.83       | 971.98        | 3715.08          | 3309.16          | 0.14               | -0.03               | 0.019                | 0.019        |
| 46.00         | -43.02           | -0.65            | 0.00                | -73.01          | 0.00            | 73.01                      | 3524.88       | 963.78        | 3652.69          | 3267.17          | 0.15               | -0.03               | 0.019                | 0.019        |
| 48.00         | -42.43           | -0.65            | 0.00                | -71.71          | 0.00            | 71.71                      | 3509.67       | 955.59        | 3590.83          | 3225.18          | 0.17               | -0.03               | 0.018                | 0.018        |
| 48.50         | -42.29           | -0.65            | 0.00                | -71.39          | 0.00            | 71.39                      | 3505.83       | 953.54        | 3575.44          | 3214.69          | 0.17               | -0.03               | 0.018                | 0.018        |
| 49.75         | -41.92           | -0.65            | 0.00                | -70.58          | 0.00            | 70.58                      | 3496.16       | 948.41        | 3537.13          | 3188.45          | 0.18               | -0.04               | 0.021                | 0.021        |
| 50.00         | -41.85           | -0.65            | 0.00                | -70.41          | 0.00            | 70.41                      | 3494.22       | 947.39        | 3529.49          | 3183.21          | 0.18               | -0.04               | 0.022                | 0.022        |
| 52.00         | -41.27           | -0.65            | 0.00                | -69.11          | 0.00            | 69.11                      | 3478.50       | 939.19        | 3468.69          | 3141.25          | 0.20               | -0.04               | 0.022                | 0.022        |
| 54.00         | -40.64           | -0.65            | 0.00                | -67.81          | 0.00            | 67.81                      | 3462.54       | 931.00        | 3408.41          | 3099.32          | 0.21               | -0.04               | 0.022                | 0.022        |
| 56.00         | -40.07           | -0.65            | 0.00                | -66.51          | 0.00            | 66.51                      | 3446.32       | 922.80        | 3348.66          | 3057.41          | 0.23               | -0.04               | 0.022                | 0.022        |
| 58.00         | -39.50           | -0.65            | 0.00                | -65.21          | 0.00            | 65.21                      | 3429.84       | 914.61        | 3289.44          | 3015.54          | 0.25               | -0.04               | 0.022                | 0.022        |
| 60.00         | -38.94           | -0.65            | 0.00                | -63.91          | 0.00            | 63.91                      | 3413.12       | 906.41        | 3230.75          | 2973.71          | 0.27               | -0.05               | 0.021                | 0.021        |
| 62.00         | -38.38           | -0.65            | 0.00                | -62.60          | 0.00            | 62.60                      | 3396.14       | 898.21        | 3172.59          | 2931.93          | 0.29               | -0.05               | 0.021                | 0.021        |
| 64.00         | -37.83           | -0.65            | 0.00                | -61.30          | 0.00            | 61.30                      | 3378.91       | 890.02        | 3114.95          | 2890.20          | 0.31               | -0.05               | 0.021                | 0.021        |
| 66.00         | -37.28           | -0.65            | 0.00                | -59.99          | 0.00            | 59.99                      | 3361.42       | 881.82        | 3057.84          | 2848.53          | 0.33               | -0.05               | 0.021                | 0.021        |
| 68.00         | -36.73           | -0.65            | 0.00                | -58.69          | 0.00            | 58.69                      | 3343.68       | 873.62        | 3001.27          | 2806.93          | 0.35               | -0.05               | 0.020                | 0.020        |
| 70.00         | -36.19           | -0.65            | 0.00                | -57.38          | 0.00            | 57.38                      | 3325.69       | 865.43        | 2945.21          | 2765.40          | 0.37               | -0.05               | 0.020                | 0.020        |
| 71.25         | -35.59           | -0.65            | 0.00                | -56.57          | 0.00            | 56.57                      | 3314.31       | 860.31        | 2910.45          | 2739.48          | 0.39               | -0.06               | 0.020                | 0.020        |
| 72.00         | -35.23           | -0.65            | 0.00                | -56.08          | 0.00            | 56.08                      | 3307.44       | 857.23        | 2889.69          | 2723.94          | 0.39               | -0.06               | 0.020                | 0.020        |
| 74.00         | -34.28           | -0.65            | 0.00                | -54.77          | 0.00            | 54.77                      | 3288.94       | 849.04        | 2834.70          | 2682.57          | 0.42               | -0.06               | 0.019                | 0.019        |
| 76.00         | -33.33           | -0.65            | 0.00                | -53.47          | 0.00            | 53.47                      | 3306.32       | 856.73        | 2886.33          | 2721.42          | 0.44               | -0.06               | 0.019                | 0.019        |
| 78.00         | -32.80           | -0.65            | 0.00                | -52.17          | 0.00            | 52.17                      | 3287.81       | 848.54        | 2831.37          | 2680.05          | 0.47               | -0.06               | 0.019                | 0.019        |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|        |        |       |      |        |      |       |         |        |         |         |      |       |       |
|--------|--------|-------|------|--------|------|-------|---------|--------|---------|---------|------|-------|-------|
| 80.00  | -32.27 | -0.65 | 0.00 | -50.88 | 0.00 | 50.88 | 3269.04 | 840.34 | 2776.94 | 2638.78 | 0.50 | -0.06 | 0.018 |
| 80.00  | -32.27 | -0.65 | 0.00 | -50.88 | 0.00 | 50.88 | 2504.08 | 701.39 | 2321.41 | 2027.68 | 0.50 | -0.06 | 0.020 |
| 82.00  | -31.81 | -0.65 | 0.00 | -49.58 | 0.00 | 49.58 | 2492.58 | 694.56 | 2276.42 | 1998.56 | 0.52 | -0.07 | 0.022 |
| 84.00  | -31.35 | -0.65 | 0.00 | -48.28 | 0.00 | 48.28 | 2480.83 | 687.73 | 2231.87 | 1969.42 | 0.55 | -0.07 | 0.022 |
| 86.00  | -30.90 | -0.65 | 0.00 | -46.98 | 0.00 | 46.98 | 2468.82 | 680.90 | 2187.76 | 1940.26 | 0.58 | -0.07 | 0.021 |
| 88.00  | -30.45 | -0.65 | 0.00 | -45.69 | 0.00 | 45.69 | 2456.55 | 674.07 | 2144.09 | 1911.10 | 0.61 | -0.07 | 0.026 |
| 90.00  | -30.00 | -0.65 | 0.00 | -44.39 | 0.00 | 44.39 | 2444.04 | 667.24 | 2100.86 | 1881.94 | 0.64 | -0.07 | 0.026 |
| 92.00  | -29.56 | -0.65 | 0.00 | -43.10 | 0.00 | 43.10 | 2431.27 | 660.41 | 2058.07 | 1852.79 | 0.67 | -0.08 | 0.025 |
| 94.00  | -29.12 | -0.65 | 0.00 | -41.80 | 0.00 | 41.80 | 2418.25 | 653.58 | 2015.72 | 1823.65 | 0.70 | -0.08 | 0.025 |
| 96.00  | -28.68 | -0.65 | 0.00 | -40.50 | 0.00 | 40.50 | 2404.97 | 646.75 | 1973.81 | 1794.53 | 0.74 | -0.08 | 0.024 |
| 98.00  | -28.25 | -0.65 | 0.00 | -39.21 | 0.00 | 39.21 | 2391.44 | 639.92 | 1932.34 | 1765.43 | 0.77 | -0.08 | 0.024 |
| 100.00 | -27.82 | -0.65 | 0.00 | -37.91 | 0.00 | 37.91 | 2377.66 | 633.09 | 1891.31 | 1736.36 | 0.81 | -0.09 | 0.024 |
| 102.00 | -27.39 | -0.65 | 0.00 | -36.61 | 0.00 | 36.61 | 2363.63 | 626.26 | 1850.72 | 1707.33 | 0.84 | -0.09 | 0.023 |
| 104.00 | -26.97 | -0.65 | 0.00 | -35.32 | 0.00 | 35.32 | 2349.34 | 619.43 | 1810.57 | 1678.33 | 0.88 | -0.09 | 0.023 |
| 106.00 | -26.55 | -0.65 | 0.00 | -34.03 | 0.00 | 34.03 | 2334.79 | 612.60 | 1770.86 | 1649.39 | 0.92 | -0.09 | 0.032 |
| 108.00 | -26.14 | -0.65 | 0.00 | -32.73 | 0.00 | 32.73 | 2320.00 | 605.77 | 1731.59 | 1620.50 | 0.96 | -0.10 | 0.031 |
| 110.00 | -25.73 | -0.65 | 0.00 | -31.44 | 0.00 | 31.44 | 2304.95 | 598.94 | 1692.77 | 1591.67 | 1.00 | -0.10 | 0.031 |
| 112.00 | -25.32 | -0.65 | 0.00 | -30.14 | 0.00 | 30.14 | 2289.65 | 592.11 | 1654.38 | 1562.91 | 1.05 | -0.10 | 0.030 |
| 114.00 | -24.92 | -0.65 | 0.00 | -28.85 | 0.00 | 28.85 | 2274.09 | 585.28 | 1616.43 | 1534.22 | 1.09 | -0.11 | 0.030 |
| 115.00 | -24.72 | -0.65 | 0.00 | -28.20 | 0.00 | 28.20 | 2266.22 | 581.86 | 1597.62 | 1519.90 | 1.11 | -0.11 | 0.029 |
| 116.00 | -24.38 | -0.65 | 0.00 | -27.55 | 0.00 | 27.55 | 2258.28 | 578.45 | 1578.92 | 1505.61 | 1.14 | -0.11 | 0.029 |
| 118.00 | -23.70 | -0.64 | 0.00 | -26.26 | 0.00 | 26.26 | 2242.22 | 571.62 | 1541.86 | 1477.08 | 1.18 | -0.11 | 0.028 |
| 120.00 | -23.03 | -0.64 | 0.00 | -24.97 | 0.00 | 24.97 | 2252.14 | 575.82 | 1564.64 | 1494.64 | 1.23 | -0.12 | 0.027 |
| 122.00 | -22.63 | -0.64 | 0.00 | -23.69 | 0.00 | 23.69 | 2235.98 | 568.99 | 1527.74 | 1466.15 | 1.28 | -0.12 | 0.026 |
| 124.00 | -22.24 | -0.64 | 0.00 | -22.40 | 0.00 | 22.40 | 2219.57 | 562.16 | 1491.28 | 1437.75 | 1.33 | -0.12 | 0.026 |
| 125.00 | -22.04 | -0.64 | 0.00 | -21.76 | 0.00 | 21.76 | 2211.27 | 558.75 | 1473.22 | 1423.59 | 1.36 | -0.13 | 0.025 |
| 125.00 | -22.04 | -0.64 | 0.00 | -21.76 | 0.00 | 21.76 | 1600.93 | 447.88 | 1183.23 | 1034.73 | 1.36 | -0.13 | 0.035 |
| 126.00 | -21.88 | -0.64 | 0.00 | -21.12 | 0.00 | 21.12 | 1596.33 | 445.15 | 1168.84 | 1025.42 | 1.39 | -0.13 | 0.034 |
| 128.00 | -21.54 | -0.64 | 0.00 | -19.84 | 0.00 | 19.84 | 1586.93 | 439.68 | 1140.32 | 1006.77 | 1.44 | -0.13 | 0.033 |
| 130.00 | -21.21 | -0.64 | 0.00 | -18.56 | 0.00 | 18.56 | 1577.27 | 434.22 | 1112.16 | 988.11  | 1.50 | -0.13 | 0.032 |
| 132.00 | -20.89 | -0.64 | 0.00 | -17.28 | 0.00 | 17.28 | 1567.36 | 428.76 | 1084.34 | 969.45  | 1.55 | -0.14 | 0.031 |
| 134.00 | -20.56 | -0.64 | 0.00 | -16.00 | 0.00 | 16.00 | 1557.20 | 423.29 | 1056.88 | 950.79  | 1.61 | -0.14 | 0.030 |
| 136.00 | -20.24 | -0.64 | 0.00 | -14.72 | 0.00 | 14.72 | 1546.79 | 417.83 | 1029.77 | 932.14  | 1.67 | -0.14 | 0.029 |
| 137.50 | -15.15 | -0.44 | 0.00 | -13.76 | 0.00 | 13.76 | 1538.81 | 413.73 | 1009.67 | 918.16  | 1.72 | -0.15 | 0.025 |
| 138.00 | -15.09 | -0.44 | 0.00 | -13.54 | 0.00 | 13.54 | 1536.12 | 412.36 | 1003.02 | 913.50  | 1.73 | -0.15 | 0.025 |
| 140.00 | -14.81 | -0.44 | 0.00 | -12.66 | 0.00 | 12.66 | 1525.20 | 406.90 | 976.61  | 894.88  | 1.80 | -0.15 | 0.024 |
| 142.00 | -14.54 | -0.44 | 0.00 | -11.77 | 0.00 | 11.77 | 1514.03 | 401.44 | 950.56  | 876.30  | 1.86 | -0.15 | 0.023 |
| 144.00 | -14.27 | -0.44 | 0.00 | -10.89 | 0.00 | 10.89 | 1502.60 | 395.97 | 924.86  | 857.74  | 1.93 | -0.16 | 0.022 |
| 146.00 | -14.01 | -0.44 | 0.00 | -10.01 | 0.00 | 10.01 | 1490.92 | 390.51 | 899.51  | 839.23  | 1.99 | -0.16 | 0.021 |
| 148.00 | -11.59 | -0.38 | 0.00 | -9.13  | 0.00 | 9.13  | 1478.99 | 385.04 | 874.51  | 820.76  | 2.06 | -0.16 | 0.019 |
| 150.00 | -11.36 | -0.38 | 0.00 | -8.37  | 0.00 | 8.37  | 1466.80 | 379.58 | 849.87  | 802.34  | 2.13 | -0.16 | 0.018 |
| 152.00 | -10.96 | -0.38 | 0.00 | -7.60  | 0.00 | 7.60  | 1454.36 | 374.12 | 825.58  | 783.97  | 2.20 | -0.17 | 0.017 |
| 154.00 | -10.55 | -0.38 | 0.00 | -6.83  | 0.00 | 6.83  | 1441.66 | 368.65 | 801.64  | 765.67  | 2.27 | -0.17 | 0.016 |
| 155.00 | -10.35 | -0.38 | 0.00 | -6.45  | 0.00 | 6.45  | 1451.75 | 372.98 | 820.59  | 780.18  | 2.30 | -0.17 | 0.015 |
| 156.00 | -10.24 | -0.38 | 0.00 | -6.07  | 0.00 | 6.07  | 1445.41 | 370.25 | 808.61  | 771.02  | 2.34 | -0.17 | 0.015 |
| 158.00 | -10.02 | -0.38 | 0.00 | -5.32  | 0.00 | 5.32  | 1432.53 | 364.79 | 784.92  | 752.77  | 2.41 | -0.17 | 0.014 |
| 160.00 | -9.80  | -0.38 | 0.00 | -4.56  | 0.00 | 4.56  | 1419.41 | 359.32 | 761.58  | 734.60  | 2.48 | -0.17 | 0.013 |
| 162.00 | -9.59  | -0.38 | 0.00 | -3.81  | 0.00 | 3.81  | 1406.03 | 353.86 | 738.59  | 716.50  | 2.55 | -0.17 | 0.012 |
| 164.00 | -9.38  | -0.38 | 0.00 | -3.05  | 0.00 | 3.05  | 1392.39 | 348.39 | 715.96  | 698.49  | 2.63 | -0.18 | 0.011 |
| 165.00 | -6.35  | -0.27 | 0.00 | -2.68  | 0.00 | 2.68  | 1385.48 | 345.66 | 704.77  | 689.51  | 2.66 | -0.18 | 0.008 |
| 166.00 | -6.25  | -0.27 | 0.00 | -2.41  | 0.00 | 2.41  | 1378.51 | 342.93 | 693.68  | 680.57  | 2.70 | -0.18 | 0.008 |
| 168.00 | -6.04  | -0.27 | 0.00 | -1.87  | 0.00 | 1.87  | 1364.37 | 337.47 | 671.75  | 662.74  | 2.78 | -0.18 | 0.007 |
| 170.00 | -5.84  | -0.27 | 0.00 | -1.32  | 0.00 | 1.32  | 1349.97 | 332.00 | 650.17  | 645.02  | 2.85 | -0.18 | 0.006 |
| 170.00 | -5.84  | -0.27 | 0.00 | -1.32  | 0.00 | 1.32  | 1349.97 | 332.00 | 650.17  | 645.02  | 2.85 | -0.18 | 0.006 |
| 172.00 | -5.65  | -0.27 | 0.00 | -0.79  | 0.00 | 0.79  | 1257.93 | 299.51 | 529.13  | 541.60  | 2.93 | -0.18 | 0.006 |
| 174.00 | -4.51  | -0.25 | 0.00 | -0.25  | 0.00 | 0.25  | 1121.46 | 267.01 | 420.55  | 429.85  | 3.00 | -0.18 | 0.005 |
| 175.00 | 0.00   | -0.24 | 0.00 | 0.00   | 0.00 | 0.00  | 1053.22 | 250.77 | 370.93  | 378.81  | 3.04 | -0.18 | 0.000 |

## Calculated Forces

|                   |               |                      |                |                         |
|-------------------|---------------|----------------------|----------------|-------------------------|
| <b>Structure:</b> | CT00680-S-SBA | <b>Code:</b>         | TIA-222-H      | 1/9/2023                |
| <b>Site Name:</b> | Putnam        | <b>Exposure:</b>     | B              |                         |
| <b>Height:</b>    | 175.00 (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: 51                |



## Seismic Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 0.9D + 1.0Ev + 1.0Eh

**Iterations** 24

**Gust Response Factor** 1.10

**Sds** 0.20

**Ss** 0.18

**Dead Load Factor** 0.90 **Seismic Load Factor** 1.00

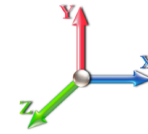
**Sd1** 0.09

**S1** 0.06

**Wind Load Factor** 0.00 **Structure Frequency (f1)** 0.26

**SA** 0.02

**Seismic Importance Factor** 1.00



| Top Elev (ft) | Description         | Wz (lb) | Hz (lb) | Vertical Ev (lb) | Lateral Fs (lb) | R: 1.50 |
|---------------|---------------------|---------|---------|------------------|-----------------|---------|
| 0.00          | RB1 RB2             | 0.00    | 0.00    | 0.00             | 0.00            |         |
| 2.00          |                     | 602.02  | 1.00    | 23.63            | 0.00            |         |
| 4.00          |                     | 598.31  | 3.00    | 23.49            | 0.00            |         |
| 6.00          |                     | 594.60  | 5.00    | 23.34            | 0.01            |         |
| 8.00          |                     | 590.90  | 7.00    | 23.19            | 0.01            |         |
| 10.00         |                     | 587.19  | 9.00    | 23.05            | 0.02            |         |
| 12.00         | Appurtenance(s)     | 584.48  | 11.00   | 22.94            | 0.02            |         |
| 14.00         |                     | 579.48  | 13.00   | 22.75            | 0.03            |         |
| 16.00         |                     | 575.78  | 15.00   | 22.60            | 0.04            |         |
| 18.00         |                     | 572.07  | 17.00   | 22.46            | 0.06            |         |
| 20.00         |                     | 568.36  | 19.00   | 22.31            | 0.07            |         |
| 22.00         | RT2                 | 564.65  | 21.00   | 22.16            | 0.08            |         |
| 24.00         |                     | 560.94  | 23.00   | 22.02            | 0.10            |         |
| 26.00         |                     | 557.24  | 25.00   | 21.87            | 0.12            |         |
| 28.00         |                     | 553.53  | 27.00   | 21.73            | 0.13            |         |
| 30.00         |                     | 549.82  | 29.00   | 21.58            | 0.15            |         |
| 32.00         |                     | 546.11  | 31.00   | 21.44            | 0.17            |         |
| 33.50         | RB3                 | 407.15  | 32.75   | 15.98            | 0.11            |         |
| 34.00         |                     | 135.25  | 33.75   | 5.31             | 0.01            |         |
| 34.75         | RB4                 | 202.45  | 34.38   | 7.95             | 0.03            |         |
| 35.00         | RB5                 | 67.37   | 34.88   | 2.64             | 0.00            |         |
| 36.00         | Bot - Section 2 RT1 | 268.88  | 35.50   | 10.55            | 0.05            |         |
| 38.00         | RB6                 | 923.03  | 37.00   | 36.23            | 0.69            |         |
| 39.00         | RT5                 | 458.93  | 38.50   | 18.01            | 0.19            |         |
| 40.00         |                     | 457.21  | 39.50   | 17.95            | 0.19            |         |
| 42.00         | Top - Section 1     | 909.25  | 41.00   | 35.69            | 0.82            |         |
| 44.00         |                     | 468.57  | 43.00   | 18.39            | 0.24            |         |
| 46.00         |                     | 465.39  | 45.00   | 18.27            | 0.26            |         |
| 48.00         |                     | 462.21  | 47.00   | 18.14            | 0.28            |         |
| 48.50         | RT3                 | 115.06  | 48.25   | 4.52             | 0.02            |         |
| 49.75         | RT4                 | 286.77  | 49.13   | 11.26            | 0.12            |         |
| 50.00         |                     | 57.21   | 49.88   | 2.25             | 0.00            |         |
| 52.00         |                     | 455.86  | 51.00   | 17.89            | 0.32            |         |
| 54.00         | Appurtenance(s)     | 502.68  | 53.00   | 19.73            | 0.42            |         |
| 56.00         |                     | 449.21  | 55.00   | 17.63            | 0.36            |         |
| 58.00         |                     | 446.03  | 57.00   | 17.51            | 0.38            |         |
| 60.00         |                     | 442.85  | 59.00   | 17.38            | 0.41            |         |
| 62.00         |                     | 439.68  | 61.00   | 17.26            | 0.43            |         |
| 64.00         |                     | 436.50  | 63.00   | 17.13            | 0.45            |         |
| 66.00         |                     | 433.32  | 65.00   | 17.01            | 0.47            |         |
| 68.00         |                     | 430.14  | 67.00   | 16.88            | 0.49            |         |
| 70.00         | Bot - Section 3     | 426.96  | 69.00   | 16.76            | 0.52            |         |
| 71.25         | RT6 RB7             | 478.22  | 70.63   | 18.77            | 0.68            |         |
| 72.00         |                     | 285.74  | 71.63   | 11.22            | 0.25            |         |
| 74.00         |                     | 757.60  | 73.00   | 29.74            | 1.82            |         |
| 76.00         | Top - Section 2     | 751.24  | 75.00   | 29.49            | 1.88            |         |



## Seismic Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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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|                |                 |                 |                |              |        |
|----------------|-----------------|-----------------|----------------|--------------|--------|
| 78.00          |                 | 420.41          | 77.00          | 16.50        | 0.62   |
| 80.00          | Top - Section 3 | 417.23          | 79.00          | 16.38        | 0.64   |
| 82.00          |                 | 360.44          | 81.00          | 14.15        | 0.51   |
| 84.00          |                 | 357.79          | 83.00          | 14.04        | 0.52   |
| 86.00          | RT7 RB8         | 355.14          | 85.00          | 13.94        | 0.54   |
| 88.00          |                 | 352.49          | 87.00          | 13.84        | 0.56   |
| 90.00          |                 | 349.84          | 89.00          | 13.73        | 0.58   |
| 92.00          |                 | 347.19          | 91.00          | 13.63        | 0.59   |
| 94.00          |                 | 344.55          | 93.00          | 13.52        | 0.61   |
| 96.00          |                 | 341.90          | 95.00          | 13.42        | 0.63   |
| 98.00          |                 | 339.25          | 97.00          | 13.32        | 0.64   |
| 100.00         |                 | 336.60          | 99.00          | 13.21        | 0.66   |
| 102.00         |                 | 333.95          | 101.00         | 13.11        | 0.68   |
| 104.00         | RT8             | 331.30          | 103.00         | 13.00        | 0.69   |
| 106.00         |                 | 327.05          | 105.00         | 12.84        | 0.70   |
| 108.00         |                 | 322.80          | 107.00         | 12.67        | 0.71   |
| 110.00         |                 | 320.15          | 109.00         | 12.57        | 0.72   |
| 112.00         |                 | 317.50          | 111.00         | 12.46        | 0.74   |
| 114.00         |                 | 314.86          | 113.00         | 12.36        | 0.75   |
| 115.00         | Bot - Section 5 | 156.43          | 114.50         | 6.14         | 0.19   |
| 116.00         |                 | 270.40          | 115.50         | 10.61        | 0.58   |
| 118.00         |                 | 536.82          | 117.00         | 21.07        | 2.34   |
| 120.00         | Top - Section 4 | 531.53          | 119.00         | 20.86        | 2.37   |
| 122.00         |                 | 308.54          | 121.00         | 12.11        | 0.83   |
| 124.00         |                 | 305.89          | 123.00         | 12.01        | 0.84   |
| 125.00         | Top - Section 5 | 151.95          | 124.50         | 5.96         | 0.21   |
| 126.00         |                 | 129.86          | 125.50         | 5.10         | 0.16   |
| 128.00         |                 | 258.13          | 127.00         | 10.13        | 0.64   |
| 130.00         |                 | 256.01          | 129.00         | 10.05        | 0.65   |
| 132.00         |                 | 253.90          | 131.00         | 9.97         | 0.66   |
| 134.00         |                 | 251.78          | 133.00         | 9.88         | 0.67   |
| 136.00         |                 | 249.66          | 135.00         | 9.80         | 0.67   |
| 137.50         | Appurtenance(s) | 4096.8          | 136.75         | 160.82       | 186.26 |
| 138.00         |                 | 53.96           | 137.75         | 2.12         | 0.03   |
| 140.00         |                 | 214.53          | 139.00         | 8.42         | 0.53   |
| 142.00         |                 | 212.41          | 141.00         | 8.34         | 0.53   |
| 144.00         |                 | 210.29          | 143.00         | 8.25         | 0.54   |
| 146.00         |                 | 208.18          | 145.00         | 8.17         | 0.54   |
| 148.00         | Appurtenance(s) | 1942.6          | 147.00         | 76.26        | 48.39  |
| 150.00         | Bot - Section 7 | 179.39          | 149.00         | 7.04         | 0.42   |
| 152.00         |                 | 326.14          | 151.00         | 12.80        | 1.44   |
| 154.00         |                 | 321.90          | 153.00         | 12.64        | 1.44   |
| 155.00         | Top - Section 6 | 159.36          | 154.50         | 6.26         | 0.36   |
| 156.00         |                 | 87.62           | 155.50         | 3.44         | 0.11   |
| 158.00         |                 | 173.65          | 157.00         | 6.82         | 0.44   |
| 160.00         |                 | 171.53          | 159.00         | 6.73         | 0.44   |
| 162.00         |                 | 169.41          | 161.00         | 6.65         | 0.44   |
| 164.00         |                 | 167.29          | 163.00         | 6.57         | 0.44   |
| 165.00         | Appurtenance(s) | 2441.9          | 164.50         | 95.85        | 95.76  |
| 166.00         |                 | 81.42           | 165.50         | 3.20         | 0.11   |
| 168.00         |                 | 161.26          | 167.00         | 6.33         | 0.43   |
| 170.00         | Top - Section 7 | 159.14          | 169.00         | 6.25         | 0.43   |
| 172.00         |                 | 151.78          | 171.00         | 5.96         | 0.40   |
| 174.00         | Appurtenance(s) | 916.78          | 173.00         | 35.99        | 14.93  |
| 175.00         | Appurtenance(s) | 3637.2          | 174.50         | 142.77       | 239.06 |
| <b>Totals:</b> |                 | <b>48,102.3</b> | <b>1,888.2</b> | <b>629.3</b> |        |

**Total Wind:** 40,884.2

## Seismic Segment Forces (Factored)

|                   |               |                      |                |                         |
|-------------------|---------------|----------------------|----------------|-------------------------|
| <b>Structure:</b> | CT00680-S-SBA | <b>Code:</b>         | TIA-222-H      | 1/9/2023                |
| <b>Site Name:</b> | Putnam        | <b>Exposure:</b>     | B              |                         |
| <b>Height:</b>    | 175.00 (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: 54                |



## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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:** 0.9D + 1.0Ev + 1.0Eh

**Iterations** 24

**Gust Response Factor** 1.10

**Sds** 0.20

**Ss** 0.18

**Dead Load Factor** 0.90

**Seismic Load Factor** 1.00

**Sd1** 0.09

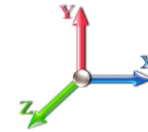
**S1** 0.06

**Wind Load Factor** 0.00

**Structure Frequency (f1)** 0.26

**SA** 0.02

**Seismic Importance Factor** 1.00



| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00          | -45.86           | -0.63            | 0.00                | -101.43         | 0.00            | 101.43                     | 4820.43       | 1324.26       | 5910.87          | 5262.50          | 0.00               | 0.00                | 0.00                 | 0.017        |
| 2.00          | -45.29           | -0.63            | 0.00                | -100.17         | 0.00            | 100.17                     | 4803.04       | 1314.69       | 5825.82          | 5205.34          | 0.00               | 0.00                | 0.00                 | 0.017        |
| 4.00          | -44.72           | -0.63            | 0.00                | -98.92          | 0.00            | 98.92                      | 4785.39       | 1305.13       | 5741.38          | 5148.19          | 0.00               | 0.00                | 0.00                 | 0.017        |
| 6.00          | -44.15           | -0.63            | 0.00                | -97.66          | 0.00            | 97.66                      | 4767.50       | 1295.57       | 5657.56          | 5091.06          | 0.00               | 0.00                | 0.00                 | 0.017        |
| 8.00          | -43.59           | -0.63            | 0.00                | -96.39          | 0.00            | 96.39                      | 4749.35       | 1286.01       | 5574.35          | 5033.93          | 0.00               | -0.01               | 0.017                | 0.017        |
| 10.00         | -43.02           | -0.63            | 0.00                | -95.13          | 0.00            | 95.13                      | 4730.95       | 1276.44       | 5491.76          | 4976.83          | 0.01               | -0.01               | 0.017                | 0.017        |
| 12.00         | -42.47           | -0.63            | 0.00                | -93.87          | 0.00            | 93.87                      | 4712.29       | 1266.88       | 5409.79          | 4919.76          | 0.01               | -0.01               | 0.017                | 0.017        |
| 14.00         | -41.91           | -0.63            | 0.00                | -92.60          | 0.00            | 92.60                      | 4693.38       | 1257.32       | 5328.43          | 4862.72          | 0.01               | -0.01               | 0.017                | 0.017        |
| 16.00         | -41.36           | -0.64            | 0.00                | -91.33          | 0.00            | 91.33                      | 4674.22       | 1247.76       | 5247.69          | 4805.72          | 0.02               | -0.01               | 0.016                | 0.016        |
| 18.00         | -40.82           | -0.64            | 0.00                | -90.06          | 0.00            | 90.06                      | 4654.80       | 1238.20       | 5167.57          | 4748.76          | 0.02               | -0.01               | 0.016                | 0.016        |
| 20.00         | -40.27           | -0.64            | 0.00                | -88.79          | 0.00            | 88.79                      | 4635.13       | 1228.63       | 5088.06          | 4691.86          | 0.03               | -0.01               | 0.016                | 0.016        |
| 22.00         | -39.73           | -0.64            | 0.00                | -87.52          | 0.00            | 87.52                      | 4615.21       | 1219.07       | 5009.17          | 4635.02          | 0.03               | -0.01               | 0.016                | 0.016        |
| 24.00         | -39.20           | -0.64            | 0.00                | -86.24          | 0.00            | 86.24                      | 4595.03       | 1209.51       | 4930.90          | 4578.24          | 0.04               | -0.02               | 0.019                | 0.019        |
| 26.00         | -38.67           | -0.64            | 0.00                | -84.97          | 0.00            | 84.97                      | 4574.60       | 1199.95       | 4853.24          | 4521.53          | 0.05               | -0.02               | 0.019                | 0.019        |
| 28.00         | -38.14           | -0.64            | 0.00                | -83.69          | 0.00            | 83.69                      | 4553.92       | 1190.38       | 4776.20          | 4464.90          | 0.05               | -0.02               | 0.019                | 0.019        |
| 30.00         | -37.61           | -0.64            | 0.00                | -82.41          | 0.00            | 82.41                      | 4532.98       | 1180.82       | 4699.78          | 4408.35          | 0.06               | -0.02               | 0.019                | 0.019        |
| 32.00         | -37.09           | -0.64            | 0.00                | -81.13          | 0.00            | 81.13                      | 4511.79       | 1171.26       | 4623.97          | 4351.89          | 0.07               | -0.02               | 0.019                | 0.019        |
| 33.50         | -36.70           | -0.64            | 0.00                | -80.17          | 0.00            | 80.17                      | 4495.73       | 1164.09       | 4567.52          | 4309.60          | 0.08               | -0.02               | 0.019                | 0.019        |
| 34.00         | -36.57           | -0.64            | 0.00                | -79.84          | 0.00            | 79.84                      | 4490.35       | 1161.70       | 4548.78          | 4295.52          | 0.08               | -0.02               | 0.018                | 0.018        |
| 34.75         | -36.38           | -0.64            | 0.00                | -79.36          | 0.00            | 79.36                      | 4482.24       | 1158.11       | 4520.74          | 4274.41          | 0.08               | -0.02               | 0.018                | 0.018        |
| 35.00         | -36.31           | -0.64            | 0.00                | -79.20          | 0.00            | 79.20                      | 4479.53       | 1156.92       | 4511.41          | 4267.38          | 0.09               | -0.02               | 0.016                | 0.016        |
| 36.00         | -36.06           | -0.64            | 0.00                | -78.56          | 0.00            | 78.56                      | 4468.65       | 1152.14       | 4474.20          | 4239.26          | 0.09               | -0.03               | 0.013                | 0.013        |
| 38.00         | -35.18           | -0.64            | 0.00                | -77.28          | 0.00            | 77.28                      | 4446.70       | 1142.57       | 4400.24          | 4183.10          | 0.10               | -0.03               | 0.017                | 0.017        |
| 39.00         | -34.75           | -0.64            | 0.00                | -76.63          | 0.00            | 76.63                      | 4435.63       | 1137.79       | 4363.49          | 4155.06          | 0.11               | -0.03               | 0.013                | 0.013        |
| 40.00         | -34.31           | -0.64            | 0.00                | -75.99          | 0.00            | 75.99                      | 4424.50       | 1133.01       | 4326.90          | 4127.05          | 0.11               | -0.03               | 0.015                | 0.015        |
| 42.00         | -33.45           | -0.64            | 0.00                | -74.71          | 0.00            | 74.71                      | 3554.53       | 980.17        | 3778.00          | 3351.15          | 0.13               | -0.03               | 0.016                | 0.016        |
| 44.00         | -33.00           | -0.64            | 0.00                | -73.43          | 0.00            | 73.43                      | 3539.83       | 971.98        | 3715.08          | 3309.16          | 0.14               | -0.03               | 0.017                | 0.017        |
| 46.00         | -32.55           | -0.64            | 0.00                | -72.14          | 0.00            | 72.14                      | 3524.88       | 963.78        | 3652.69          | 3267.17          | 0.15               | -0.03               | 0.017                | 0.017        |
| 48.00         | -32.11           | -0.64            | 0.00                | -70.86          | 0.00            | 70.86                      | 3509.67       | 955.59        | 3590.83          | 3225.18          | 0.17               | -0.03               | 0.017                | 0.017        |
| 48.50         | -32.00           | -0.64            | 0.00                | -70.54          | 0.00            | 70.54                      | 3505.83       | 953.54        | 3575.44          | 3214.69          | 0.17               | -0.03               | 0.017                | 0.017        |
| 49.75         | -31.72           | -0.64            | 0.00                | -69.73          | 0.00            | 69.73                      | 3496.16       | 948.41        | 3537.13          | 3188.45          | 0.18               | -0.04               | 0.019                | 0.019        |
| 50.00         | -31.67           | -0.64            | 0.00                | -69.57          | 0.00            | 69.57                      | 3494.22       | 947.39        | 3529.49          | 3183.21          | 0.18               | -0.04               | 0.020                | 0.020        |
| 52.00         | -31.23           | -0.64            | 0.00                | -68.28          | 0.00            | 68.28                      | 3478.50       | 939.19        | 3468.69          | 3141.25          | 0.20               | -0.04               | 0.020                | 0.020        |
| 54.00         | -30.75           | -0.64            | 0.00                | -67.00          | 0.00            | 67.00                      | 3462.54       | 931.00        | 3408.41          | 3099.32          | 0.21               | -0.04               | 0.020                | 0.020        |
| 56.00         | -30.32           | -0.64            | 0.00                | -65.71          | 0.00            | 65.71                      | 3446.32       | 922.80        | 3348.66          | 3057.41          | 0.23               | -0.04               | 0.020                | 0.020        |
| 58.00         | -29.89           | -0.64            | 0.00                | -64.42          | 0.00            | 64.42                      | 3429.84       | 914.61        | 3289.44          | 3015.54          | 0.25               | -0.04               | 0.019                | 0.019        |
| 60.00         | -29.47           | -0.64            | 0.00                | -63.13          | 0.00            | 63.13                      | 3413.12       | 906.41        | 3230.75          | 2973.71          | 0.26               | -0.04               | 0.019                | 0.019        |
| 62.00         | -29.05           | -0.65            | 0.00                | -61.84          | 0.00            | 61.84                      | 3396.14       | 898.21        | 3172.59          | 2931.93          | 0.28               | -0.05               | 0.019                | 0.019        |
| 64.00         | -28.63           | -0.65            | 0.00                | -60.55          | 0.00            | 60.55                      | 3378.91       | 890.02        | 3114.95          | 2890.20          | 0.30               | -0.05               | 0.019                | 0.019        |
| 66.00         | -28.21           | -0.65            | 0.00                | -59.26          | 0.00            | 59.26                      | 3361.42       | 881.82        | 3057.84          | 2848.53          | 0.32               | -0.05               | 0.019                | 0.019        |
| 68.00         | -27.80           | -0.65            | 0.00                | -57.97          | 0.00            | 57.97                      | 3343.68       | 873.62        | 3001.27          | 2806.93          | 0.34               | -0.05               | 0.018                | 0.018        |
| 70.00         | -27.39           | -0.65            | 0.00                | -56.68          | 0.00            | 56.68                      | 3325.69       | 865.43        | 2945.21          | 2765.40          | 0.37               | -0.05               | 0.018                | 0.018        |
| 71.25         | -26.93           | -0.64            | 0.00                | -55.88          | 0.00            | 55.88                      | 3314.31       | 860.31        | 2910.45          | 2739.48          | 0.38               | -0.06               | 0.018                | 0.018        |
| 72.00         | -26.66           | -0.64            | 0.00                | -55.39          | 0.00            | 55.39                      | 3307.44       | 857.23        | 2889.69          | 2723.94          | 0.39               | -0.06               | 0.018                | 0.018        |
| 74.00         | -25.94           | -0.64            | 0.00                | -54.10          | 0.00            | 54.10                      | 3288.94       | 849.04        | 2834.70          | 2682.57          | 0.41               | -0.06               | 0.017                | 0.017        |
| 76.00         | -25.23           | -0.64            | 0.00                | -52.82          | 0.00            | 52.82                      | 3306.32       | 856.73        | 2886.33          | 2721.42          | 0.44               | -0.06               | 0.018                | 0.018        |
| 78.00         | -24.82           | -0.64            | 0.00                | -51.54          | 0.00            | 51.54                      | 3287.81       | 848.54        | 2831.37          | 2680.05          | 0.46               | -0.06               | 0.017                | 0.017        |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|        |        |       |      |        |      |       |         |        |         |         |      |       |       |
|--------|--------|-------|------|--------|------|-------|---------|--------|---------|---------|------|-------|-------|
| 80.00  | -24.42 | -0.64 | 0.00 | -50.25 | 0.00 | 50.25 | 3269.04 | 840.34 | 2776.94 | 2638.78 | 0.49 | -0.06 | 0.017 |
| 80.00  | -24.42 | -0.64 | 0.00 | -50.25 | 0.00 | 50.25 | 2504.08 | 701.39 | 2321.41 | 2027.68 | 0.49 | -0.06 | 0.018 |
| 82.00  | -24.07 | -0.64 | 0.00 | -48.97 | 0.00 | 48.97 | 2492.58 | 694.56 | 2276.42 | 1998.56 | 0.52 | -0.07 | 0.020 |
| 84.00  | -23.73 | -0.64 | 0.00 | -47.69 | 0.00 | 47.69 | 2480.83 | 687.73 | 2231.87 | 1969.42 | 0.54 | -0.07 | 0.020 |
| 86.00  | -23.39 | -0.64 | 0.00 | -46.41 | 0.00 | 46.41 | 2468.82 | 680.90 | 2187.76 | 1940.26 | 0.57 | -0.07 | 0.019 |
| 88.00  | -23.05 | -0.64 | 0.00 | -45.13 | 0.00 | 45.13 | 2456.55 | 674.07 | 2144.09 | 1911.10 | 0.60 | -0.07 | 0.024 |
| 90.00  | -22.71 | -0.64 | 0.00 | -43.85 | 0.00 | 43.85 | 2444.04 | 667.24 | 2100.86 | 1881.94 | 0.63 | -0.07 | 0.023 |
| 92.00  | -22.37 | -0.64 | 0.00 | -42.57 | 0.00 | 42.57 | 2431.27 | 660.41 | 2058.07 | 1852.79 | 0.66 | -0.08 | 0.023 |
| 94.00  | -22.04 | -0.64 | 0.00 | -41.29 | 0.00 | 41.29 | 2418.25 | 653.58 | 2015.72 | 1823.65 | 0.70 | -0.08 | 0.023 |
| 96.00  | -21.71 | -0.64 | 0.00 | -40.01 | 0.00 | 40.01 | 2404.97 | 646.75 | 1973.81 | 1794.53 | 0.73 | -0.08 | 0.022 |
| 98.00  | -21.38 | -0.64 | 0.00 | -38.73 | 0.00 | 38.73 | 2391.44 | 639.92 | 1932.34 | 1765.43 | 0.76 | -0.08 | 0.022 |
| 100.00 | -21.06 | -0.64 | 0.00 | -37.45 | 0.00 | 37.45 | 2377.66 | 633.09 | 1891.31 | 1736.36 | 0.80 | -0.09 | 0.021 |
| 102.00 | -20.73 | -0.64 | 0.00 | -36.17 | 0.00 | 36.17 | 2363.63 | 626.26 | 1850.72 | 1707.33 | 0.83 | -0.09 | 0.021 |
| 104.00 | -20.41 | -0.64 | 0.00 | -34.89 | 0.00 | 34.89 | 2349.34 | 619.43 | 1810.57 | 1678.33 | 0.87 | -0.09 | 0.021 |
| 106.00 | -20.10 | -0.64 | 0.00 | -33.62 | 0.00 | 33.62 | 2334.79 | 612.60 | 1770.86 | 1649.39 | 0.91 | -0.09 | 0.029 |
| 108.00 | -19.79 | -0.64 | 0.00 | -32.34 | 0.00 | 32.34 | 2320.00 | 605.77 | 1731.59 | 1620.50 | 0.95 | -0.10 | 0.028 |
| 110.00 | -19.48 | -0.64 | 0.00 | -31.06 | 0.00 | 31.06 | 2304.95 | 598.94 | 1692.77 | 1591.67 | 0.99 | -0.10 | 0.028 |
| 112.00 | -19.17 | -0.64 | 0.00 | -29.78 | 0.00 | 29.78 | 2289.65 | 592.11 | 1654.38 | 1562.91 | 1.03 | -0.10 | 0.027 |
| 114.00 | -18.87 | -0.64 | 0.00 | -28.51 | 0.00 | 28.51 | 2274.09 | 585.28 | 1616.43 | 1534.22 | 1.08 | -0.11 | 0.027 |
| 115.00 | -18.71 | -0.64 | 0.00 | -27.87 | 0.00 | 27.87 | 2266.22 | 581.86 | 1597.62 | 1519.90 | 1.10 | -0.11 | 0.027 |
| 116.00 | -18.46 | -0.64 | 0.00 | -27.23 | 0.00 | 27.23 | 2258.28 | 578.45 | 1578.92 | 1505.61 | 1.12 | -0.11 | 0.026 |
| 118.00 | -17.94 | -0.64 | 0.00 | -25.95 | 0.00 | 25.95 | 2242.22 | 571.62 | 1541.86 | 1477.08 | 1.17 | -0.11 | 0.026 |
| 120.00 | -17.44 | -0.63 | 0.00 | -24.68 | 0.00 | 24.68 | 2252.14 | 575.82 | 1564.64 | 1494.64 | 1.22 | -0.12 | 0.024 |
| 122.00 | -17.14 | -0.63 | 0.00 | -23.42 | 0.00 | 23.42 | 2235.98 | 568.99 | 1527.74 | 1466.15 | 1.27 | -0.12 | 0.024 |
| 124.00 | -16.84 | -0.63 | 0.00 | -22.15 | 0.00 | 22.15 | 2219.57 | 562.16 | 1491.28 | 1437.75 | 1.32 | -0.12 | 0.023 |
| 125.00 | -16.69 | -0.63 | 0.00 | -21.52 | 0.00 | 21.52 | 2211.27 | 558.75 | 1473.22 | 1423.59 | 1.35 | -0.12 | 0.023 |
| 125.00 | -16.69 | -0.63 | 0.00 | -21.52 | 0.00 | 21.52 | 1600.93 | 447.88 | 1183.23 | 1034.73 | 1.35 | -0.12 | 0.031 |
| 126.00 | -16.57 | -0.63 | 0.00 | -20.89 | 0.00 | 20.89 | 1596.33 | 445.15 | 1168.84 | 1025.42 | 1.37 | -0.13 | 0.031 |
| 128.00 | -16.32 | -0.63 | 0.00 | -19.62 | 0.00 | 19.62 | 1586.93 | 439.68 | 1140.32 | 1006.77 | 1.43 | -0.13 | 0.030 |
| 130.00 | -16.07 | -0.63 | 0.00 | -18.36 | 0.00 | 18.36 | 1577.27 | 434.22 | 1112.16 | 988.11  | 1.48 | -0.13 | 0.029 |
| 132.00 | -15.82 | -0.63 | 0.00 | -17.09 | 0.00 | 17.09 | 1567.36 | 428.76 | 1084.34 | 969.45  | 1.54 | -0.14 | 0.028 |
| 134.00 | -15.58 | -0.63 | 0.00 | -15.83 | 0.00 | 15.83 | 1557.20 | 423.29 | 1056.88 | 950.79  | 1.59 | -0.14 | 0.027 |
| 136.00 | -15.33 | -0.63 | 0.00 | -14.57 | 0.00 | 14.57 | 1546.79 | 417.83 | 1029.77 | 932.14  | 1.65 | -0.14 | 0.026 |
| 137.50 | -11.48 | -0.44 | 0.00 | -13.62 | 0.00 | 13.62 | 1538.81 | 413.73 | 1009.67 | 918.16  | 1.70 | -0.15 | 0.022 |
| 138.00 | -11.43 | -0.44 | 0.00 | -13.40 | 0.00 | 13.40 | 1536.12 | 412.36 | 1003.02 | 913.50  | 1.71 | -0.15 | 0.022 |
| 140.00 | -11.22 | -0.44 | 0.00 | -12.53 | 0.00 | 12.53 | 1525.20 | 406.90 | 976.61  | 894.88  | 1.78 | -0.15 | 0.021 |
| 142.00 | -11.01 | -0.43 | 0.00 | -11.66 | 0.00 | 11.66 | 1514.03 | 401.44 | 950.56  | 876.30  | 1.84 | -0.15 | 0.021 |
| 144.00 | -10.81 | -0.43 | 0.00 | -10.79 | 0.00 | 10.79 | 1502.60 | 395.97 | 924.86  | 857.74  | 1.90 | -0.15 | 0.020 |
| 146.00 | -10.61 | -0.43 | 0.00 | -9.92  | 0.00 | 9.92  | 1490.92 | 390.51 | 899.51  | 839.23  | 1.97 | -0.16 | 0.019 |
| 148.00 | -8.78  | -0.38 | 0.00 | -9.06  | 0.00 | 9.06  | 1478.99 | 385.04 | 874.51  | 820.76  | 2.03 | -0.16 | 0.017 |
| 150.00 | -8.61  | -0.38 | 0.00 | -8.30  | 0.00 | 8.30  | 1466.80 | 379.58 | 849.87  | 802.34  | 2.10 | -0.16 | 0.016 |
| 152.00 | -8.30  | -0.38 | 0.00 | -7.54  | 0.00 | 7.54  | 1454.36 | 374.12 | 825.58  | 783.97  | 2.17 | -0.16 | 0.015 |
| 154.00 | -7.99  | -0.38 | 0.00 | -6.78  | 0.00 | 6.78  | 1441.66 | 368.65 | 801.64  | 765.67  | 2.24 | -0.17 | 0.014 |
| 155.00 | -7.84  | -0.38 | 0.00 | -6.41  | 0.00 | 6.41  | 1451.75 | 372.98 | 820.59  | 780.18  | 2.27 | -0.17 | 0.014 |
| 156.00 | -7.76  | -0.38 | 0.00 | -6.03  | 0.00 | 6.03  | 1445.41 | 370.25 | 808.61  | 771.02  | 2.31 | -0.17 | 0.013 |
| 158.00 | -7.59  | -0.37 | 0.00 | -5.28  | 0.00 | 5.28  | 1432.53 | 364.79 | 784.92  | 752.77  | 2.38 | -0.17 | 0.012 |
| 160.00 | -7.43  | -0.37 | 0.00 | -4.53  | 0.00 | 4.53  | 1419.41 | 359.32 | 761.58  | 734.60  | 2.45 | -0.17 | 0.011 |
| 162.00 | -7.27  | -0.37 | 0.00 | -3.78  | 0.00 | 3.78  | 1406.03 | 353.86 | 738.59  | 716.50  | 2.52 | -0.17 | 0.010 |
| 164.00 | -7.11  | -0.37 | 0.00 | -3.04  | 0.00 | 3.04  | 1392.39 | 348.39 | 715.96  | 698.49  | 2.60 | -0.17 | 0.009 |
| 165.00 | -4.81  | -0.27 | 0.00 | -2.67  | 0.00 | 2.67  | 1385.48 | 345.66 | 704.77  | 689.51  | 2.63 | -0.17 | 0.007 |
| 166.00 | -4.73  | -0.27 | 0.00 | -2.40  | 0.00 | 2.40  | 1378.51 | 342.93 | 693.68  | 680.57  | 2.67 | -0.18 | 0.007 |
| 168.00 | -4.58  | -0.27 | 0.00 | -1.86  | 0.00 | 1.86  | 1364.37 | 337.47 | 671.75  | 662.74  | 2.74 | -0.18 | 0.006 |
| 170.00 | -4.43  | -0.27 | 0.00 | -1.32  | 0.00 | 1.32  | 1349.97 | 332.00 | 650.17  | 645.02  | 2.82 | -0.18 | 0.005 |
| 170.00 | -4.43  | -0.27 | 0.00 | -1.32  | 0.00 | 1.32  | 1349.97 | 332.00 | 650.17  | 645.02  | 2.82 | -0.18 | 0.005 |
| 172.00 | -4.28  | -0.27 | 0.00 | -0.78  | 0.00 | 0.78  | 1257.93 | 299.51 | 529.13  | 541.60  | 2.89 | -0.18 | 0.005 |
| 174.00 | -3.42  | -0.25 | 0.00 | -0.25  | 0.00 | 0.25  | 1121.46 | 267.01 | 420.55  | 429.85  | 2.97 | -0.18 | 0.004 |
| 175.00 | 0.00   | -0.24 | 0.00 | 0.00   | 0.00 | 0.00  | 1053.22 | 250.77 | 370.93  | 378.81  | 3.00 | -0.18 | 0.000 |

## Calculated Forces

|                   |               |                      |                |                         |
|-------------------|---------------|----------------------|----------------|-------------------------|
| <b>Structure:</b> | CT00680-S-SBA | <b>Code:</b>         | TIA-222-H      | 1/9/2023                |
| <b>Site Name:</b> | Putnam        | <b>Exposure:</b>     | B              |                         |
| <b>Height:</b>    | 175.00 (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: 57                |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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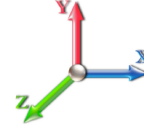


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



| Elev<br>(ft) | Description         | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Aa<br>(sf) | CfAa<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot<br>Dead<br>Load<br>(lb) |
|--------------|---------------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|-----------------------------|
| 0.00         | RB1 RB2             | 1.00 | 0.70 | 5.390       | 5.93          | 231.87        | 0.950 | 0.000                | 0.00              | 0.000      | 0.00         | 0.0                     | 0.0                      | 0.0                         |
| 2.00         |                     | 1.00 | 0.70 | 5.390       | 5.93          | 230.21        | 0.950 | 0.000                | 2.00              | 9.284      | 8.82         | 52.3                    | 0.0                      | 511.7                       |
| 4.00         |                     | 1.00 | 0.70 | 5.390       | 5.93          | 228.55        | 0.950 | 0.000                | 2.00              | 9.217      | 8.76         | 51.9                    | 0.0                      | 508.0                       |
| 6.00         |                     | 1.00 | 0.70 | 5.390       | 5.93          | 226.89        | 0.950 | 0.000                | 2.00              | 9.151      | 8.69         | 51.5                    | 0.0                      | 504.3                       |
| 8.00         |                     | 1.00 | 0.70 | 5.390       | 5.93          | 225.23        | 0.950 | 0.000                | 2.00              | 9.084      | 8.63         | 51.2                    | 0.0                      | 500.5                       |
| 10.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 223.57        | 0.950 | 0.000                | 2.00              | 9.017      | 8.57         | 50.8                    | 0.0                      | 496.8                       |
| 12.00        | Appurtenance(s)     | 1.00 | 0.70 | 5.390       | 5.93          | 221.91        | 0.950 | 0.000                | 2.00              | 8.950      | 8.50         | 50.4                    | 0.0                      | 493.1                       |
| 14.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 220.25        | 0.950 | 0.000                | 2.00              | 8.884      | 8.44         | 50.0                    | 0.0                      | 489.4                       |
| 16.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 218.59        | 0.950 | 0.000                | 2.00              | 8.817      | 8.38         | 49.7                    | 0.0                      | 485.7                       |
| 18.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 216.93        | 0.950 | 0.000                | 2.00              | 8.750      | 8.31         | 49.3                    | 0.0                      | 482.0                       |
| 20.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 215.27        | 0.950 | 0.000                | 2.00              | 8.684      | 8.25         | 48.9                    | 0.0                      | 478.3                       |
| 22.00        | RT2                 | 1.00 | 0.70 | 5.390       | 5.93          | 213.61        | 0.950 | 0.000                | 2.00              | 8.617      | 8.19         | 48.5                    | 0.0                      | 474.6                       |
| 24.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 211.94        | 0.950 | 0.000                | 2.00              | 8.550      | 8.12         | 48.2                    | 0.0                      | 470.9                       |
| 26.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 210.28        | 0.950 | 0.000                | 2.00              | 8.483      | 8.06         | 47.8                    | 0.0                      | 467.2                       |
| 28.00        |                     | 1.00 | 0.70 | 5.390       | 5.93          | 208.62        | 0.950 | 0.000                | 2.00              | 8.417      | 8.00         | 47.4                    | 0.0                      | 463.5                       |
| 30.00        |                     | 1.00 | 0.70 | 5.395       | 5.93          | 207.05        | 0.950 | 0.000                | 2.00              | 8.350      | 7.93         | 47.1                    | 0.0                      | 459.8                       |
| 32.00        |                     | 1.00 | 0.71 | 5.495       | 6.04          | 207.29        | 0.950 | 0.000                | 2.00              | 8.283      | 7.87         | 47.6                    | 0.0                      | 456.0                       |
| 33.50        | RB3                 | 1.00 | 0.72 | 5.568       | 6.12          | 207.39        | 0.950 | 0.000                | 1.50              | 6.169      | 5.86         | 35.9                    | 0.0                      | 339.6                       |
| 34.00        |                     | 1.00 | 0.73 | 5.591       | 6.15          | 207.40        | 0.950 | 0.000                | 0.50              | 2.048      | 1.95         | 12.0                    | 0.0                      | 112.7                       |
| 34.75        | RB4                 | 1.00 | 0.73 | 5.626       | 6.19          | 207.41        | 0.950 | 0.000                | 0.75              | 3.064      | 2.91         | 18.0                    | 0.0                      | 168.7                       |
| 35.00        | RB5                 | 1.00 | 0.73 | 5.638       | 6.20          | 207.41        | 0.950 | 0.000                | 0.25              | 1.019      | 0.97         | 6.0                     | 0.0                      | 56.1                        |
| 36.00        | Bot - Section 2 RT1 | 1.00 | 0.74 | 5.683       | 6.25          | 207.40        | 0.950 | 0.000                | 1.00              | 4.066      | 3.86         | 24.2                    | 0.0                      | 223.9                       |
| 38.00        | RB6                 | 1.00 | 0.75 | 5.772       | 6.35          | 207.29        | 0.950 | 0.000                | 2.00              | 8.212      | 7.80         | 49.5                    | 0.0                      | 833.0                       |
| 39.00        | RT5                 | 1.00 | 0.76 | 5.815       | 6.40          | 207.20        | 0.950 | 0.000                | 1.00              | 4.081      | 3.88         | 24.8                    | 0.0                      | 413.9                       |
| 40.00        |                     | 1.00 | 0.76 | 5.857       | 6.44          | 207.08        | 0.950 | 0.000                | 1.00              | 4.064      | 3.86         | 24.9                    | 0.0                      | 412.2                       |
| 42.00        | Top - Section 1     | 1.00 | 0.77 | 5.939       | 6.53          | 206.79        | 0.950 | 0.000                | 2.00              | 8.079      | 7.67         | 50.1                    | 0.0                      | 819.2                       |
| 44.00        |                     | 1.00 | 0.78 | 6.019       | 6.62          | 209.81        | 0.950 | 0.000                | 2.00              | 8.012      | 7.61         | 50.4                    | 0.0                      | 378.5                       |
| 46.00        |                     | 1.00 | 0.79 | 6.096       | 6.71          | 209.38        | 0.950 | 0.000                | 2.00              | 7.945      | 7.55         | 50.6                    | 0.0                      | 375.3                       |
| 48.00        |                     | 1.00 | 0.80 | 6.170       | 6.79          | 208.88        | 0.950 | 0.000                | 2.00              | 7.879      | 7.48         | 50.8                    | 0.0                      | 372.1                       |
| 48.50        | RT3                 | 1.00 | 0.80 | 6.189       | 6.81          | 208.75        | 0.950 | 0.000                | 0.50              | 1.959      | 1.86         | 12.7                    | 0.0                      | 92.5                        |
| 49.75        | RT4                 | 1.00 | 0.81 | 6.234       | 6.86          | 208.39        | 0.950 | 0.000                | 1.25              | 4.880      | 4.64         | 31.8                    | 0.0                      | 230.5                       |
| 50.00        |                     | 1.00 | 0.81 | 6.243       | 6.87          | 208.32        | 0.950 | 0.000                | 0.25              | 0.973      | 0.92         | 6.3                     | 0.0                      | 45.9                        |
| 52.00        |                     | 1.00 | 0.82 | 6.313       | 6.94          | 207.69        | 0.950 | 0.000                | 2.00              | 7.745      | 7.36         | 51.1                    | 0.0                      | 365.8                       |
| 54.00        | Appurtenance(s)     | 1.00 | 0.83 | 6.382       | 7.02          | 207.01        | 0.950 | 0.000                | 2.00              | 7.678      | 7.29         | 51.2                    | 0.0                      | 362.6                       |
| 56.00        |                     | 1.00 | 0.84 | 6.448       | 7.09          | 206.27        | 0.950 | 0.000                | 2.00              | 7.612      | 7.23         | 51.3                    | 0.0                      | 359.4                       |
| 58.00        |                     | 1.00 | 0.85 | 6.513       | 7.16          | 205.48        | 0.950 | 0.000                | 2.00              | 7.545      | 7.17         | 51.4                    | 0.0                      | 356.3                       |
| 60.00        |                     | 1.00 | 0.85 | 6.577       | 7.23          | 204.64        | 0.950 | 0.000                | 2.00              | 7.478      | 7.10         | 51.4                    | 0.0                      | 353.1                       |
| 62.00        |                     | 1.00 | 0.86 | 6.638       | 7.30          | 203.76        | 0.950 | 0.000                | 2.00              | 7.411      | 7.04         | 51.4                    | 0.0                      | 349.9                       |
| 64.00        |                     | 1.00 | 0.87 | 6.699       | 7.37          | 202.84        | 0.950 | 0.000                | 2.00              | 7.345      | 6.98         | 51.4                    | 0.0                      | 346.7                       |
| 66.00        |                     | 1.00 | 0.88 | 6.758       | 7.43          | 201.87        | 0.950 | 0.000                | 2.00              | 7.278      | 6.91         | 51.4                    | 0.0                      | 343.5                       |
| 68.00        |                     | 1.00 | 0.89 | 6.816       | 7.50          | 200.86        | 0.950 | 0.000                | 2.00              | 7.211      | 6.85         | 51.4                    | 0.0                      | 340.4                       |
| 70.00        | Bot - Section 3     | 1.00 | 0.89 | 6.873       | 7.56          | 199.82        | 0.950 | 0.000                | 2.00              | 7.145      | 6.79         | 51.3                    | 0.0                      | 337.2                       |
| 71.25        | RT6 RB7             | 1.00 | 0.90 | 6.908       | 7.60          | 199.15        | 0.950 | 0.000                | 1.25              | 4.512      | 4.29         | 32.6                    | 0.0                      | 422.1                       |
| 72.00        |                     | 1.00 | 0.90 | 6.928       | 7.62          | 198.75        | 0.950 | 0.000                | 0.75              | 2.695      | 2.56         | 19.5                    | 0.0                      | 252.1                       |
| 74.00        |                     | 1.00 | 0.91 | 6.983       | 7.68          | 197.64        | 0.950 | 0.000                | 2.00              | 7.140      | 6.78         | 52.1                    | 0.0                      | 667.8                       |
| 76.00        | Top - Section 2     | 1.00 | 0.91 | 7.036       | 7.74          | 196.49        | 0.950 | 0.000                | 2.00              | 7.074      | 6.72         | 52.0                    | 0.0                      | 661.5                       |
| 78.00        |                     | 1.00 | 0.92 | 7.089       | 7.80          | 199.01        | 0.950 | 0.000                | 2.00              | 7.007      | 6.66         | 51.9                    | 0.0                      | 330.6                       |



## Wind Loading - Shaft

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|                        |      |      |       |      |        |       |       |      |       |      |      |     |       |
|------------------------|------|------|-------|------|--------|-------|-------|------|-------|------|------|-----|-------|
| 80.00 Top - Section 3  | 1.00 | 0.93 | 7.140 | 7.85 | 197.82 | 0.950 | 0.000 | 2.00 | 6.940 | 6.59 | 51.8 | 0.0 | 327.5 |
| 82.00                  | 1.00 | 0.93 | 7.191 | 7.91 | 196.60 | 0.950 | 0.000 | 2.00 | 6.874 | 6.53 | 51.6 | 0.0 | 270.7 |
| 84.00                  | 1.00 | 0.94 | 7.240 | 7.96 | 195.36 | 0.950 | 0.000 | 2.00 | 6.807 | 6.47 | 51.5 | 0.0 | 268.0 |
| 86.00 RT7 RB8          | 1.00 | 0.95 | 7.289 | 8.02 | 194.08 | 0.950 | 0.000 | 2.00 | 6.740 | 6.40 | 51.3 | 0.0 | 265.4 |
| 88.00                  | 1.00 | 0.95 | 7.337 | 8.07 | 192.78 | 0.950 | 0.000 | 2.00 | 6.673 | 6.34 | 51.2 | 0.0 | 262.7 |
| 90.00                  | 1.00 | 0.96 | 7.384 | 8.12 | 191.46 | 0.950 | 0.000 | 2.00 | 6.607 | 6.28 | 51.0 | 0.0 | 260.1 |
| 92.00                  | 1.00 | 0.96 | 7.431 | 8.17 | 190.11 | 0.950 | 0.000 | 2.00 | 6.540 | 6.21 | 50.8 | 0.0 | 257.4 |
| 94.00                  | 1.00 | 0.97 | 7.477 | 8.22 | 188.74 | 0.950 | 0.000 | 2.00 | 6.473 | 6.15 | 50.6 | 0.0 | 254.8 |
| 96.00                  | 1.00 | 0.98 | 7.522 | 8.27 | 187.35 | 0.950 | 0.000 | 2.00 | 6.406 | 6.09 | 50.4 | 0.0 | 252.1 |
| 98.00                  | 1.00 | 0.98 | 7.566 | 8.32 | 185.93 | 0.950 | 0.000 | 2.00 | 6.340 | 6.02 | 50.1 | 0.0 | 249.5 |
| 100.00                 | 1.00 | 0.99 | 7.610 | 8.37 | 184.50 | 0.950 | 0.000 | 2.00 | 6.273 | 5.96 | 49.9 | 0.0 | 246.8 |
| 102.00                 | 1.00 | 0.99 | 7.653 | 8.42 | 183.04 | 0.950 | 0.000 | 2.00 | 6.206 | 5.90 | 49.6 | 0.0 | 244.2 |
| 104.00 RT8             | 1.00 | 1.00 | 7.696 | 8.47 | 181.56 | 0.950 | 0.000 | 2.00 | 6.139 | 5.83 | 49.4 | 0.0 | 241.5 |
| 106.00                 | 1.00 | 1.00 | 7.738 | 8.51 | 180.07 | 0.950 | 0.000 | 2.00 | 6.073 | 5.77 | 49.1 | 0.0 | 238.9 |
| 108.00                 | 1.00 | 1.01 | 7.779 | 8.56 | 178.56 | 0.950 | 0.000 | 2.00 | 6.006 | 5.71 | 48.8 | 0.0 | 236.2 |
| 110.00                 | 1.00 | 1.02 | 7.820 | 8.60 | 177.02 | 0.950 | 0.000 | 2.00 | 5.939 | 5.64 | 48.5 | 0.0 | 233.6 |
| 112.00                 | 1.00 | 1.02 | 7.860 | 8.65 | 175.47 | 0.950 | 0.000 | 2.00 | 5.873 | 5.58 | 48.2 | 0.0 | 230.9 |
| 114.00                 | 1.00 | 1.03 | 7.900 | 8.69 | 173.91 | 0.950 | 0.000 | 2.00 | 5.806 | 5.52 | 47.9 | 0.0 | 228.3 |
| 115.00 Bot - Section 5 | 1.00 | 1.03 | 7.920 | 8.71 | 173.12 | 0.950 | 0.000 | 1.00 | 2.878 | 2.73 | 23.8 | 0.0 | 113.1 |
| 116.00                 | 1.00 | 1.03 | 7.940 | 8.73 | 172.33 | 0.950 | 0.000 | 1.00 | 2.915 | 2.77 | 24.2 | 0.0 | 227.1 |
| 118.00                 | 1.00 | 1.04 | 7.979 | 8.78 | 170.73 | 0.950 | 0.000 | 2.00 | 5.780 | 5.49 | 48.2 | 0.0 | 450.3 |
| 120.00 Top - Section 4 | 1.00 | 1.04 | 8.017 | 8.82 | 169.11 | 0.950 | 0.000 | 2.00 | 5.713 | 5.43 | 47.9 | 0.0 | 445.0 |
| 122.00                 | 1.00 | 1.05 | 8.055 | 8.86 | 170.76 | 0.950 | 0.000 | 2.00 | 5.647 | 5.36 | 47.5 | 0.0 | 222.0 |
| 124.00                 | 1.00 | 1.05 | 8.092 | 8.90 | 169.12 | 0.950 | 0.000 | 2.00 | 5.580 | 5.30 | 47.2 | 0.0 | 219.3 |
| 125.00 Top - Section 5 | 1.00 | 1.05 | 8.111 | 8.92 | 168.30 | 0.950 | 0.000 | 1.00 | 2.765 | 2.63 | 23.4 | 0.0 | 108.7 |
| 126.00                 | 1.00 | 1.06 | 8.129 | 8.94 | 167.47 | 0.950 | 0.000 | 1.00 | 2.748 | 2.61 | 23.3 | 0.0 | 86.6  |
| 128.00                 | 1.00 | 1.06 | 8.166 | 8.98 | 165.80 | 0.950 | 0.000 | 2.00 | 5.446 | 5.17 | 46.5 | 0.0 | 171.6 |
| 130.00                 | 1.00 | 1.07 | 8.202 | 9.02 | 164.12 | 0.950 | 0.000 | 2.00 | 5.380 | 5.11 | 46.1 | 0.0 | 169.4 |
| 132.00                 | 1.00 | 1.07 | 8.238 | 9.06 | 162.43 | 0.950 | 0.000 | 2.00 | 5.313 | 5.05 | 45.7 | 0.0 | 167.3 |
| 134.00                 | 1.00 | 1.07 | 8.274 | 9.10 | 160.72 | 0.950 | 0.000 | 2.00 | 5.246 | 4.98 | 45.4 | 0.0 | 165.2 |
| 136.00                 | 1.00 | 1.08 | 8.309 | 9.14 | 159.00 | 0.950 | 0.000 | 2.00 | 5.180 | 4.92 | 45.0 | 0.0 | 163.1 |
| 137.50 Appurtenance(s) | 1.00 | 1.08 | 8.335 | 9.17 | 157.70 | 0.950 | 0.000 | 1.50 | 3.841 | 3.65 | 33.5 | 0.0 | 120.9 |
| 138.00                 | 1.00 | 1.08 | 8.344 | 9.18 | 157.27 | 0.950 | 0.000 | 0.50 | 1.272 | 1.21 | 11.1 | 0.0 | 40.0  |
| 140.00                 | 1.00 | 1.09 | 8.378 | 9.22 | 155.52 | 0.950 | 0.000 | 2.00 | 5.046 | 4.79 | 44.2 | 0.0 | 158.8 |
| 142.00                 | 1.00 | 1.09 | 8.412 | 9.25 | 153.76 | 0.950 | 0.000 | 2.00 | 4.979 | 4.73 | 43.8 | 0.0 | 156.7 |
| 144.00                 | 1.00 | 1.10 | 8.446 | 9.29 | 151.99 | 0.950 | 0.000 | 2.00 | 4.913 | 4.67 | 43.4 | 0.0 | 154.6 |
| 146.00                 | 1.00 | 1.10 | 8.479 | 9.33 | 150.20 | 0.950 | 0.000 | 2.00 | 4.846 | 4.60 | 42.9 | 0.0 | 152.5 |
| 148.00 Appurtenance(s) | 1.00 | 1.11 | 8.512 | 9.36 | 148.41 | 0.950 | 0.000 | 2.00 | 4.779 | 4.54 | 42.5 | 0.0 | 150.4 |
| 150.00 Bot - Section 7 | 1.00 | 1.11 | 8.545 | 9.40 | 146.60 | 0.950 | 0.000 | 2.00 | 4.712 | 4.48 | 42.1 | 0.0 | 148.3 |
| 152.00                 | 1.00 | 1.11 | 8.577 | 9.43 | 144.79 | 0.950 | 0.000 | 2.00 | 4.732 | 4.50 | 42.4 | 0.0 | 295.0 |
| 154.00                 | 1.00 | 1.12 | 8.609 | 9.47 | 142.96 | 0.950 | 0.000 | 2.00 | 4.665 | 4.43 | 42.0 | 0.0 | 290.8 |
| 155.00 Top - Section 6 | 1.00 | 1.12 | 8.625 | 9.49 | 142.04 | 0.950 | 0.000 | 1.00 | 2.308 | 2.19 | 20.8 | 0.0 | 143.8 |
| 156.00                 | 1.00 | 1.12 | 8.641 | 9.51 | 143.84 | 0.950 | 0.000 | 1.00 | 2.291 | 2.18 | 20.7 | 0.0 | 72.1  |
| 158.00                 | 1.00 | 1.13 | 8.672 | 9.54 | 141.99 | 0.950 | 0.000 | 2.00 | 4.532 | 4.31 | 41.1 | 0.0 | 142.5 |
| 160.00                 | 1.00 | 1.13 | 8.704 | 9.57 | 140.14 | 0.950 | 0.000 | 2.00 | 4.465 | 4.24 | 40.6 | 0.0 | 140.4 |
| 162.00                 | 1.00 | 1.13 | 8.735 | 9.61 | 138.27 | 0.950 | 0.000 | 2.00 | 4.398 | 4.18 | 40.1 | 0.0 | 138.3 |
| 164.00                 | 1.00 | 1.14 | 8.765 | 9.64 | 136.40 | 0.950 | 0.000 | 2.00 | 4.332 | 4.11 | 39.7 | 0.0 | 136.2 |
| 165.00 Appurtenance(s) | 1.00 | 1.14 | 8.781 | 9.66 | 135.46 | 0.950 | 0.000 | 1.00 | 2.141 | 2.03 | 19.6 | 0.0 | 67.3  |
| 166.00                 | 1.00 | 1.14 | 8.796 | 9.68 | 134.51 | 0.950 | 0.000 | 1.00 | 2.124 | 2.02 | 19.5 | 0.0 | 66.8  |
| 168.00                 | 1.00 | 1.15 | 8.826 | 9.71 | 132.62 | 0.950 | 0.000 | 2.00 | 4.198 | 3.99 | 38.7 | 0.0 | 131.9 |
| 170.00 Top - Section 7 | 1.00 | 1.15 | 8.856 | 9.74 | 130.71 | 0.950 | 0.000 | 2.00 | 4.131 | 3.92 | 38.2 | 0.0 | 129.8 |
| 172.00                 | 1.00 | 1.15 | 8.885 | 9.77 | 118.25 | 0.950 | 0.000 | 2.00 | 3.900 | 3.70 | 36.2 | 0.0 | 122.4 |
| 174.00 Appurtenance(s) | 1.00 | 1.16 | 8.915 | 9.81 | 105.75 | 0.950 | 0.000 | 2.00 | 3.503 | 3.33 | 32.6 | 0.0 | 109.8 |
| 175.00 Appurtenance(s) | 1.00 | 1.16 | 8.929 | 9.82 | 99.48  | 0.950 | 0.000 | 1.00 | 1.603 | 1.52 | 15.0 | 0.0 | 50.2  |

**Totals: 175.00 4,168.6 28,861.4**

## Discrete Appurtenance Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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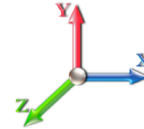


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



| 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   | 175.00    | Pipes                 | 12  | 8.929    | 9.822      | 0.56               | 0.75 | 12.15           | 396.00         | 0.000          | 0.000         | 119.34       | 0.00          | 0.00          |
| 2   | 175.00    | PRK-SFS-L             | 1   | 8.929    | 9.822      | 0.75               | 0.75 | 5.78            | 230.00         | 0.000          | 0.000         | 56.72        | 0.00          | 0.00          |
| 3   | 175.00    | Handrail              | 1   | 8.929    | 9.822      | 1.00               | 1.00 | 6.50            | 415.06         | 0.000          | 0.000         | 63.85        | 0.00          | 0.00          |
| 4   | 175.00    | PRK-1245L             | 1   | 8.929    | 9.822      | 0.75               | 0.75 | 7.13            | 464.91         | 0.000          | 0.000         | 69.98        | 0.00          | 0.00          |
| 5   | 175.00    | APXVTM14-C-I20        | 3   | 8.958    | 9.854      | 0.62               | 0.80 | 11.72           | 168.60         | 0.000          | 2.000         | 115.46       | 0.00          | 230.91        |
| 6   | 175.00    | NNVV-65B-R4           | 3   | 8.958    | 9.854      | 0.59               | 0.80 | 21.79           | 232.20         | 0.000          | 2.000         | 214.74       | 0.00          | 429.48        |
| 7   | 175.00    | TD-RRH8x20-25         | 3   | 8.958    | 9.854      | 0.40               | 0.80 | 4.86            | 210.00         | 0.000          | 2.000         | 47.89        | 0.00          | 95.78         |
| 8   | 175.00    | E15S09P94             | 6   | 9.121    | 10.033     | 0.50               | 1.00 | 1.98            | 87.60          | 0.000          | 13.500        | 19.87        | 0.00          | 268.19        |
| 9   | 175.00    | T-Arms                | 3   | 8.929    | 9.822      | 0.56               | 0.75 | 18.56           | 726.00         | 0.000          | 0.000         | 182.33       | 0.00          | 0.00          |
| 10  | 175.00    | 1900MHz               | 3   | 8.958    | 9.854      | 0.40               | 0.80 | 3.32            | 180.00         | 0.000          | 2.000         | 32.76        | 0.00          | 65.51         |
| 11  | 175.00    | 800 MHz               | 6   | 8.958    | 9.854      | 0.40               | 0.80 | 5.98            | 318.00         | 0.000          | 2.000         | 58.89        | 0.00          | 117.78        |
| 12  | 175.00    | DR65-18-02DPL2Q       | 6   | 9.162    | 10.079     | 0.67               | 1.00 | 23.36           | 144.00         | 0.000          | 16.500        | 235.40       | 0.00          | 3884.04       |
| 13  | 174.00    | 4.5" x 24 FT Pipe     | 3   | 9.058    | 9.964      | 1.00               | 1.00 | 40.50           | 777.60         | 0.000          | 10.000        | 403.55       | 0.00          | 4035.48       |
| 14  | 165.00    | MC-PK8-DSH            | 1   | 8.781    | 9.659      | 1.00               | 1.00 | 35.00           | 1727.00        | 0.000          | 0.000         | 338.05       | 0.00          | 0.00          |
| 15  | 165.00    | MX08FRO665-21         | 3   | 8.781    | 9.659      | 0.55               | 0.75 | 20.80           | 193.50         | 0.000          | 0.000         | 200.86       | 0.00          | 0.00          |
| 16  | 165.00    | TA08025-B605          | 3   | 8.781    | 9.659      | 0.38               | 0.75 | 2.21            | 225.00         | 0.000          | 0.000         | 21.30        | 0.00          | 0.00          |
| 17  | 165.00    | TA08025-B604          | 3   | 8.781    | 9.659      | 0.38               | 0.75 | 2.21            | 191.70         | 0.000          | 0.000         | 21.30        | 0.00          | 0.00          |
| 18  | 165.00    | Raycap                | 1   | 8.781    | 9.659      | 0.38               | 0.75 | 0.75            | 21.90          | 0.000          | 0.000         | 7.28         | 0.00          | 0.00          |
| 19  | 148.00    | T-Arms                | 3   | 8.512    | 9.363      | 0.56               | 0.75 | 18.56           | 726.00         | 0.000          | 0.000         | 173.80       | 0.00          | 0.00          |
| 20  | 148.00    | RRH2X60-700           | 3   | 8.462    | 9.309      | 0.40               | 0.80 | 4.20            | 180.00         | 0.000          | -3.000        | 39.10        | 0.00          | -117.29       |
| 21  | 148.00    | RRH2X60-PCS           | 3   | 8.462    | 9.309      | 0.40               | 0.80 | 2.64            | 165.00         | 0.000          | -3.000        | 24.57        | 0.00          | -73.72        |
| 22  | 148.00    | RRH2X60-AWS           | 3   | 8.462    | 9.309      | 0.40               | 0.80 | 4.20            | 180.00         | 0.000          | -3.000        | 39.10        | 0.00          | -117.29       |
| 23  | 148.00    | DB-T1-6Z-8AB-OZ       | 2   | 8.512    | 9.363      | 0.40               | 0.80 | 3.84            | 88.00          | 0.000          | 0.000         | 35.95        | 0.00          | 0.00          |
| 24  | 148.00    | SBNHH-1D65B           | 6   | 8.512    | 9.363      | 0.66               | 0.80 | 32.19           | 304.26         | 0.000          | 0.000         | 301.41       | 0.00          | 0.00          |
| 25  | 148.00    | BXA-80080-4CF         | 3   | 8.512    | 9.363      | 0.70               | 0.80 | 7.43            | 36.00          | 0.000          | 0.000         | 69.60        | 0.00          | 0.00          |
| 26  | 148.00    | BXA-70063-6CF-EDIN-X  | 3   | 8.512    | 9.363      | 0.58               | 0.80 | 13.26           | 51.00          | 0.000          | 0.000         | 124.18       | 0.00          | 0.00          |
| 27  | 148.00    | FD9R6004/2C-3L        | 6   | 8.512    | 9.363      | 0.40               | 0.80 | 0.86            | 18.60          | 0.000          | 0.000         | 8.09         | 0.00          | 0.00          |
| 28  | 137.50    | RRUS 11               | 3   | 8.335    | 9.168      | 0.38               | 0.75 | 2.83            | 152.10         | 0.000          | 0.000         | 25.99        | 0.00          | 0.00          |
| 29  | 137.50    | RRUS 4478 B14         | 3   | 8.335    | 9.168      | 0.38               | 0.75 | 1.86            | 178.20         | 0.000          | 0.000         | 17.02        | 0.00          | 0.00          |
| 30  | 137.50    | RRUS 32               | 6   | 8.335    | 9.168      | 0.38               | 0.75 | 3.71            | 462.00         | 0.000          | 0.000         | 34.04        | 0.00          | 0.00          |
| 31  | 137.50    | AM-X-CD-17-65-00T-RET | 3   | 8.395    | 9.234      | 0.56               | 0.75 | 19.09           | 178.50         | 0.000          | 3.500         | 176.25       | 0.00          | 616.86        |
| 32  | 137.50    | 4426 B66              | 3   | 8.335    | 9.168      | 0.38               | 0.75 | 1.29            | 159.00         | 0.000          | 0.000         | 11.86        | 0.00          | 0.00          |
| 33  | 137.50    | 800 10966             | 3   | 8.335    | 9.168      | 0.54               | 0.75 | 28.12           | 345.00         | 0.000          | 0.000         | 257.84       | 0.00          | 0.00          |
| 34  | 137.50    | 7770.00               | 3   | 8.395    | 9.234      | 0.55               | 0.75 | 9.03            | 105.00         | 0.000          | 3.500         | 83.42        | 0.00          | 291.98        |
| 35  | 137.50    | dc6-48-60-18-8c       | 1   | 8.335    | 9.168      | 0.38               | 0.75 | 0.47            | 20.00          | 0.000          | 0.000         | 4.33         | 0.00          | 0.00          |
| 36  | 137.50    | dbc0061F1V51-2        | 6   | 8.335    | 9.168      | 0.38               | 0.75 | 0.97            | 152.40         | 0.000          | 0.000         | 8.87         | 0.00          | 0.00          |
| 37  | 137.50    | DC6-48-60-18-8F       | 1   | 8.335    | 9.168      | 0.38               | 0.75 | 0.35            | 32.80          | 0.000          | 0.000         | 3.16         | 0.00          | 0.00          |
| 38  | 137.50    | DC6-48-60-0-8C-EV     | 1   | 8.335    | 9.168      | 0.38               | 0.75 | 1.79            | 16.00          | 0.000          | 0.000         | 16.43        | 0.00          | 0.00          |
| 39  | 137.50    | LGP21401              | 6   | 8.395    | 9.234      | 0.38               | 0.75 | 2.90            | 105.00         | 0.000          | 3.500         | 26.80        | 0.00          | 93.81         |
| 40  | 137.50    | TPA-65R-LCUUUU-H8     | 3   | 8.395    | 9.234      | 0.62               | 0.75 | 24.84           | 225.00         | 0.000          | 3.500         | 229.36       | 0.00          | 802.77        |
| 41  | 137.50    | RRUS 4478 B5          | 3   | 8.395    | 9.234      | 0.38               | 0.75 | 2.07            | 180.00         | 0.000          | 3.500         | 19.12        | 0.00          | 66.90         |
| 42  | 137.50    | Platform w/ Hand Rail | 1   | 8.335    | 9.168      | 1.00               | 1.00 | 32.00           | 1600.00        | 0.000          | 0.000         | 293.39       | 0.00          | 0.00          |
| 43  | 54.00     | Standoff              | 1   | 6.382    | 7.020      | 1.00               | 1.00 | 2.63            | 40.00          | 0.000          | 0.000         | 18.46        | 0.00          | 0.00          |
| 44  | 54.00     | GPS                   | 1   | 6.382    | 7.020      | 1.00               | 1.00 | 1.00            | 10.00          | 0.000          | 0.000         | 7.02         | 0.00          | 0.00          |
| 45  | 12.00     | CS72188.01 LMU        | 1   | 5.390    | 5.929      | 1.00               | 1.00 | 0.14            | 1.00           | 0.000          | 0.000         | 0.83         | 0.00          | 0.00          |

**Totals:** 12,419.93

4,259.56

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

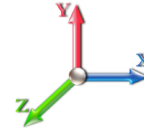


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**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                    |
| 2.00         |                 | 52.30                     | 612.06                  | 0.00                     | 0.00                    |
| 4.00         |                 | 51.92                     | 608.35                  | 0.00                     | 0.00                    |
| 6.00         |                 | 51.55                     | 604.64                  | 0.00                     | 0.00                    |
| 8.00         |                 | 51.17                     | 600.94                  | 0.00                     | 0.00                    |
| 10.00        |                 | 50.79                     | 597.23                  | 0.00                     | 0.00                    |
| 12.00        | (1) attachments | 51.25                     | 594.52                  | 0.00                     | 0.00                    |
| 14.00        |                 | 50.04                     | 589.49                  | 0.00                     | 0.00                    |
| 16.00        |                 | 49.67                     | 585.78                  | 0.00                     | 0.00                    |
| 18.00        |                 | 49.29                     | 582.07                  | 0.00                     | 0.00                    |
| 20.00        |                 | 48.91                     | 578.37                  | 0.00                     | 0.00                    |
| 22.00        |                 | 48.54                     | 574.66                  | 0.00                     | 0.00                    |
| 24.00        |                 | 48.16                     | 570.95                  | 0.00                     | 0.00                    |
| 26.00        |                 | 47.79                     | 567.24                  | 0.00                     | 0.00                    |
| 28.00        |                 | 47.41                     | 563.53                  | 0.00                     | 0.00                    |
| 30.00        |                 | 47.07                     | 559.83                  | 0.00                     | 0.00                    |
| 32.00        |                 | 47.57                     | 556.12                  | 0.00                     | 0.00                    |
| 33.50        |                 | 35.89                     | 414.66                  | 0.00                     | 0.00                    |
| 34.00        |                 | 11.97                     | 137.76                  | 0.00                     | 0.00                    |
| 34.75        |                 | 18.01                     | 206.20                  | 0.00                     | 0.00                    |
| 35.00        |                 | 6.00                      | 68.62                   | 0.00                     | 0.00                    |
| 36.00        |                 | 24.15                     | 273.89                  | 0.00                     | 0.00                    |
| 38.00        |                 | 49.53                     | 933.03                  | 0.00                     | 0.00                    |
| 39.00        |                 | 24.80                     | 463.93                  | 0.00                     | 0.00                    |
| 40.00        |                 | 24.88                     | 462.21                  | 0.00                     | 0.00                    |
| 42.00        |                 | 50.14                     | 919.26                  | 0.00                     | 0.00                    |
| 44.00        |                 | 50.39                     | 478.58                  | 0.00                     | 0.00                    |
| 46.00        |                 | 50.61                     | 475.40                  | 0.00                     | 0.00                    |
| 48.00        |                 | 50.80                     | 472.22                  | 0.00                     | 0.00                    |
| 48.50        |                 | 12.67                     | 117.56                  | 0.00                     | 0.00                    |
| 49.75        |                 | 31.79                     | 293.03                  | 0.00                     | 0.00                    |
| 50.00        |                 | 6.35                      | 58.46                   | 0.00                     | 0.00                    |
| 52.00        |                 | 51.10                     | 465.86                  | 0.00                     | 0.00                    |
| 54.00        | (2) attachments | 76.69                     | 512.68                  | 0.00                     | 0.00                    |
| 56.00        |                 | 51.29                     | 459.19                  | 0.00                     | 0.00                    |
| 58.00        |                 | 51.35                     | 456.01                  | 0.00                     | 0.00                    |
| 60.00        |                 | 51.39                     | 452.83                  | 0.00                     | 0.00                    |
| 62.00        |                 | 51.41                     | 449.65                  | 0.00                     | 0.00                    |
| 64.00        |                 | 51.42                     | 446.47                  | 0.00                     | 0.00                    |
| 66.00        |                 | 51.40                     | 443.29                  | 0.00                     | 0.00                    |
| 68.00        |                 | 51.36                     | 440.12                  | 0.00                     | 0.00                    |
| 70.00        |                 | 51.31                     | 436.94                  | 0.00                     | 0.00                    |
| 71.25        |                 | 32.57                     | 484.45                  | 0.00                     | 0.00                    |
| 72.00        |                 | 19.51                     | 289.48                  | 0.00                     | 0.00                    |
| 74.00        |                 | 52.10                     | 767.57                  | 0.00                     | 0.00                    |
| 76.00        |                 | 52.01                     | 761.22                  | 0.00                     | 0.00                    |
| 78.00        |                 | 51.90                     | 430.39                  | 0.00                     | 0.00                    |

## Total Applied Force Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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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|                |                  |                 |                  |             |                  |
|----------------|------------------|-----------------|------------------|-------------|------------------|
| 80.00          |                  | 51.78           | 427.21           | 0.00        | 0.00             |
| 82.00          |                  | 51.65           | 370.41           | 0.00        | 0.00             |
| 84.00          |                  | 51.50           | 367.76           | 0.00        | 0.00             |
| 86.00          |                  | 51.34           | 365.12           | 0.00        | 0.00             |
| 88.00          |                  | 51.17           | 362.47           | 0.00        | 0.00             |
| 90.00          |                  | 50.98           | 359.82           | 0.00        | 0.00             |
| 92.00          |                  | 50.78           | 357.17           | 0.00        | 0.00             |
| 94.00          |                  | 50.58           | 354.52           | 0.00        | 0.00             |
| 96.00          |                  | 50.36           | 351.87           | 0.00        | 0.00             |
| 98.00          |                  | 50.13           | 349.22           | 0.00        | 0.00             |
| 100.00         |                  | 49.89           | 346.58           | 0.00        | 0.00             |
| 102.00         |                  | 49.63           | 343.93           | 0.00        | 0.00             |
| 104.00         |                  | 49.37           | 341.28           | 0.00        | 0.00             |
| 106.00         |                  | 49.10           | 336.85           | 0.00        | 0.00             |
| 108.00         |                  | 48.82           | 332.42           | 0.00        | 0.00             |
| 110.00         |                  | 48.54           | 329.77           | 0.00        | 0.00             |
| 112.00         |                  | 48.24           | 327.12           | 0.00        | 0.00             |
| 114.00         |                  | 47.93           | 324.48           | 0.00        | 0.00             |
| 115.00         |                  | 23.82           | 161.24           | 0.00        | 0.00             |
| 116.00         |                  | 24.19           | 275.21           | 0.00        | 0.00             |
| 118.00         |                  | 48.19           | 546.44           | 0.00        | 0.00             |
| 120.00         |                  | 47.87           | 541.15           | 0.00        | 0.00             |
| 122.00         |                  | 47.53           | 318.16           | 0.00        | 0.00             |
| 124.00         |                  | 47.19           | 315.51           | 0.00        | 0.00             |
| 125.00         |                  | 23.44           | 156.76           | 0.00        | 0.00             |
| 126.00         |                  | 23.35           | 134.67           | 0.00        | 0.00             |
| 128.00         |                  | 46.48           | 267.75           | 0.00        | 0.00             |
| 130.00         |                  | 46.11           | 265.63           | 0.00        | 0.00             |
| 132.00         |                  | 45.74           | 263.52           | 0.00        | 0.00             |
| 134.00         |                  | 45.36           | 261.40           | 0.00        | 0.00             |
| 136.00         |                  | 44.97           | 259.28           | 0.00        | 0.00             |
| 137.50         | (46) attachments | 1241.35         | 4104.07          | 0.00        | 1872.32          |
| 138.00         |                  | 11.09           | 55.51            | 0.00        | 0.00             |
| 140.00         |                  | 44.18           | 220.72           | 0.00        | 0.00             |
| 142.00         |                  | 43.77           | 218.60           | 0.00        | 0.00             |
| 144.00         |                  | 43.36           | 216.48           | 0.00        | 0.00             |
| 146.00         |                  | 42.94           | 214.36           | 0.00        | 0.00             |
| 148.00         | (32) attachments | 858.31          | 1947.46          | 0.00        | -308.30          |
| 150.00         |                  | 42.08           | 182.85           | 0.00        | 0.00             |
| 152.00         |                  | 42.41           | 329.60           | 0.00        | 0.00             |
| 154.00         |                  | 41.97           | 325.36           | 0.00        | 0.00             |
| 155.00         |                  | 20.80           | 161.09           | 0.00        | 0.00             |
| 156.00         |                  | 20.69           | 89.35            | 0.00        | 0.00             |
| 158.00         |                  | 41.07           | 177.11           | 0.00        | 0.00             |
| 160.00         |                  | 40.61           | 174.99           | 0.00        | 0.00             |
| 162.00         |                  | 40.15           | 172.87           | 0.00        | 0.00             |
| 164.00         |                  | 39.68           | 170.75           | 0.00        | 0.00             |
| 165.00         | (11) attachments | 608.43          | 2443.68          | 0.00        | 0.00             |
| 166.00         |                  | 19.52           | 83.05            | 0.00        | 0.00             |
| 168.00         |                  | 38.72           | 164.51           | 0.00        | 0.00             |
| 170.00         |                  | 38.23           | 162.40           | 0.00        | 0.00             |
| 172.00         |                  | 36.21           | 155.04           | 0.00        | 0.00             |
| 174.00         | (3) attachments  | 436.18          | 920.04           | 0.00        | 4035.48          |
| 175.00         | (48) attachments | 1232.17         | 3638.86          | 0.00        | 5091.69          |
| <b>Totals:</b> |                  | <b>8,428.17</b> | <b>48,860.20</b> | <b>0.00</b> | <b>10,691.19</b> |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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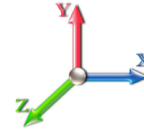


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 2.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.058 | 0.000            | 5.390    | 0.00     | 2.00           |
| 2.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.058 | 0.000            | 5.390    | 0.00     | 3.56           |
| 4.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 5.390    | 0.00     | 2.00           |
| 4.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.059 | 0.000            | 5.390    | 0.00     | 3.56           |
| 6.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.059 | 0.000            | 5.390    | 0.00     | 2.00           |
| 6.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.059 | 0.000            | 5.390    | 0.00     | 3.56           |
| 8.00          | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 5.390    | 0.00     | 2.00           |
| 8.00          | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.060 | 0.000            | 5.390    | 0.00     | 3.56           |
| 10.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.060 | 0.000            | 5.390    | 0.00     | 2.00           |
| 10.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.060 | 0.000            | 5.390    | 0.00     | 3.56           |
| 12.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 5.390    | 0.00     | 2.00           |
| 12.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 5.390    | 0.00     | 3.56           |
| 14.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 5.390    | 0.00     | 2.00           |
| 14.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 5.390    | 0.00     | 3.56           |
| 16.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.061 | 0.000            | 5.390    | 0.00     | 2.00           |
| 16.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.061 | 0.000            | 5.390    | 0.00     | 3.56           |
| 18.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 5.390    | 0.00     | 2.00           |
| 18.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.062 | 0.000            | 5.390    | 0.00     | 3.56           |
| 20.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.062 | 0.000            | 5.390    | 0.00     | 2.00           |
| 20.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.062 | 0.000            | 5.390    | 0.00     | 3.56           |
| 22.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 5.390    | 0.00     | 2.00           |
| 22.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.063 | 0.000            | 5.390    | 0.00     | 3.56           |
| 24.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.063 | 0.000            | 5.390    | 0.00     | 2.00           |
| 24.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.063 | 0.000            | 5.390    | 0.00     | 3.56           |
| 26.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 5.390    | 0.00     | 2.00           |
| 26.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.064 | 0.000            | 5.390    | 0.00     | 3.56           |
| 28.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.064 | 0.000            | 5.390    | 0.00     | 2.00           |
| 28.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.064 | 0.000            | 5.390    | 0.00     | 3.56           |
| 30.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 5.395    | 0.00     | 2.00           |
| 30.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.065 | 0.000            | 5.395    | 0.00     | 3.56           |
| 32.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.065 | 0.000            | 5.495    | 0.00     | 2.00           |
| 32.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.065 | 0.000            | 5.495    | 0.00     | 3.56           |
| 33.50         | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 5.568    | 0.00     | 1.50           |
| 33.50         | 3" Chanel   | Yes          | 1.50        | 0.000 | 3.25               | 0.41        | 0.00        | 0.066 | 0.000            | 5.568    | 0.00     | 2.67           |
| 34.00         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 5.591    | 0.00     | 0.50           |
| 34.00         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.14        | 0.00        | 0.066 | 0.000            | 5.591    | 0.00     | 0.89           |
| 34.75         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 5.626    | 0.00     | 0.75           |
| 34.75         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.20        | 0.00        | 0.066 | 0.000            | 5.626    | 0.00     | 1.33           |
| 35.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.066 | 0.000            | 5.638    | 0.00     | 0.25           |
| 35.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.07        | 0.00        | 0.066 | 0.000            | 5.638    | 0.00     | 0.45           |
| 36.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 5.683    | 0.00     | 1.00           |
| 36.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.067 | 0.000            | 5.683    | 0.00     | 1.78           |
| 38.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 5.772    | 0.00     | 2.00           |
| 38.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.067 | 0.000            | 5.772    | 0.00     | 3.56           |
| 39.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.067 | 0.000            | 5.815    | 0.00     | 1.00           |
| 39.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.067 | 0.000            | 5.815    | 0.00     | 1.78           |
| 40.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 5.857    | 0.00     | 1.00           |

## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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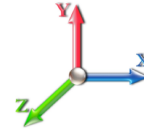


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 40.00         | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.068 | 0.000            | 5.857    | 0.00     | 1.78           |
| 42.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 5.939    | 0.00     | 2.00           |
| 42.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 5.939    | 0.00     | 3.56           |
| 44.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 6.019    | 0.00     | 2.00           |
| 44.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 6.019    | 0.00     | 3.56           |
| 46.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.068 | 0.000            | 6.096    | 0.00     | 2.00           |
| 46.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.068 | 0.000            | 6.096    | 0.00     | 3.56           |
| 48.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 6.170    | 0.00     | 2.00           |
| 48.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.069 | 0.000            | 6.170    | 0.00     | 3.56           |
| 48.50         | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 6.189    | 0.00     | 0.50           |
| 48.50         | 3" Chanel   | Yes          | 0.50        | 0.000 | 3.25               | 0.14        | 0.00        | 0.069 | 0.000            | 6.189    | 0.00     | 0.89           |
| 49.75         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.069 | 0.000            | 6.234    | 0.00     | 1.25           |
| 49.75         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.34        | 0.00        | 0.069 | 0.000            | 6.234    | 0.00     | 2.23           |
| 50.00         | 1.6" Hybrid | Yes          | 0.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 6.243    | 0.00     | 0.25           |
| 50.00         | 3" Chanel   | Yes          | 0.25        | 0.000 | 3.25               | 0.07        | 0.00        | 0.070 | 0.000            | 6.243    | 0.00     | 0.45           |
| 52.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.070 | 0.000            | 6.313    | 0.00     | 2.00           |
| 52.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.070 | 0.000            | 6.313    | 0.00     | 3.56           |
| 54.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 6.382    | 0.00     | 2.00           |
| 54.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.071 | 0.000            | 6.382    | 0.00     | 3.56           |
| 56.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.071 | 0.000            | 6.448    | 0.00     | 2.00           |
| 56.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.071 | 0.000            | 6.448    | 0.00     | 3.56           |
| 58.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 6.513    | 0.00     | 2.00           |
| 58.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.072 | 0.000            | 6.513    | 0.00     | 3.56           |
| 60.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.072 | 0.000            | 6.577    | 0.00     | 2.00           |
| 60.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.072 | 0.000            | 6.577    | 0.00     | 3.56           |
| 62.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.073 | 0.000            | 6.638    | 0.00     | 2.00           |
| 62.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.073 | 0.000            | 6.638    | 0.00     | 3.56           |
| 64.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 6.699    | 0.00     | 2.00           |
| 64.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.074 | 0.000            | 6.699    | 0.00     | 3.56           |
| 66.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.074 | 0.000            | 6.758    | 0.00     | 2.00           |
| 66.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.074 | 0.000            | 6.758    | 0.00     | 3.56           |
| 68.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.075 | 0.000            | 6.816    | 0.00     | 2.00           |
| 68.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.075 | 0.000            | 6.816    | 0.00     | 3.56           |
| 70.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 6.873    | 0.00     | 2.00           |
| 70.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.076 | 0.000            | 6.873    | 0.00     | 3.56           |
| 71.25         | 1.6" Hybrid | Yes          | 1.25        | 0.000 | 0.00               | 0.00        | 0.00        | 0.076 | 0.000            | 6.908    | 0.00     | 1.25           |
| 71.25         | 3" Chanel   | Yes          | 1.25        | 0.000 | 3.25               | 0.34        | 0.00        | 0.076 | 0.000            | 6.908    | 0.00     | 2.23           |
| 72.00         | 1.6" Hybrid | Yes          | 0.75        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 6.928    | 0.00     | 0.75           |
| 72.00         | 3" Chanel   | Yes          | 0.75        | 0.000 | 3.25               | 0.20        | 0.00        | 0.077 | 0.000            | 6.928    | 0.00     | 1.33           |
| 74.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 6.983    | 0.00     | 2.00           |
| 74.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.077 | 0.000            | 6.983    | 0.00     | 3.56           |
| 76.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 7.036    | 0.00     | 2.00           |
| 76.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.078 | 0.000            | 7.036    | 0.00     | 3.56           |
| 78.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.077 | 0.000            | 7.089    | 0.00     | 2.00           |
| 78.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.077 | 0.000            | 7.089    | 0.00     | 3.56           |
| 80.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.078 | 0.000            | 7.140    | 0.00     | 2.00           |
| 80.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.078 | 0.000            | 7.140    | 0.00     | 3.56           |



## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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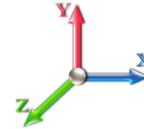


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**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) |
|---------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|----------|----------------|
| 82.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.079 | 0.000            | 7.191    | 0.00     | 2.00           |
| 82.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.079 | 0.000            | 7.191    | 0.00     | 3.56           |
| 84.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 7.240    | 0.00     | 2.00           |
| 84.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.080 | 0.000            | 7.240    | 0.00     | 3.56           |
| 86.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.080 | 0.000            | 7.289    | 0.00     | 2.00           |
| 86.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.080 | 0.000            | 7.289    | 0.00     | 3.56           |
| 88.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.081 | 0.000            | 7.337    | 0.00     | 2.00           |
| 88.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.081 | 0.000            | 7.337    | 0.00     | 3.56           |
| 90.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.082 | 0.000            | 7.384    | 0.00     | 2.00           |
| 90.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.082 | 0.000            | 7.384    | 0.00     | 3.56           |
| 92.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.083 | 0.000            | 7.431    | 0.00     | 2.00           |
| 92.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.083 | 0.000            | 7.431    | 0.00     | 3.56           |
| 94.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.084 | 0.000            | 7.477    | 0.00     | 2.00           |
| 94.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.084 | 0.000            | 7.477    | 0.00     | 3.56           |
| 96.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 7.522    | 0.00     | 2.00           |
| 96.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.085 | 0.000            | 7.522    | 0.00     | 3.56           |
| 98.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.085 | 0.000            | 7.566    | 0.00     | 2.00           |
| 98.00         | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.085 | 0.000            | 7.566    | 0.00     | 3.56           |
| 100.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.086 | 0.000            | 7.610    | 0.00     | 2.00           |
| 100.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.086 | 0.000            | 7.610    | 0.00     | 3.56           |
| 102.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.087 | 0.000            | 7.653    | 0.00     | 2.00           |
| 102.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.087 | 0.000            | 7.653    | 0.00     | 3.56           |
| 104.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.088 | 0.000            | 7.696    | 0.00     | 2.00           |
| 104.00        | 3" Chanel   | Yes          | 2.00        | 0.000 | 3.25               | 0.54        | 0.00        | 0.088 | 0.000            | 7.696    | 0.00     | 3.56           |
| 106.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.045 | 0.000            | 7.738    | 0.00     | 2.00           |
| 106.00        | 3" Chanel   | Yes          | 1.00        | 0.000 | 3.25               | 0.27        | 0.00        | 0.045 | 0.000            | 7.738    | 0.00     | 1.78           |
| 108.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.779    | 0.00     | 2.00           |
| 110.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.820    | 0.00     | 2.00           |
| 112.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.860    | 0.00     | 2.00           |
| 114.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.900    | 0.00     | 2.00           |
| 115.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.920    | 0.00     | 1.00           |
| 116.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.940    | 0.00     | 1.00           |
| 118.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 7.979    | 0.00     | 2.00           |
| 120.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.017    | 0.00     | 2.00           |
| 122.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.055    | 0.00     | 2.00           |
| 124.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.092    | 0.00     | 2.00           |
| 125.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.111    | 0.00     | 1.00           |
| 126.00        | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.129    | 0.00     | 1.00           |
| 128.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.166    | 0.00     | 2.00           |
| 130.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.202    | 0.00     | 2.00           |
| 132.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.238    | 0.00     | 2.00           |
| 134.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.274    | 0.00     | 2.00           |
| 136.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.309    | 0.00     | 2.00           |
| 137.50        | 1.6" Hybrid | Yes          | 1.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.335    | 0.00     | 1.50           |
| 138.00        | 1.6" Hybrid | Yes          | 0.50        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.344    | 0.00     | 0.50           |
| 140.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.378    | 0.00     | 2.00           |
| 142.00        | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.412    | 0.00     | 2.00           |

## Linear Appurtenance Segment Forces (Factored)

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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 |

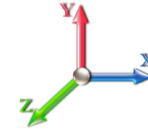


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**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) |
|----------------|-------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|----------|------------|----------------|
| 144.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.446    | 0.00       | 2.00           |
| 146.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.479    | 0.00       | 2.00           |
| 148.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.512    | 0.00       | 2.00           |
| 150.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.545    | 0.00       | 2.00           |
| 152.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.577    | 0.00       | 2.00           |
| 154.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.609    | 0.00       | 2.00           |
| 155.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.625    | 0.00       | 1.00           |
| 156.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.641    | 0.00       | 1.00           |
| 158.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.672    | 0.00       | 2.00           |
| 160.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.704    | 0.00       | 2.00           |
| 162.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.735    | 0.00       | 2.00           |
| 164.00         | 1.6" Hybrid | Yes          | 2.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.765    | 0.00       | 2.00           |
| 165.00         | 1.6" Hybrid | Yes          | 1.00        | 0.000 | 0.00               | 0.00        | 0.00        | 0.000 | 0.000            | 8.781    | 0.00       | 1.00           |
| <b>Totals:</b> |             |              |             |       |                    |             |             |       |                  |          | <b>0.0</b> | <b>351.9</b>   |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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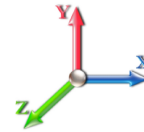


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00          | -48.86           | -8.43            | 0.00                | -1074.4         | 0.00            | 1074.43                    | 4820.43       | 1324.26       | 5910.87          | 5262.50          | 0.00               | 0.000               | 0.000                | 0.131        |
| 2.00          | -48.25           | -8.39            | 0.00                | -1057.5         | 0.00            | 1057.56                    | 4803.04       | 1314.69       | 5825.82          | 5205.34          | 0.00               | -0.013              | 0.000                | 0.130        |
| 4.00          | -47.63           | -8.35            | 0.00                | -1040.7         | 0.00            | 1040.78                    | 4785.39       | 1305.13       | 5741.38          | 5148.19          | 0.01               | -0.027              | 0.000                | 0.129        |
| 6.00          | -47.03           | -8.31            | 0.00                | -1024.0         | 0.00            | 1024.09                    | 4767.50       | 1295.57       | 5657.56          | 5091.06          | 0.03               | -0.041              | 0.000                | 0.128        |
| 8.00          | -46.43           | -8.27            | 0.00                | -1007.4         | 0.00            | 1007.47                    | 4749.35       | 1286.01       | 5574.35          | 5033.93          | 0.05               | -0.054              | 0.000                | 0.127        |
| 10.00         | -45.83           | -8.23            | 0.00                | -990.94         | 0.00            | 990.94                     | 4730.95       | 1276.44       | 5491.76          | 4976.83          | 0.07               | -0.068              | 0.000                | 0.126        |
| 12.00         | -45.23           | -8.19            | 0.00                | -974.48         | 0.00            | 974.48                     | 4712.29       | 1266.88       | 5409.79          | 4919.76          | 0.10               | -0.081              | 0.000                | 0.125        |
| 14.00         | -44.64           | -8.15            | 0.00                | -958.11         | 0.00            | 958.11                     | 4693.38       | 1257.32       | 5328.43          | 4862.72          | 0.14               | -0.095              | 0.000                | 0.124        |
| 16.00         | -44.05           | -8.11            | 0.00                | -941.82         | 0.00            | 941.82                     | 4674.22       | 1247.76       | 5247.69          | 4805.72          | 0.18               | -0.109              | 0.000                | 0.123        |
| 18.00         | -43.47           | -8.07            | 0.00                | -925.61         | 0.00            | 925.61                     | 4654.80       | 1238.20       | 5167.57          | 4748.76          | 0.23               | -0.123              | 0.000                | 0.122        |
| 20.00         | -42.89           | -8.03            | 0.00                | -909.48         | 0.00            | 909.48                     | 4635.13       | 1228.63       | 5088.06          | 4691.86          | 0.29               | -0.136              | 0.000                | 0.120        |
| 22.00         | -42.31           | -7.99            | 0.00                | -893.43         | 0.00            | 893.43                     | 4615.21       | 1219.07       | 5009.17          | 4635.02          | 0.35               | -0.150              | 0.000                | 0.119        |
| 24.00         | -41.74           | -7.95            | 0.00                | -877.46         | 0.00            | 877.46                     | 4595.03       | 1209.51       | 4930.90          | 4578.24          | 0.41               | -0.164              | 0.000                | 0.142        |
| 26.00         | -41.17           | -7.91            | 0.00                | -861.56         | 0.00            | 861.56                     | 4574.60       | 1199.95       | 4853.24          | 4521.53          | 0.48               | -0.181              | 0.000                | 0.141        |
| 28.00         | -40.60           | -7.87            | 0.00                | -845.74         | 0.00            | 845.74                     | 4553.92       | 1190.38       | 4776.20          | 4464.90          | 0.56               | -0.197              | 0.000                | 0.139        |
| 30.00         | -40.04           | -7.83            | 0.00                | -830.00         | 0.00            | 830.00                     | 4532.98       | 1180.82       | 4699.78          | 4408.35          | 0.65               | -0.214              | 0.000                | 0.138        |
| 32.00         | -39.48           | -7.80            | 0.00                | -814.33         | 0.00            | 814.33                     | 4511.79       | 1171.26       | 4623.97          | 4351.89          | 0.74               | -0.231              | 0.000                | 0.137        |
| 33.50         | -39.07           | -7.76            | 0.00                | -802.64         | 0.00            | 802.64                     | 4495.73       | 1164.09       | 4567.52          | 4309.60          | 0.82               | -0.243              | 0.000                | 0.136        |
| 34.00         | -38.93           | -7.75            | 0.00                | -798.76         | 0.00            | 798.76                     | 4490.35       | 1161.70       | 4548.78          | 4295.52          | 0.84               | -0.247              | 0.000                | 0.135        |
| 34.75         | -38.72           | -7.74            | 0.00                | -792.94         | 0.00            | 792.94                     | 4482.24       | 1158.11       | 4520.74          | 4274.41          | 0.88               | -0.254              | 0.000                | 0.135        |
| 35.00         | -38.65           | -7.73            | 0.00                | -791.01         | 0.00            | 791.01                     | 4479.53       | 1156.92       | 4511.41          | 4267.38          | 0.90               | -0.255              | 0.000                | 0.113        |
| 36.00         | -38.38           | -7.71            | 0.00                | -783.27         | 0.00            | 783.27                     | 4468.65       | 1152.14       | 4474.20          | 4239.26          | 0.95               | -0.261              | 0.000                | 0.096        |
| 38.00         | -37.44           | -7.67            | 0.00                | -767.84         | 0.00            | 767.84                     | 4446.70       | 1142.57       | 4400.24          | 4183.10          | 1.06               | -0.274              | 0.000                | 0.120        |
| 39.00         | -36.98           | -7.64            | 0.00                | -760.18         | 0.00            | 760.18                     | 4435.63       | 1137.79       | 4363.49          | 4155.06          | 1.12               | -0.279              | 0.000                | 0.093        |
| 40.00         | -36.52           | -7.62            | 0.00                | -752.53         | 0.00            | 752.53                     | 4424.50       | 1133.01       | 4326.90          | 4127.05          | 1.18               | -0.285              | 0.000                | 0.108        |
| 42.00         | -35.59           | -7.58            | 0.00                | -737.29         | 0.00            | 737.29                     | 3554.53       | 980.17        | 3778.00          | 3351.15          | 1.30               | -0.299              | 0.000                | 0.117        |
| 44.00         | -35.11           | -7.53            | 0.00                | -722.13         | 0.00            | 722.13                     | 3539.83       | 971.98        | 3715.08          | 3309.16          | 1.43               | -0.313              | 0.000                | 0.123        |
| 46.00         | -34.64           | -7.49            | 0.00                | -707.07         | 0.00            | 707.07                     | 3524.88       | 963.78        | 3652.69          | 3267.17          | 1.56               | -0.328              | 0.000                | 0.121        |
| 48.00         | -34.16           | -7.44            | 0.00                | -692.09         | 0.00            | 692.09                     | 3509.67       | 955.59        | 3590.83          | 3225.18          | 1.70               | -0.343              | 0.000                | 0.120        |
| 48.50         | -34.05           | -7.43            | 0.00                | -688.37         | 0.00            | 688.37                     | 3505.83       | 953.54        | 3575.44          | 3214.69          | 1.74               | -0.346              | 0.000                | 0.119        |
| 49.75         | -33.75           | -7.40            | 0.00                | -679.08         | 0.00            | 679.08                     | 3496.16       | 948.41        | 3537.13          | 3188.45          | 1.83               | -0.355              | 0.000                | 0.136        |
| 50.00         | -33.69           | -7.40            | 0.00                | -677.23         | 0.00            | 677.23                     | 3494.22       | 947.39        | 3529.49          | 3183.21          | 1.85               | -0.358              | 0.000                | 0.145        |
| 52.00         | -33.23           | -7.36            | 0.00                | -662.44         | 0.00            | 662.44                     | 3478.50       | 939.19        | 3468.69          | 3141.25          | 2.01               | -0.376              | 0.000                | 0.143        |
| 54.00         | -32.71           | -7.29            | 0.00                | -647.72         | 0.00            | 647.72                     | 3462.54       | 931.00        | 3408.41          | 3099.32          | 2.17               | -0.394              | 0.000                | 0.141        |
| 56.00         | -32.25           | -7.24            | 0.00                | -633.15         | 0.00            | 633.15                     | 3446.32       | 922.80        | 3348.66          | 3057.41          | 2.34               | -0.412              | 0.000                | 0.140        |
| 58.00         | -31.79           | -7.20            | 0.00                | -618.67         | 0.00            | 618.67                     | 3429.84       | 914.61        | 3289.44          | 3015.54          | 2.51               | -0.430              | 0.000                | 0.138        |
| 60.00         | -31.34           | -7.15            | 0.00                | -604.27         | 0.00            | 604.27                     | 3413.12       | 906.41        | 3230.75          | 2973.71          | 2.70               | -0.448              | 0.000                | 0.136        |
| 62.00         | -30.89           | -7.11            | 0.00                | -589.97         | 0.00            | 589.97                     | 3396.14       | 898.21        | 3172.59          | 2931.93          | 2.89               | -0.466              | 0.000                | 0.134        |
| 64.00         | -30.44           | -7.06            | 0.00                | -575.76         | 0.00            | 575.76                     | 3378.91       | 890.02        | 3114.95          | 2890.20          | 3.09               | -0.484              | 0.000                | 0.132        |
| 66.00         | -29.99           | -7.02            | 0.00                | -561.64         | 0.00            | 561.64                     | 3361.42       | 881.82        | 3057.84          | 2848.53          | 3.29               | -0.502              | 0.000                | 0.130        |
| 68.00         | -29.55           | -6.97            | 0.00                | -547.61         | 0.00            | 547.61                     | 3343.68       | 873.62        | 3001.27          | 2806.93          | 3.51               | -0.519              | 0.000                | 0.129        |
| 70.00         | -29.11           | -6.92            | 0.00                | -533.67         | 0.00            | 533.67                     | 3325.69       | 865.43        | 2945.21          | 2765.40          | 3.73               | -0.537              | 0.000                | 0.127        |
| 71.25         | -28.63           | -6.89            | 0.00                | -525.01         | 0.00            | 525.01                     | 3314.31       | 860.31        | 2910.45          | 2739.48          | 3.87               | -0.549              | 0.000                | 0.124        |
| 72.00         | -28.34           | -6.87            | 0.00                | -519.85         | 0.00            | 519.85                     | 3307.44       | 857.23        | 2889.69          | 2723.94          | 3.96               | -0.553              | 0.000                | 0.123        |
| 74.00         | -27.57           | -6.82            | 0.00                | -506.11         | 0.00            | 506.11                     | 3288.94       | 849.04        | 2834.70          | 2682.57          | 4.19               | -0.571              | 0.000                | 0.121        |
| 76.00         | -26.80           | -6.77            | 0.00                | -492.47         | 0.00            | 492.47                     | 3306.32       | 856.73        | 2886.33          | 2721.42          | 4.44               | -0.589              | 0.000                | 0.122        |
| 78.00         | -26.37           | -6.72            | 0.00                | -478.93         | 0.00            | 478.93                     | 3287.81       | 848.54        | 2831.37          | 2680.05          | 4.69               | -0.606              | 0.000                | 0.116        |
| 80.00         | -25.94           | -6.67            | 0.00                | -465.49         | 0.00            | 465.49                     | 3269.04       | 840.34        | 2776.94          | 2638.78          | 4.94               | -0.623              | 0.000                | 0.114        |

## Calculated Forces

**Structure:** CT00680-S-SBA

**Code:** TIA-222-H

1/9/2023

**Site Name:** Putnam

**Exposure:** B

**Height:** 175.00 (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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|        |        |       |      |         |      |        |         |        |         |         |       |        |       |       |
|--------|--------|-------|------|---------|------|--------|---------|--------|---------|---------|-------|--------|-------|-------|
| 80.00  | -25.94 | -6.67 | 0.00 | -465.49 | 0.00 | 465.49 | 2504.08 | 701.39 | 2321.41 | 2027.68 | 4.94  | -0.623 | 0.000 | 0.125 |
| 82.00  | -25.57 | -6.62 | 0.00 | -452.14 | 0.00 | 452.14 | 2492.58 | 694.56 | 2276.42 | 1998.56 | 5.21  | -0.640 | 0.000 | 0.136 |
| 84.00  | -25.20 | -6.58 | 0.00 | -438.90 | 0.00 | 438.90 | 2480.83 | 687.73 | 2231.87 | 1969.42 | 5.48  | -0.659 | 0.000 | 0.133 |
| 86.00  | -24.84 | -6.53 | 0.00 | -425.74 | 0.00 | 425.74 | 2468.82 | 680.90 | 2187.76 | 1940.26 | 5.76  | -0.677 | 0.000 | 0.131 |
| 88.00  | -24.47 | -6.48 | 0.00 | -412.69 | 0.00 | 412.69 | 2456.55 | 674.07 | 2144.09 | 1911.10 | 6.05  | -0.692 | 0.000 | 0.160 |
| 90.00  | -24.11 | -6.44 | 0.00 | -399.73 | 0.00 | 399.73 | 2444.04 | 667.24 | 2100.86 | 1881.94 | 6.34  | -0.715 | 0.000 | 0.157 |
| 92.00  | -23.75 | -6.39 | 0.00 | -386.86 | 0.00 | 386.86 | 2431.27 | 660.41 | 2058.07 | 1852.79 | 6.65  | -0.738 | 0.000 | 0.154 |
| 94.00  | -23.40 | -6.34 | 0.00 | -374.08 | 0.00 | 374.08 | 2418.25 | 653.58 | 2015.72 | 1823.65 | 6.96  | -0.760 | 0.000 | 0.151 |
| 96.00  | -23.04 | -6.30 | 0.00 | -361.39 | 0.00 | 361.39 | 2404.97 | 646.75 | 1973.81 | 1794.53 | 7.28  | -0.783 | 0.000 | 0.147 |
| 98.00  | -22.69 | -6.25 | 0.00 | -348.80 | 0.00 | 348.80 | 2391.44 | 639.92 | 1932.34 | 1765.43 | 7.62  | -0.805 | 0.000 | 0.144 |
| 100.00 | -22.34 | -6.20 | 0.00 | -336.30 | 0.00 | 336.30 | 2377.66 | 633.09 | 1891.31 | 1736.36 | 7.96  | -0.827 | 0.000 | 0.141 |
| 102.00 | -22.00 | -6.16 | 0.00 | -323.89 | 0.00 | 323.89 | 2363.63 | 626.26 | 1850.72 | 1707.33 | 8.31  | -0.849 | 0.000 | 0.137 |
| 104.00 | -21.65 | -6.11 | 0.00 | -311.57 | 0.00 | 311.57 | 2349.34 | 619.43 | 1810.57 | 1678.33 | 8.67  | -0.871 | 0.000 | 0.134 |
| 106.00 | -21.32 | -6.07 | 0.00 | -299.35 | 0.00 | 299.35 | 2334.79 | 612.60 | 1770.86 | 1649.39 | 9.04  | -0.892 | 0.000 | 0.191 |
| 108.00 | -20.98 | -6.03 | 0.00 | -287.21 | 0.00 | 287.21 | 2320.00 | 605.77 | 1731.59 | 1620.50 | 9.42  | -0.923 | 0.000 | 0.186 |
| 110.00 | -20.65 | -5.98 | 0.00 | -275.16 | 0.00 | 275.16 | 2304.95 | 598.94 | 1692.77 | 1591.67 | 9.81  | -0.954 | 0.000 | 0.182 |
| 112.00 | -20.32 | -5.94 | 0.00 | -263.20 | 0.00 | 263.20 | 2289.65 | 592.11 | 1654.38 | 1562.91 | 10.22 | -0.985 | 0.000 | 0.177 |
| 114.00 | -19.99 | -5.89 | 0.00 | -251.32 | 0.00 | 251.32 | 2274.09 | 585.28 | 1616.43 | 1534.22 | 10.64 | -1.015 | 0.000 | 0.173 |
| 115.00 | -19.83 | -5.87 | 0.00 | -245.42 | 0.00 | 245.42 | 2266.22 | 581.86 | 1597.62 | 1519.90 | 10.85 | -1.030 | 0.000 | 0.170 |
| 116.00 | -19.55 | -5.85 | 0.00 | -239.55 | 0.00 | 239.55 | 2258.28 | 578.45 | 1578.92 | 1505.61 | 11.07 | -1.045 | 0.000 | 0.168 |
| 118.00 | -19.01 | -5.80 | 0.00 | -227.85 | 0.00 | 227.85 | 2242.22 | 571.62 | 1541.86 | 1477.08 | 11.51 | -1.075 | 0.000 | 0.163 |
| 120.00 | -18.46 | -5.75 | 0.00 | -216.25 | 0.00 | 216.25 | 2252.14 | 575.82 | 1564.64 | 1494.64 | 11.97 | -1.104 | 0.000 | 0.153 |
| 122.00 | -18.14 | -5.71 | 0.00 | -204.74 | 0.00 | 204.74 | 2235.98 | 568.99 | 1527.74 | 1466.15 | 12.44 | -1.132 | 0.000 | 0.148 |
| 124.00 | -17.83 | -5.66 | 0.00 | -193.32 | 0.00 | 193.32 | 2219.57 | 562.16 | 1491.28 | 1437.75 | 12.92 | -1.158 | 0.000 | 0.143 |
| 125.00 | -17.67 | -5.64 | 0.00 | -187.66 | 0.00 | 187.66 | 2211.27 | 558.75 | 1473.22 | 1423.59 | 13.16 | -1.171 | 0.000 | 0.140 |
| 125.00 | -17.67 | -5.64 | 0.00 | -187.66 | 0.00 | 187.66 | 1600.93 | 447.88 | 1183.23 | 1034.73 | 13.16 | -1.171 | 0.000 | 0.193 |
| 126.00 | -17.53 | -5.62 | 0.00 | -182.02 | 0.00 | 182.02 | 1596.33 | 445.15 | 1168.84 | 1025.42 | 13.41 | -1.184 | 0.000 | 0.189 |
| 128.00 | -17.26 | -5.58 | 0.00 | -170.79 | 0.00 | 170.79 | 1586.93 | 439.68 | 1140.32 | 1006.77 | 13.91 | -1.216 | 0.000 | 0.181 |
| 130.00 | -17.00 | -5.53 | 0.00 | -159.63 | 0.00 | 159.63 | 1577.27 | 434.22 | 1112.16 | 988.11  | 14.43 | -1.246 | 0.000 | 0.172 |
| 132.00 | -16.73 | -5.49 | 0.00 | -148.57 | 0.00 | 148.57 | 1567.36 | 428.76 | 1084.34 | 969.45  | 14.96 | -1.275 | 0.000 | 0.164 |
| 134.00 | -16.47 | -5.45 | 0.00 | -137.59 | 0.00 | 137.59 | 1557.20 | 423.29 | 1056.88 | 950.79  | 15.50 | -1.304 | 0.000 | 0.155 |
| 136.00 | -16.21 | -5.40 | 0.00 | -126.69 | 0.00 | 126.69 | 1546.79 | 417.83 | 1029.77 | 932.14  | 16.05 | -1.331 | 0.000 | 0.147 |
| 137.50 | -12.13 | -4.07 | 0.00 | -116.72 | 0.00 | 116.72 | 1538.81 | 413.73 | 1009.67 | 918.16  | 16.47 | -1.351 | 0.000 | 0.135 |
| 138.00 | -12.08 | -4.06 | 0.00 | -114.68 | 0.00 | 114.68 | 1536.12 | 412.36 | 1003.02 | 913.50  | 16.61 | -1.357 | 0.000 | 0.133 |
| 140.00 | -11.85 | -4.02 | 0.00 | -106.56 | 0.00 | 106.56 | 1525.20 | 406.90 | 976.61  | 894.88  | 17.19 | -1.382 | 0.000 | 0.127 |
| 142.00 | -11.64 | -3.97 | 0.00 | -98.53  | 0.00 | 98.53  | 1514.03 | 401.44 | 950.56  | 876.30  | 17.77 | -1.405 | 0.000 | 0.120 |
| 144.00 | -11.42 | -3.93 | 0.00 | -90.59  | 0.00 | 90.59  | 1502.60 | 395.97 | 924.86  | 857.74  | 18.37 | -1.428 | 0.000 | 0.113 |
| 146.00 | -11.20 | -3.88 | 0.00 | -82.74  | 0.00 | 82.74  | 1490.92 | 390.51 | 899.51  | 839.23  | 18.97 | -1.450 | 0.000 | 0.106 |
| 148.00 | -9.28  | -2.98 | 0.00 | -74.97  | 0.00 | 74.97  | 1478.99 | 385.04 | 874.51  | 820.76  | 19.58 | -1.471 | 0.000 | 0.098 |
| 150.00 | -9.09  | -2.93 | 0.00 | -69.01  | 0.00 | 69.01  | 1466.80 | 379.58 | 849.87  | 802.34  | 20.20 | -1.490 | 0.000 | 0.092 |
| 152.00 | -8.77  | -2.89 | 0.00 | -63.14  | 0.00 | 63.14  | 1454.36 | 374.12 | 825.58  | 783.97  | 20.83 | -1.509 | 0.000 | 0.087 |
| 154.00 | -8.44  | -2.84 | 0.00 | -57.37  | 0.00 | 57.37  | 1441.66 | 368.65 | 801.64  | 765.67  | 21.47 | -1.527 | 0.000 | 0.081 |
| 155.00 | -8.28  | -2.81 | 0.00 | -54.53  | 0.00 | 54.53  | 1451.75 | 372.98 | 820.59  | 780.18  | 21.79 | -1.536 | 0.000 | 0.076 |
| 156.00 | -8.19  | -2.79 | 0.00 | -51.72  | 0.00 | 51.72  | 1445.41 | 370.25 | 808.61  | 771.02  | 22.11 | -1.544 | 0.000 | 0.073 |
| 158.00 | -8.01  | -2.75 | 0.00 | -46.13  | 0.00 | 46.13  | 1432.53 | 364.79 | 784.92  | 752.77  | 22.76 | -1.559 | 0.000 | 0.067 |
| 160.00 | -7.84  | -2.71 | 0.00 | -40.64  | 0.00 | 40.64  | 1419.41 | 359.32 | 761.58  | 734.60  | 23.42 | -1.573 | 0.000 | 0.061 |
| 162.00 | -7.67  | -2.66 | 0.00 | -35.22  | 0.00 | 35.22  | 1406.03 | 353.86 | 738.59  | 716.50  | 24.08 | -1.586 | 0.000 | 0.055 |
| 164.00 | -7.50  | -2.62 | 0.00 | -29.90  | 0.00 | 29.90  | 1392.39 | 348.39 | 715.96  | 698.49  | 24.74 | -1.598 | 0.000 | 0.048 |
| 165.00 | -5.07  | -1.94 | 0.00 | -27.28  | 0.00 | 27.28  | 1385.48 | 345.66 | 704.77  | 689.51  | 25.08 | -1.603 | 0.000 | 0.043 |
| 166.00 | -4.99  | -1.92 | 0.00 | -25.34  | 0.00 | 25.34  | 1378.51 | 342.93 | 693.68  | 680.57  | 25.42 | -1.608 | 0.000 | 0.041 |
| 168.00 | -4.83  | -1.88 | 0.00 | -21.49  | 0.00 | 21.49  | 1364.37 | 337.47 | 671.75  | 662.74  | 26.09 | -1.617 | 0.000 | 0.036 |
| 170.00 | -4.66  | -1.84 | 0.00 | -17.73  | 0.00 | 17.73  | 1349.97 | 332.00 | 650.17  | 645.02  | 26.77 | -1.625 | 0.000 | 0.031 |
| 170.00 | -4.66  | -1.84 | 0.00 | -17.73  | 0.00 | 17.73  | 1349.97 | 332.00 | 650.17  | 645.02  | 26.77 | -1.625 | 0.000 | 0.031 |
| 172.00 | -4.51  | -1.80 | 0.00 | -14.06  | 0.00 | 14.06  | 1257.93 | 299.51 | 529.13  | 541.60  | 27.45 | -1.632 | 0.000 | 0.030 |
| 174.00 | -3.60  | -1.34 | 0.00 | -6.43   | 0.00 | 6.43   | 1121.46 | 267.01 | 420.55  | 429.85  | 28.14 | -1.639 | 0.000 | 0.018 |
| 175.00 | 0.00   | -1.23 | 0.00 | -5.09   | 0.00 | 5.09   | 1053.22 | 250.77 | 370.93  | 378.81  | 28.48 | -1.641 | 0.000 | 0.013 |

## Calculated Forces

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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: 69                |



## Final Analysis Summary

|                                 |                                   |                         |
|---------------------------------|-----------------------------------|-------------------------|
| <b>Structure:</b> CT00680-S-SBA | <b>Code:</b> TIA-222-H            | 1/9/2023                |
| <b>Site Name:</b> Putnam        | <b>Exposure:</b> B                |                         |
| <b>Height:</b> 175.00 (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> 70         |



### Reactions

| Load Case                        | Shear FX (kips) | Shear FZ (kips) | Axial FY (kips) | Moment MX (ft-kips) | Moment MY (ft-kips) | Moment MZ (ft-kips) |
|----------------------------------|-----------------|-----------------|-----------------|---------------------|---------------------|---------------------|
| 1.2D + 1.0W 125 mph Wind         | 40.9            | 0.00            | 58.61           | 0.00                | 0.00                | 5245.58             |
| 0.9D + 1.0W 125 mph Wind         | 40.9            | 0.00            | 43.95           | 0.00                | 0.00                | 5182.11             |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 8.8             | 0.00            | 77.70           | 0.00                | 0.00                | 1171.22             |
| 1.2D + 1.0Ev + 1.0Eh             | 0.6             | 0.00            | 60.61           | 0.00                | 0.00                | 102.44              |
| 0.9D + 1.0Ev + 1.0Eh             | 0.6             | 0.00            | 45.86           | 0.00                | 0.00                | 101.43              |
| 1.0D + 1.0W 60 mph Wind          | 8.4             | 0.00            | 48.86           | 0.00                | 0.00                | 1074.43             |

### Max Stresses

| Load Case                        | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Elev (ft) | Stress Ratio |
|----------------------------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|-----------|--------------|
| 1.2D + 1.0W 125 mph Wind         | -18.66           | -27.61           | 0.00                | -918.02         | 0.00            | -918.02                    | 2211.27       | 558.75        | 1473.22          | 1423.59          | 125.00    | 0.903        |
| 0.9D + 1.0W 125 mph Wind         | -13.40           | -27.05           | 0.00                | -898.26         | 0.00            | -898.26                    | 2211.27       | 558.75        | 1473.22          | 1423.59          | 125.00    | 0.880        |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | -32.12           | -6.32            | 0.00                | -212.65         | 0.00            | -212.65                    | 2211.27       | 558.75        | 1473.22          | 1423.59          | 125.00    | 0.226        |
| 1.2D + 1.0Ev + 1.0Eh             | -22.04           | -0.64            | 0.00                | -21.76          | 0.00            | -21.76                     | 2211.27       | 558.75        | 1473.22          | 1423.59          | 125.00    | 0.035        |
| 0.9D + 1.0Ev + 1.0Eh             | -16.69           | -0.63            | 0.00                | -21.52          | 0.00            | -21.52                     | 2211.27       | 558.75        | 1473.22          | 1423.59          | 125.00    | 0.031        |
| 1.0D + 1.0W 60 mph Wind          | -17.67           | -5.64            | 0.00                | -187.66         | 0.00            | -187.66                    | 2211.27       | 558.75        | 1473.22          | 1423.59          | 125.00    | 0.193        |

### Additional Steel Summary

| Elev From (ft) | Elev To (ft) | Member                      | Intermediate Connectors |           |               | Lower Termination |               |           |            | Upper Termination |               |           |            | Max Member |               |               |       |
|----------------|--------------|-----------------------------|-------------------------|-----------|---------------|-------------------|---------------|-----------|------------|-------------------|---------------|-----------|------------|------------|---------------|---------------|-------|
|                |              |                             | VQ/I (lb/in)            | Vu (kips) | phi Vn (kips) | MQ/I (kips)       | phi Vn (kips) | Num Req'd | Num Actual | MQ/I (kips)       | phi Vn (kips) | Num Req'd | Num Actual | Pu (kips)  | phi Pn (kips) | phi Tn (kips) | Ratio |
| 0.0            | 36.0         | (3) PLT-C10x30(1.5" Hole)   | 307.6                   | 0.00      | 37.1          | 347.0             | 37.1          | 10        | 0          | 272.0             | 37.1          | 8         | 0          | 391.70     | 516.0         | 468.64        | 0.836 |
| 0.0            | 22.0         | (3) PLT-C10x30(1.5" Hole)   | 228.4                   | 5.48      | 37.1          | 324.7             | 37.1          | 9         | 0          | 307.9             | 37.1          | 9         | 0          | 324.67     | 500.4         | 468.64        | 0.693 |
| 33.5           | 48.5         | (1) LNP-LP6X100-G-20TT      | -191.5                  | -4.60     | 25.3          | 212.6             | 22.7          | 10        | 10         | 212.8             | 22.7          | 10        | 10         | 230.78     | 297.8         | 288.75        | 0.799 |
| 34.8           | 49.8         | (2) LNP-LP6X100-G-20TT      | -191.9                  | -4.61     | 25.3          | 211.4             | 22.7          | 10        | 10         | 211.8             | 22.7          | 10        | 10         | 230.78     | 297.8         | 288.75        | 0.799 |
| 35.0           | 39.0         | (3) LNP-LP6X100-G-10TT      | 191.5                   | 4.60      | 25.3          | 181.2             | 22.7          | 8         | 11         | 178.5             | 22.7          | 8         | 11         | 230.78     | 297.8         | 288.75        | 0.799 |
| 38.0           | 71.3         | (3) PLT-C10x30(1.5" Hole)   | 390.2                   | 9.36      | 37.1          | 269.9             | 37.1          | 8         | 0          | 357.2             | 37.1          |           |            | 391.14     | 500.4         | 468.64        | 0.835 |
| 71.3           | 86.0         | (3) PLT-C10x30(1.5" Hole)   | 446.1                   | 10.71     | 37.1          | 357.2             | 37.1          |           |            | 349.3             | 37.1          |           |            | 359.52     | 500.4         | 468.64        | 0.767 |
| 86.0           | 104.0        | (3) PLT-C10x15.3(1.5" Hole) | 446.1                   | 10.71     | 37.1          | 283.2             | 37.1          |           |            | 197.3             | 37.1          | 6         | 0          | 225.76     | 255.7         | 247.80        | 0.911 |



|  | Monopole Mat Foundation Design |                    | Date                    |             |
|-----------------------------------------------------------------------------------|--------------------------------|--------------------|-------------------------|-------------|
|                                                                                   |                                |                    | 1/9/2023                |             |
|                                                                                   | Customer Name:                 | Dish Wireless      | TIA Standard:           | TIA-222-H   |
|                                                                                   | Site Name:                     |                    | Structure Height (Ft.): | 175         |
|                                                                                   | Site Number:                   | CT00680-S-SBA      | Engineer Name:          | J. Tibbetts |
| Engr. Number:                                                                     | 137370                         | Engineer Login ID: |                         |             |

#### Foundation Info Obtained from:

#### Structure Type:

#### Analysis or Design?

#### Base Reactions (Factored):

|                      |      |                     |        |
|----------------------|------|---------------------|--------|
| Axial Load (Kips):   | 58.6 | Shear Force (Kips): | 40.9   |
| Uplift Force (Kips): | 0.0  | Moment (Kips-ft):   | 5245.6 |

Allowable overstress %: 5.0%

#### Foundation Geometries:

|                          |      |                          |      |
|--------------------------|------|--------------------------|------|
|                          |      | Mods required -Yes/No ?: | No   |
| Diameter of Pier (ft.):  | 5.6  | Depth of Base BG (ft.):  | 4.0  |
| Pier Height A. G. (ft.): | 0.00 | Thickness of Pad (ft):   | 4.00 |
| Length of Pad (ft.):     | 34   | Width of Pad (ft.):      | 34   |

Final Length of pad (ft) 34.0 Final width of pad (ft): 34.0

#### Material Properties and Rebar Info:

|                          |      |                           |       |     |
|--------------------------|------|---------------------------|-------|-----|
| Concrete Strength (psi): | 3000 | Steel Elastic Modulus:    | 29000 | ksi |
| Vertical bar yield (ksi) | 60   | Tie steel yield (ksi):    | 60    |     |
| Vertical Rebar Size #:   | 18   | Tie / Stirrup Size #:     | 5     |     |
| Qty. of Vertical Rebars: | 35   | Tie Spacing (in):         | 6.0   |     |
| Pad Rebar Yield (Ksi):   | 60   | Pad Steel Rebar Size (#): | 10    |     |
| Concrete Cover (in.):    | 3    | Unit Weight of Concrete:  | 150.0 | pcf |

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L): 35 Qty. of Rebar in Pad (W): 35

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L): 35 Qty. of Rebar in Pad (W): 35

Apply 1.35 factor for e/w Per G: 1.35

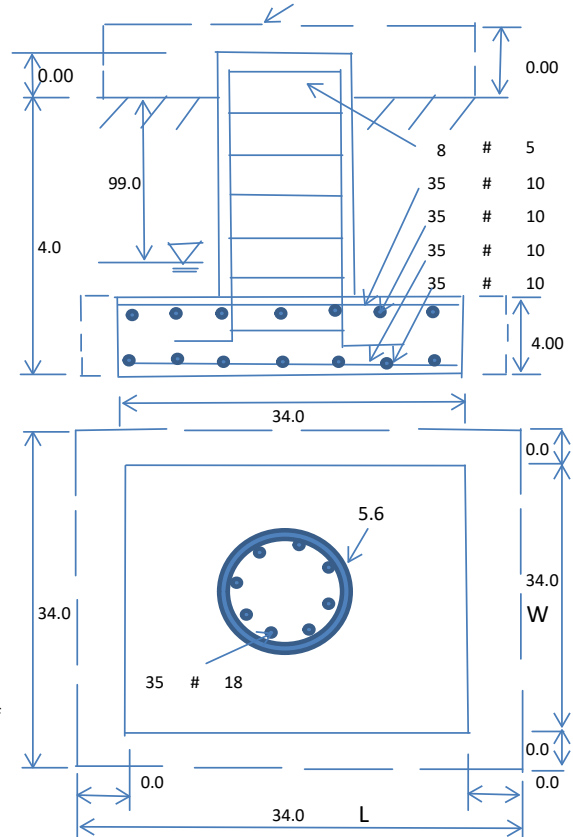
#### Soil Design Parameters:

|                                      |       |                                                        |      |     |                         |
|--------------------------------------|-------|--------------------------------------------------------|------|-----|-------------------------|
| Soil Unit Weight (pcf):              | 100.0 | Soil Buoyant Weight:                                   | 50.0 | Pcf |                         |
| Water Table B.G.S. (ft):             | 99.0  | Unit Weight of Water:                                  | 62.4 | pcf | Angle from Top of Pad:  |
| Ultimate Bearing Pressure (psf):     | 40000 | Ultimate Skin Friction:                                | 0    | Psf | Angle from Botm of Pad: |
| Consider Friction for O.T.M. (Y/N):  | No    | Consider Friction for bearing (Y/N):                   | No   |     | Angle from Botm of Pad: |
| Consider soil hor. resist. for OTM.: | No    | Reduction factor on the maximum soil bearing pressure: | 1.00 |     |                         |

|                                          |                                   |         |                                            |        |
|------------------------------------------|-----------------------------------|---------|--------------------------------------------|--------|
| <b>Foundation Analysis and Design:</b>   | Uplift Strength Reduction Factor: | 0.75    | Compression Strength Reduction Factor:     | 0.75   |
| Total Dry Soil Volume (cu. Ft.):         |                                   | 0.00    | Total Dry Soil Weight (Kips):              | 0.00   |
| Total Buoyant Soil Volume (cu. Ft.):     |                                   | 0.00    | Total Buoyant Soil Weight (Kips):          | 0.00   |
| Total Effective Soil Weight (Kips):      |                                   | 0.00    | Weight from the Concrete Block at Top (K): | 0.00   |
| Total Dry Concrete Volume (cu. Ft.):     |                                   | 4624.12 | Total Dry Concrete Weight (Kips):          | 693.62 |
| Total Buoyant Concrete Volume (cu. Ft.): |                                   | 0.00    | Total Buoyant Concrete Weight (Kips):      | 0.00   |
| Total Effective Concrete Weight (Kips):  |                                   | 693.62  | Total Vertical Load on Base (Kips):        | 752.22 |

#### Check Soil Capacities:

|                                                                    |         |   |                                        |       |      |     |
|--------------------------------------------------------------------|---------|---|----------------------------------------|-------|------|-----|
| Calculated Maxium Net Soil Pressure under the base (psf):          | 1656    | < | Allowable Factored Soil Bearing (psf): | 30000 | 0.06 | OK! |
| Allowable Foundation Overturning Resistance (kips-ft.):            | 11608.6 | > | Design Factored Momont (kips-ft):      | 5409  | 0.47 | OK! |
| Factor of Safety Against Overturning (O. R. Moment/Design Moment): | 2.15    |   |                                        |       |      | 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

Load/  
Capacity  
Ratio**(1) Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):

4.00

Tie / Stirrup Area (sq. in./each):

0.31

Calculated Moment Capacity (Mn,Kips-Ft):

14287.5

&gt;

Design Factored Moment (Mu, Kips-F

5245.6

0.37

OK!

Calculated Shear Capacity (Kips):

624.7

&gt;

Design Factored Shear (Kips):

40.9

0.07

OK!

Calculated Tension Capacity (Tn, Kips):

7560.0

&gt;

Design Factored Tension (Tu Kips):

0.0

0.00

OK!

Calculated Compression Capacity (Pn, Kips):

4517.3

&gt;

Design Factored Axial Load (Pu Kips):

58.6

0.01

OK!

Moment &amp; Axial Strength Combination:

0.37

OK!

Check Tie Spacing (Design/Required):

0.5

OK!

Pier Reinforcement Ratio:

0.039

Reinforcement Ratio is satisfied per ACI

**(2).Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):

1487.5

&gt;

One-Way Factored Shear (L-D. Kips):

340.8

0.23

OK!

One-Way Design Shear Capacity (W-Direction, Kips):

1487.5

&gt;

One-Way Factored Shear (W-D., Kips)

340.8

0.23

OK!

One-Way Design Shear Capacity (Corner-Corner, Kips):

1535.1

&gt;

One-Way Factored Shear (C-C, Kips):

332.7

0.22

OK!

Lower Steel Pad Reinforcement Ratio (L-Direct. ):

0.0025

OK!

Lower Steel Pad Reinf. Ratio (W-Direct

0.0025

Lower Steel Pad Moment Capacity (L-Direction, Kips-ft):

8619.7

&gt;

Moment at Bottom ( L-Dir. K-Ft):

2859.5

0.33

OK!

Lower Steel Pad Moment Capacity (W-Direction, Kips-ft):

8619.7

&gt;

Moment at Bottom ( W-Dir. K-Ft):

2859.5

0.33

OK!

Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):

12142.4

&gt;

Moment at Bottom ( C-C Dir. K-Ft):

4043.9

0.33

OK!

Upper Steel Pad Reinforcement Ratio (L-Direct. ):

0.0025

OK!

Upper Steel Reinf. Ratio (W-Dir. ):

0.0025

Upper Steel Pad Moment Capacity (L-Direct, Kips-ft):

8619.7

&gt;

Moment at the top (L-Dir K-Ft):

1150.1

0.13

OK!

Upper Steel Pad Moment Capacity (W-Direct, Kips-ft):

8619.7

&gt;

Moment at the top (W-Dir K-Ft):

1150.1

0.13

OK!

Upper Steel Pad Moment Capacity (Corner-Corner, K-ft):

12142.4

&gt;

Moment at the top (C-C Dir. K-Ft):

1071.9

0.09

OK!

**(3).Check Punching Shear Capacity due to Moment in the Pier:**

Moment transferred by punching shear:

2098.2

k-ft.

Max. factored shear stress  $v_{u,CD}$ :

8.8

Psi

Max. factored shear stress  $v_{u,AB}$ :

14.2

Psi

Factored shear Strength  $\phi v_n$ :

164.3

Psi

Max. factored shear stress  $v_u$ :

14.2

Psi

Check Usage of Punching Shear Capacity:

0.09

OK!

**(4).Check Bending Capacity of the Pad Within the Effective Slab Width:**

Overturning moment to be transferred by flexure:

1573.7

k-ft.

Effective Width for resisting OT moment:

17.6

ft.

Calculated number of Rebar in Effective width:

19

Actual number of Rebar in Effective width:

13

Steel Pad Moment Capacity ( L-Direct, Kips-ft):

3228.5

k-ft.

Check Usage of the Flexure Capacity:

0.49

OK!

# Exhibit E

## **Mount Analysis**



January 9, 2023

Sherri Knapik  
SBA Network Services, LLC.  
134 Flanders Road, Suite 125  
Westborough, MA 01581  
(508) 251-0720 x 3805

B+T Group  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587-4630  
towersupport@btgrp.com

**Subject:** Appurtenance Mount Analysis Report

**Carrier Designation:** *Dish Wireless Co-Locate*  
**Site Number:** BOBOS00003C  
**Site Name:** N/A

**SBA Network Services Designation:** **Site Number:** CT00680-S  
**Site Name:** Putnam  
**Application Number:** 167052, v2

**Engineering Firm Designation:** **B+T Group Project Number:** 156305.003.01 Rev 1

**Site Data:** 154 Sayle Avenue, Putnam, CT, 06260, Windham County  
Latitude 41.92946°, Longitude -71.88633°  
Monopole  
8 ft. Platform Mount

Dear Ms. Knapik,

B+T Group is pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment

Note: See Table 1 for the final loading configuration

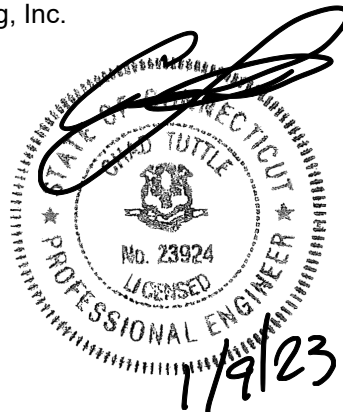
**Sufficient Capacity**  
**(Passing at 49.5%)**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and SBA Network Services, LLC.. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Anne Delice

Respectfully submitted by: B&T Engineering, Inc.  
COA: PEC.0001564 Expires: 2/1/2023



Chad E. Tuttle, P.E.

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## 1) INTRODUCTION

The mount consists of Commscope Platform mounts (Part #MC-PK8-DSH) at 165ft., attached to monopole at 154 Sayle Avenue, Putnam, CT, 06260, Windham County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 120 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category B and Risk Category II were used in this analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

**Table 1 – Proposed Equipment Information**

| Loading  | RAD Center Elev. (ft.) | Position | Qty. | Description                | Note |
|----------|------------------------|----------|------|----------------------------|------|
| Proposed | 165                    | 1        | 3    | JMA Wireless MX08FRO665-21 | 1    |
|          |                        |          | 3    | Fujitsu TA08025-B605       | 2    |
|          |                        |          | 3    | Fujitsu TA08025-B604       |      |
|          |                        | --       | 1    | Raycap RDIDC-9181-PF-48    | 3    |

Note:

- (1) Proposed Antenna to be installed on the Mount Pipe.
- (2) Proposed Equipment to be installed directly behind the Antenna.
- (3) Proposed Equipment to be installed on the Mount.

**Table 2 - Documents Provided**

| Documents       | Remarks          | Reference        | Source                     |
|-----------------|------------------|------------------|----------------------------|
| SBA Application | Proposed Loading | Date: 09/15/2021 | SBA Network Services, LLC. |
| RFDS            |                  | Date: 08/16/2021 |                            |

## 3) ANALYSIS PROCEDURE

### 3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

### 3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.



6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
  - a) Connection Bolts : ASTM A325
  - b) Steel Pipe : ASTM A53 (GR. 35)
  - c) HSS (Round) : ASTM 500 (GR. B-42)
  - d) HSS (Rectangular) : ASTM 500 (GR. B-46)
  - e) Channel : ASTM A36 (GR. 36)
  - f) Steel Solid Rod : ASTM A36 (GR. 36)
  - g) Steel Plate : ASTM A36 (GR. 36)
  - h) Steel Angle : ASTM A36 (GR. 36)
  - i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

#### 4) ANALYSIS RESULTS

**Table 3 – Mount Component Stresses vs. Capacity**

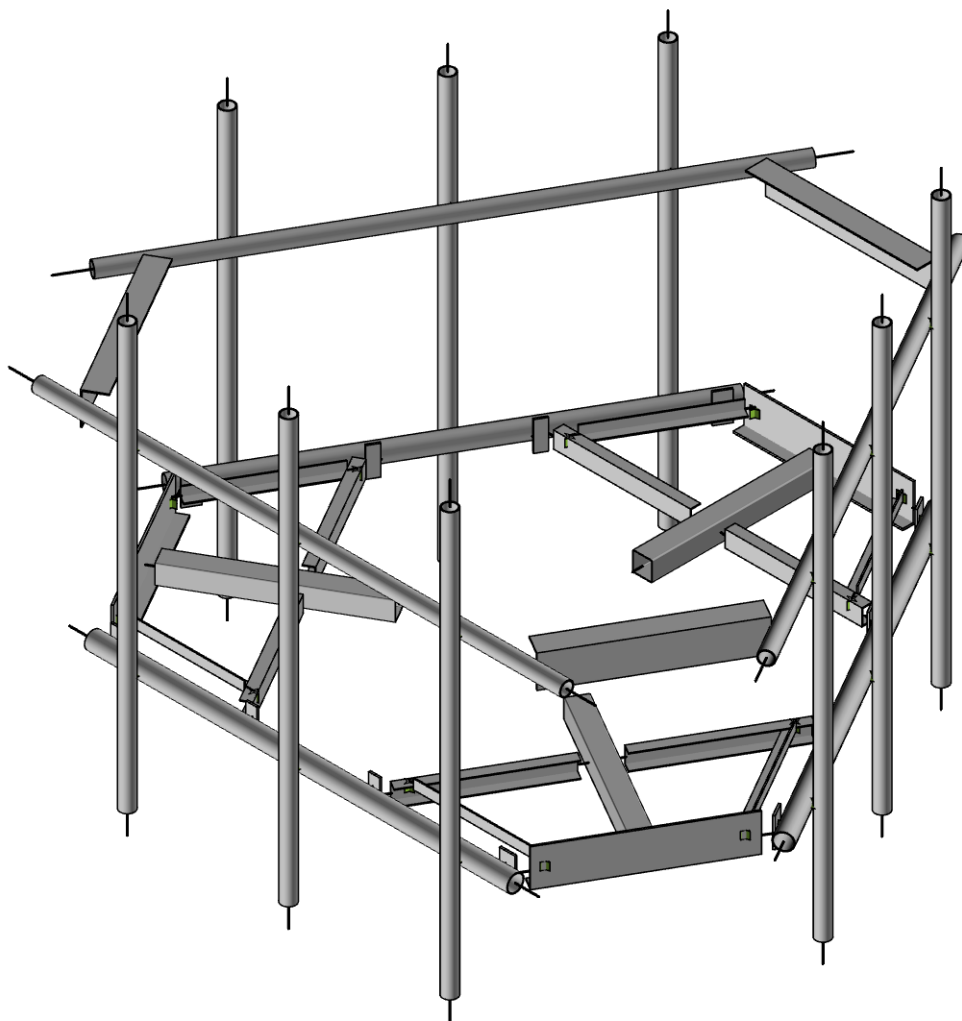
| Notes | Component         | Elevation (ft.) | % Capacity | Pass / Fail |
|-------|-------------------|-----------------|------------|-------------|
| -     | Main Horizontals  | 165             | 7.4        | Pass        |
| -     | Support Rails     | 165             | 12.5       | Pass        |
| -     | Support Tubes     | 165             | 49.5       | Pass        |
| -     | Support Channels  | 165             | 34.1       | Pass        |
| -     | Support Angles    | 165             | 31.6       | Pass        |
| -     | Mount Pipes       | 165             | 14.1       | Pass        |
| -     | Connection Plates | 165             | 19.0       | Pass        |
| -     | Connection Angles | 165             | 21.1       | Pass        |

#### 5) RECOMMENDATIONS

The Commscope Platform mounts, Part #MC-PK8-DSH has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

## APPENDIX A

(RISA-3D Output)



Envelope Only Solution

B+T Group

APK

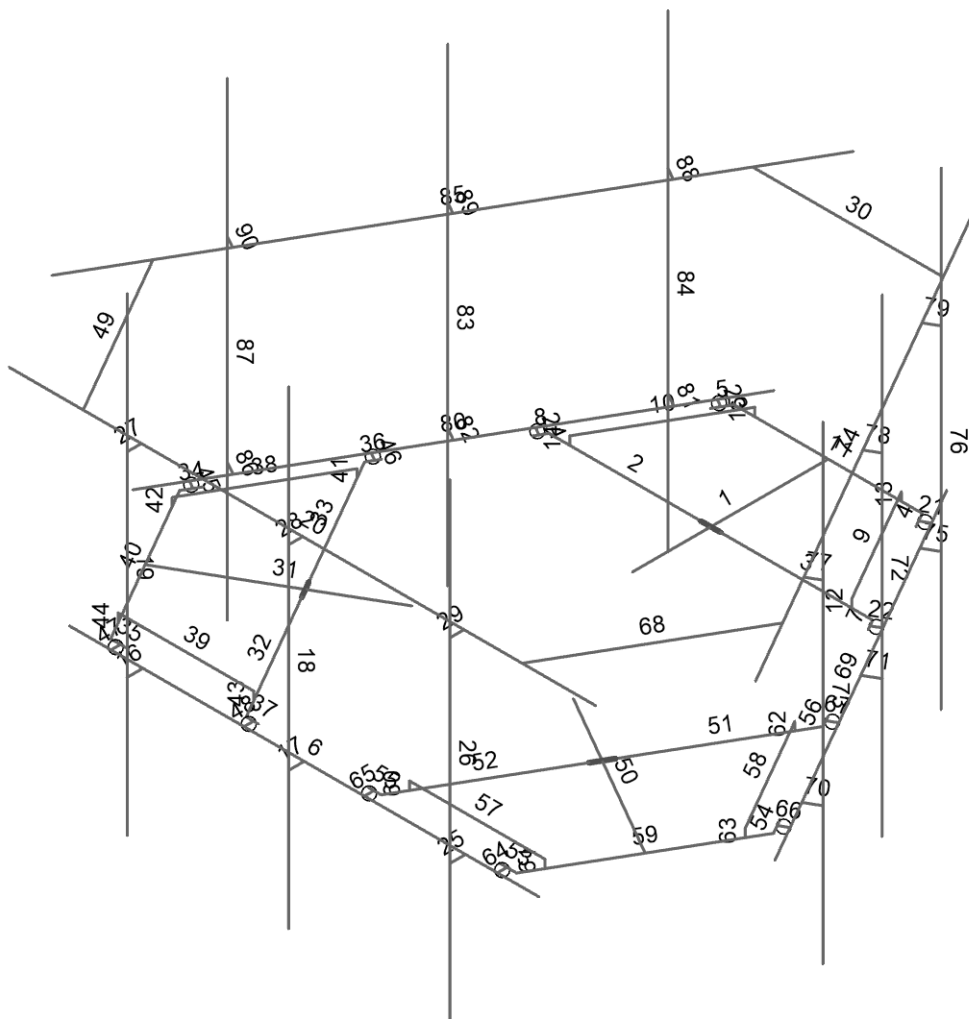
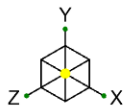
156305.003.01

CT00680-S - Putnam

SK-1

Jan 09, 2023

156305\_003\_01\_Putnam\_CT.R3D



Envelope Only Solution

B+T Group

APK

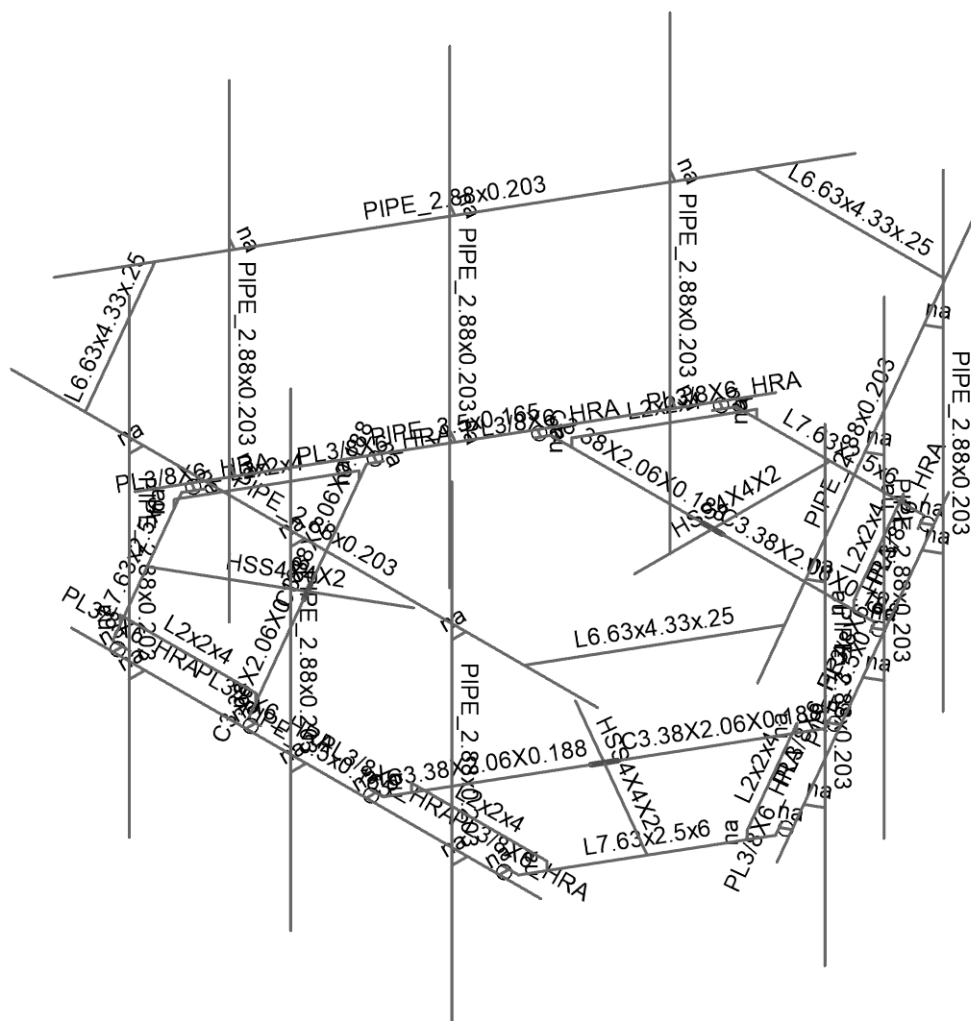
156305.003.01

CT00680-S - Putnam

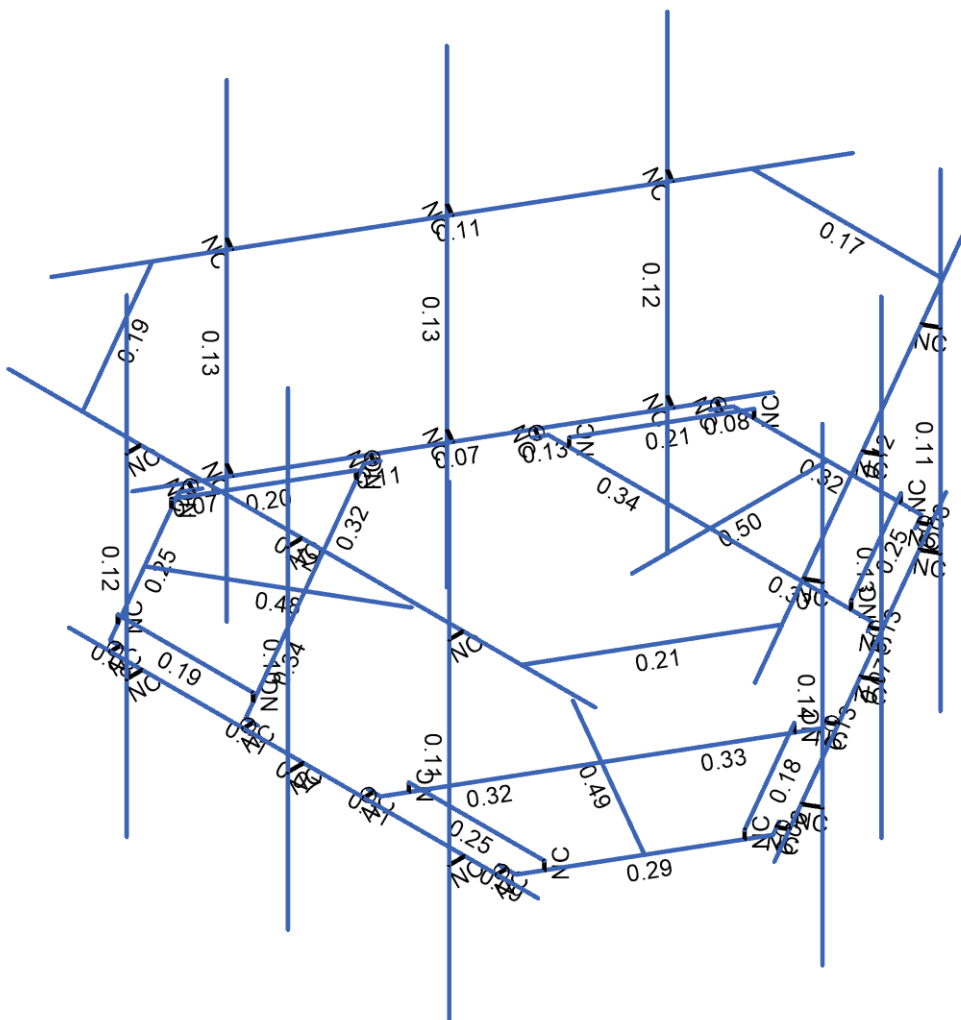
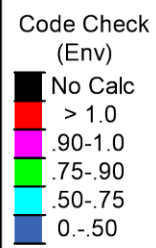
SK-2

Jan 09, 2023

156305\_003\_01\_Putnam\_CT.R3D

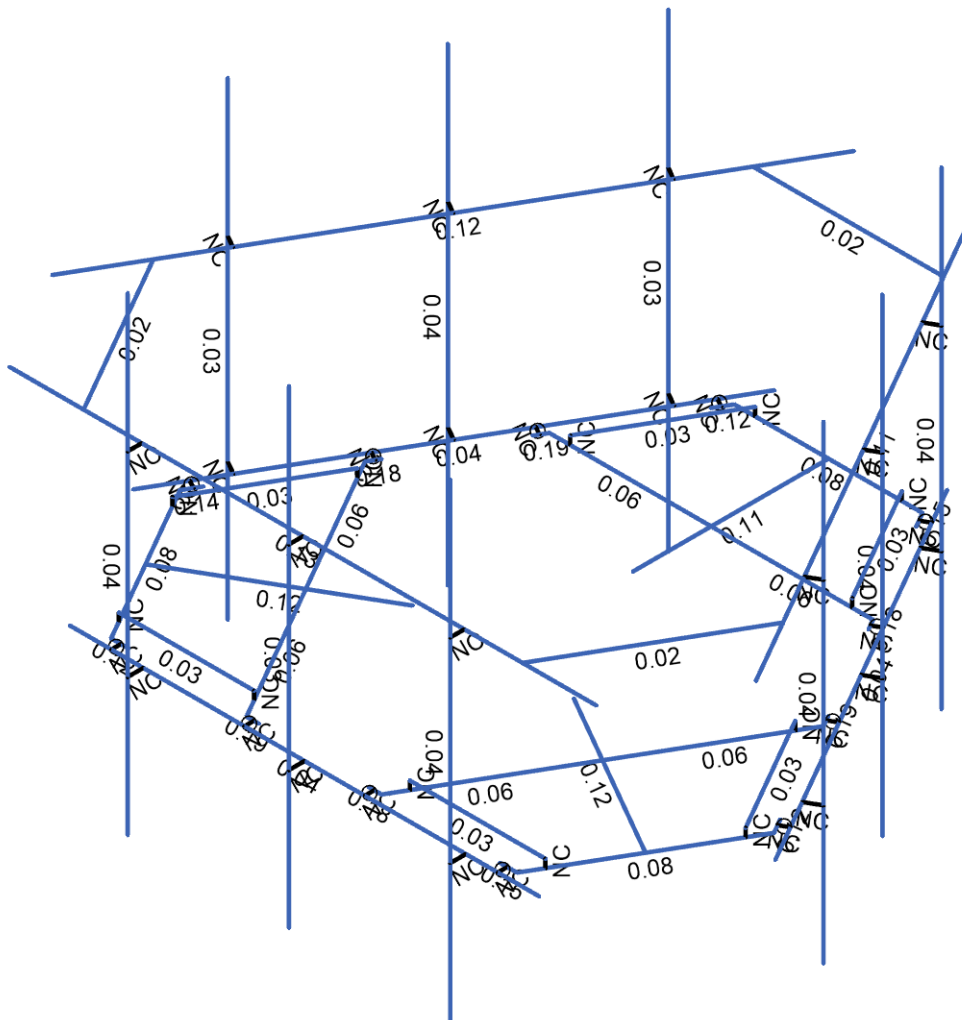
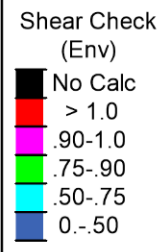


156305\_003\_01\_Putnam\_CT.R3D



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

|               |                    |                             |
|---------------|--------------------|-----------------------------|
| B+T Group     | CT00680-S - Putnam | SK-1                        |
| APK           |                    | Jan 09, 2023                |
| 156305.003.01 |                    | 156305_003_01_Putnam_CT.R3D |



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group

APK

156305.003.01

CT00680-S - Putnam

SK-2

Jan 09, 2023

156305\_003\_01\_Putnam\_CT.R3D



### Node Coordinates

|    | Label | X [ft]    | Y [ft]    | Z [ft]    | Detach From Diaphragm |
|----|-------|-----------|-----------|-----------|-----------------------|
| 1  | 1     | 0         | 0         | -1.588233 |                       |
| 2  | 2     | 0         | 0         | -4.921566 |                       |
| 3  | 3     | 0         | 0         | -2.921566 |                       |
| 4  | 4     | 2.758333  | 0         | -2.921566 |                       |
| 5  | 5     | -2.758333 | 0         | -2.921566 |                       |
| 6  | 6     | -1.603633 | 0         | -4.921566 |                       |
| 7  | 7     | 1.603633  | 0         | -4.921566 |                       |
| 8  | 8     | 1.749466  | 0         | -4.668976 |                       |
| 9  | 9     | -1.749466 | 0         | -4.668976 |                       |
| 10 | 10    | 1.686966  | 0         | -4.777229 |                       |
| 11 | 11    | 1.82679   | 0         | -4.857956 |                       |
| 12 | 12    | -1.686966 | 0         | -4.777229 |                       |
| 13 | 13    | -1.82679  | 0         | -4.857956 |                       |
| 14 | 14    | -3.999998 | 0         | 4.011025  |                       |
| 15 | 15    | 3.999998  | 0         | 4.011025  |                       |
| 16 | 16    | 2.8625    | 0         | -2.741144 |                       |
| 17 | 17    | 2.820833  | 0         | -2.813314 |                       |
| 18 | 18    | 2.960657  | 0         | -2.894042 |                       |
| 19 | 19    | -2.8625   | 0         | -2.741144 |                       |
| 20 | 20    | -2.820833 | 0         | -2.813314 |                       |
| 21 | 21    | -2.960657 | 0         | -2.894042 |                       |
| 22 | 22    | -1.25     | 0.140833  | -4.921566 |                       |
| 23 | 23    | -2.404701 | 0.140833  | -2.921566 |                       |
| 24 | 24    | 2.404701  | 0.140833  | -2.921566 |                       |
| 25 | 25    | 1.25      | 0.140833  | -4.921566 |                       |
| 26 | 26    | -1.25     | 0         | -4.921566 |                       |
| 27 | 27    | -2.404701 | 0         | -2.921566 |                       |
| 28 | 28    | 2.404701  | 0         | -2.921566 |                       |
| 29 | 29    | 1.25      | 0         | -4.921566 |                       |
| 30 | 30    | -2.749998 | 0         | 4.011025  |                       |
| 31 | 31    | 0.000002  | 0         | 4.011025  |                       |
| 32 | 32    | -2.749998 | 0         | 4.276858  |                       |
| 33 | 33    | 0.000002  | 0         | 4.276858  |                       |
| 34 | 34    | -2.749998 | 5.666663  | 4.276858  |                       |
| 35 | 35    | 0.000002  | 5.666663  | 4.276858  |                       |
| 36 | 36    | -2.749998 | -2.333337 | 4.276858  |                       |
| 37 | 37    | 0.000002  | -2.333337 | 4.276858  |                       |
| 38 | 38    | -5        | 3.33333   | 4.036858  |                       |
| 39 | 39    | 5         | 3.33333   | 4.036858  |                       |
| 40 | 40    | 2.749998  | 0         | 4.011025  |                       |
| 41 | 41    | 2.749998  | 0         | 4.276858  |                       |
| 42 | 42    | 2.749998  | 5.666663  | 4.276858  |                       |
| 43 | 43    | 2.749998  | -2.333337 | 4.276858  |                       |
| 44 | 44    | 0         | 0         | 0         |                       |
| 45 | 45    | -2.749998 | 3.3333    | 4.276858  |                       |
| 46 | 46    | 0.000002  | 3.3333    | 4.276858  |                       |
| 47 | 47    | 2.749998  | 3.3333    | 4.276858  |                       |
| 48 | 48    | -2.749998 | 3.33333   | 4.036858  |                       |
| 49 | 49    | 0.000002  | 3.33333   | 4.036858  |                       |
| 50 | 50    | 2.749998  | 3.33333   | 4.036858  |                       |
| 51 | 51    | -1.625001 | 3.33333   | -5.259132 |                       |
| 52 | 52    | 1.625001  | 3.33333   | -5.259132 |                       |
| 53 | 59    | -1.37545  | 0         | 0.794117  |                       |
| 54 | 60    | -4.262201 | 0         | 2.460783  |                       |
| 55 | 61    | -2.530151 | 0         | 1.460783  |                       |

**Node Coordinates (Continued)**

|     | Label | X [ft]    | Y [ft]   | Z [ft]    | Detach From Diaphragm |
|-----|-------|-----------|----------|-----------|-----------------------|
| 56  | 62    | -3.909317 | 0        | -0.928004 |                       |
| 57  | 63    | -1.150984 | 0        | 3.84957   |                       |
| 58  | 64    | -3.460385 | 0        | 3.84957   |                       |
| 59  | 65    | -5.064018 | 0        | 1.071996  |                       |
| 60  | 66    | -4.918185 | 0        | 0.819406  |                       |
| 61  | 67    | -3.168718 | 0        | 3.84957   |                       |
| 62  | 68    | -4.980685 | 0        | 0.927659  |                       |
| 63  | 69    | -5.120509 | 0        | 0.846931  |                       |
| 64  | 70    | -3.293718 | 0        | 3.84957   |                       |
| 65  | 71    | -3.293718 | 0        | 4.011025  |                       |
| 66  | 72    | -3.805151 | 0        | -1.108426 |                       |
| 67  | 73    | -3.846818 | 0        | -1.036256 |                       |
| 68  | 74    | -3.986642 | 0        | -1.116983 |                       |
| 69  | 75    | -0.942651 | 0        | 3.84957   |                       |
| 70  | 76    | -1.025985 | 0        | 3.84957   |                       |
| 71  | 77A   | -1.025985 | 0        | 4.011025  |                       |
| 72  | 78    | -3.637201 | 0.140833 | 3.543315  |                       |
| 73  | 79    | -1.3278   | 0.140833 | 3.543315  |                       |
| 74  | 80    | -3.732501 | 0.140833 | -0.621749 |                       |
| 75  | 81    | -4.887201 | 0.140833 | 1.378251  |                       |
| 76  | 82    | -3.637201 | 0        | 3.543315  |                       |
| 77  | 83    | -1.3278   | 0        | 3.543315  |                       |
| 78  | 84    | -3.732501 | 0        | -0.621749 |                       |
| 79  | 85    | -4.887201 | 0        | 1.378251  |                       |
| 80  | 86A   | -3.742042 | 3.33333  | 4.036858  |                       |
| 81  | 87    | -5.367043 | 3.33333  | 1.222274  |                       |
| 82  | 88    | 1.37545   | 0        | 0.794117  |                       |
| 83  | 89    | 4.262201  | 0        | 2.460783  |                       |
| 84  | 90    | 2.530151  | 0        | 1.460783  |                       |
| 85  | 91    | 1.150984  | 0        | 3.84957   |                       |
| 86  | 92    | 3.909317  | 0        | -0.928004 |                       |
| 87  | 93    | 5.064018  | 0        | 1.071996  |                       |
| 88  | 94    | 3.460385  | 0        | 3.84957   |                       |
| 89  | 95    | 3.168718  | 0        | 3.84957   |                       |
| 90  | 96    | 4.918185  | 0        | 0.819406  |                       |
| 91  | 97    | 3.293718  | 0        | 3.84957   |                       |
| 92  | 98A   | 3.293718  | 0        | 4.011025  |                       |
| 93  | 99    | 4.980685  | 0        | 0.927659  |                       |
| 94  | 100   | 5.120509  | 0        | 0.846931  |                       |
| 95  | 101   | 0.942651  | 0        | 3.84957   |                       |
| 96  | 102   | 1.025985  | 0        | 3.84957   |                       |
| 97  | 103A  | 1.025985  | 0        | 4.011025  |                       |
| 98  | 104   | 3.805151  | 0        | -1.108426 |                       |
| 99  | 105   | 3.846818  | 0        | -1.036256 |                       |
| 100 | 106   | 3.986642  | 0        | -1.116983 |                       |
| 101 | 107   | 4.887201  | 0.140833 | 1.378251  |                       |
| 102 | 108   | 3.732501  | 0.140833 | -0.621749 |                       |
| 103 | 109   | 1.3278    | 0.140833 | 3.543315  |                       |
| 104 | 110   | 3.637201  | 0.140833 | 3.543315  |                       |
| 105 | 111   | 4.887201  | 0        | 1.378251  |                       |
| 106 | 112   | 3.732501  | 0        | -0.621749 |                       |
| 107 | 113   | 1.3278    | 0        | 3.543315  |                       |
| 108 | 114   | 3.637201  | 0        | 3.543315  |                       |
| 109 | 115   | 5.367043  | 3.33333  | 1.222274  |                       |
| 110 | 116A  | 3.742042  | 3.33333  | 4.036858  |                       |

### Node Coordinates (Continued)

|     | Label | X [ft]    | Y [ft]    | Z [ft]    | Detach From Diaphragm |
|-----|-------|-----------|-----------|-----------|-----------------------|
| 111 | 111A  | 5.473648  | 0         | 1.458588  |                       |
| 112 | 112A  | 1.47365   | 0         | -5.469612 |                       |
| 113 | 113A  | 4.848648  | 0         | 0.376056  |                       |
| 114 | 114A  | 3.473648  | 0         | -2.005514 |                       |
| 115 | 115A  | 5.078866  | 0         | 0.243139  |                       |
| 116 | 116   | 3.703866  | 0         | -2.138431 |                       |
| 117 | 117   | 5.078866  | 5.666663  | 0.243139  |                       |
| 118 | 118   | 3.703866  | 5.666663  | -2.138431 |                       |
| 119 | 119   | 5.078866  | -2.333337 | 0.243139  |                       |
| 120 | 120   | 3.703866  | -2.333337 | -2.138431 |                       |
| 121 | 121   | 5.996022  | 3.33333   | 2.311698  |                       |
| 122 | 122   | 0.996022  | 3.33333   | -6.348556 |                       |
| 123 | 123   | 2.09865   | 0         | -4.387081 |                       |
| 124 | 124   | 2.328868  | 0         | -4.519997 |                       |
| 125 | 125   | 2.328868  | 5.666663  | -4.519997 |                       |
| 126 | 126   | 2.328868  | -2.333337 | -4.519997 |                       |
| 127 | 127   | 5.078866  | 3.3333    | 0.243139  |                       |
| 128 | 128   | 3.703866  | 3.3333    | -2.138431 |                       |
| 129 | 129   | 2.328868  | 3.3333    | -4.519997 |                       |
| 130 | 130   | 4.871021  | 3.33333   | 0.363139  |                       |
| 131 | 131   | 3.496021  | 3.33333   | -2.018431 |                       |
| 132 | 132   | 2.121023  | 3.33333   | -4.399997 |                       |
| 133 | 133   | -1.47365  | 0         | -5.469612 |                       |
| 134 | 134   | -5.473648 | 0         | 1.458588  |                       |
| 135 | 135   | -2.09865  | 0         | -4.387081 |                       |
| 136 | 136   | -3.47365  | 0         | -2.005511 |                       |
| 137 | 137   | -2.328868 | 0         | -4.519997 |                       |
| 138 | 138   | -3.703868 | 0         | -2.138427 |                       |
| 139 | 139   | -2.328868 | 5.666663  | -4.519997 |                       |
| 140 | 140   | -3.703868 | 5.666663  | -2.138427 |                       |
| 141 | 141   | -2.328868 | -2.333337 | -4.519997 |                       |
| 142 | 142   | -3.703868 | -2.333337 | -2.138427 |                       |
| 143 | 143   | -0.996022 | 3.33333   | -6.348556 |                       |
| 144 | 144   | -5.996022 | 3.33333   | 2.311698  |                       |
| 145 | 145   | -4.848648 | 0         | 0.376056  |                       |
| 146 | 146   | -5.078866 | 0         | 0.243139  |                       |
| 147 | 147   | -5.078866 | 5.666663  | 0.243139  |                       |
| 148 | 148   | -5.078866 | -2.333337 | 0.243139  |                       |
| 149 | 149   | -2.328868 | 3.3333    | -4.519997 |                       |
| 150 | 150   | -3.703868 | 3.3333    | -2.138427 |                       |
| 151 | 151   | -5.078866 | 3.3333    | 0.243139  |                       |
| 152 | 152   | -2.121023 | 3.33333   | -4.399997 |                       |
| 153 | 153   | -3.496023 | 3.33333   | -2.018427 |                       |
| 154 | 154   | -4.871021 | 3.33333   | 0.363139  |                       |

### Node Boundary Conditions

|   | Node Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot [k-ft/rad] | Y Rot [k-ft/rad] | Z Rot [k-ft/rad] |
|---|------------|----------|----------|----------|------------------|------------------|------------------|
| 1 | 1          | Reaction | Reaction | Reaction | Reaction         | Reaction         | Reaction         |
| 2 | 2          |          |          |          |                  |                  |                  |
| 3 | 3          |          |          |          |                  |                  |                  |
| 4 | 4          |          |          |          |                  |                  |                  |
| 5 | 5          |          |          |          |                  |                  |                  |
| 6 | 16         |          |          |          |                  |                  |                  |
| 7 | 17         |          |          |          |                  |                  |                  |
| 8 | 19         |          |          |          |                  |                  |                  |

### Node Boundary Conditions (Continued)

|    | Node Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot [k-ft/rad] | Y Rot [k-ft/rad] | Z Rot [k-ft/rad] |
|----|------------|----------|----------|----------|------------------|------------------|------------------|
| 9  | 20         |          |          |          |                  |                  |                  |
| 10 | 22         |          |          |          |                  |                  |                  |
| 11 | 25         |          |          |          |                  |                  |                  |
| 12 | 26         |          |          |          |                  |                  |                  |
| 13 | 29         |          |          |          |                  |                  |                  |
| 14 | 59         | Reaction | Reaction | Reaction | Reaction         | Reaction         | Reaction         |
| 15 | 60         |          |          |          |                  |                  |                  |
| 16 | 61         |          |          |          |                  |                  |                  |
| 17 | 62         |          |          |          |                  |                  |                  |
| 18 | 63         |          |          |          |                  |                  |                  |
| 19 | 72         |          |          |          |                  |                  |                  |
| 20 | 73         |          |          |          |                  |                  |                  |
| 21 | 75         |          |          |          |                  |                  |                  |
| 22 | 76         |          |          |          |                  |                  |                  |
| 23 | 78         |          |          |          |                  |                  |                  |
| 24 | 81         |          |          |          |                  |                  |                  |
| 25 | 82         |          |          |          |                  |                  |                  |
| 26 | 85         |          |          |          |                  |                  |                  |
| 27 | 88         | Reaction | Reaction | Reaction | Reaction         | Reaction         | Reaction         |
| 28 | 89         |          |          |          |                  |                  |                  |
| 29 | 90         |          |          |          |                  |                  |                  |
| 30 | 91         |          |          |          |                  |                  |                  |
| 31 | 92         |          |          |          |                  |                  |                  |
| 32 | 101        |          |          |          |                  |                  |                  |
| 33 | 102        |          |          |          |                  |                  |                  |
| 34 | 104        |          |          |          |                  |                  |                  |
| 35 | 105        |          |          |          |                  |                  |                  |
| 36 | 107        |          |          |          |                  |                  |                  |
| 37 | 110        |          |          |          |                  |                  |                  |
| 38 | 111        |          |          |          |                  |                  |                  |
| 39 | 114        |          |          |          |                  |                  |                  |

### Hot Rolled Steel Properties

|   | Label          | E [ksi] | G [ksi] | Nu  | Therm. Coeff. [ $10^{-6}/^{\circ}\text{F}$ ] | Density [k/ft <sup>3</sup> ] | Yield [ksi] | Ry  | Fu [ksi] | Rt  |
|---|----------------|---------|---------|-----|----------------------------------------------|------------------------------|-------------|-----|----------|-----|
| 1 | A992           | 29000   | 11154   | 0.3 | 0.65                                         | 0.49                         | 50          | 1.1 | 65       | 1.1 |
| 2 | A36 Gr.36      | 29000   | 11154   | 0.3 | 0.65                                         | 0.49                         | 36          | 1.5 | 58       | 1.2 |
| 3 | A572 Gr.50     | 29000   | 11154   | 0.3 | 0.65                                         | 0.49                         | 50          | 1.1 | 65       | 1.1 |
| 4 | A500 Gr.B RND  | 29000   | 11154   | 0.3 | 0.65                                         | 0.527                        | 42          | 1.4 | 58       | 1.3 |
| 5 | A500 Gr.B Rect | 29000   | 11154   | 0.3 | 0.65                                         | 0.527                        | 46          | 1.4 | 58       | 1.3 |
| 6 | A53 Gr.B       | 29000   | 11154   | 0.3 | 0.65                                         | 0.49                         | 35          | 1.6 | 60       | 1.2 |
| 7 | A1085          | 29000   | 11154   | 0.3 | 0.65                                         | 0.49                         | 50          | 1.4 | 65       | 1.3 |
| 8 | A500 Gr.C      | 29000   | 11154   | 0.3 | 0.65                                         | 0.49                         | 46          | 1.4 | 62       | 1.3 |

### Cold Formed Steel Properties

|   | Label          | E [ksi] | G [ksi] | Nu  | Therm. Coeff. [ $10^{-6}/^{\circ}\text{F}$ ] | Density [k/ft <sup>3</sup> ] | Yield [ksi] | Fu [ksi] |
|---|----------------|---------|---------|-----|----------------------------------------------|------------------------------|-------------|----------|
| 1 | A653 SS Gr33   | 29500   | 11346   | 0.3 | 0.65                                         | 0.49                         | 33          | 45       |
| 2 | A653 SS Gr50/1 | 29500   | 11346   | 0.3 | 0.65                                         | 0.49                         | 50          | 65       |

### Hot Rolled Steel Section Sets

|   | Label | Shape           | Type | Design List | Material  | Design Rule | Area [in <sup>2</sup> ] | Iyy [in <sup>4</sup> ] | Izz [in <sup>4</sup> ] | J [in <sup>4</sup> ] |
|---|-------|-----------------|------|-------------|-----------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 1 | MF-H1 | PIPE 3.5x0.165  | Beam | Pipe        | A500 Gr.C | Typical     | 1.729                   | 2.409                  | 2.409                  | 4.819                |
| 2 | MF-H2 | PIPE 2.88x0.203 | Beam | Pipe        | A500 Gr.C | Typical     | 1.707                   | 1.538                  | 1.538                  | 3.076                |

### Hot Rolled Steel Section Sets (Continued)

|   | Label  | Shape            | Type   | Design List  | Material       | Design Rule | Area [in <sup>2</sup> ] | Iyy [in <sup>4</sup> ] | Izz [in <sup>4</sup> ] | J [in <sup>4</sup> ] |
|---|--------|------------------|--------|--------------|----------------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 3 | SF-H1  | HSS4X4X2         | Beam   | Tube         | A500 Gr.B Rect | Typical     | 1.77                    | 4.4                    | 4.4                    | 6.91                 |
| 4 | SF-H2  | C3.38X2.06X0.188 | Beam   | Channel      | A36 Gr.36      | Typical     | 1.339                   | 0.562                  | 2.4                    | 0.015                |
| 5 | SF-H3  | L2x2x4           | Beam   | Single Angle | A36 Gr.36      | Typical     | 0.944                   | 0.346                  | 0.346                  | 0.021                |
| 6 | SF-H4  | L7.63x2.5x6      | Beam   | Single Angle | A36 Gr.36      | Typical     | 3.658                   | 1.307                  | 22.092                 | 0.163                |
| 7 | MF-P1  | PIPE 2.88x0.203  | Column | Pipe         | A500 Gr.C      | Typical     | 1.707                   | 1.538                  | 1.538                  | 3.076                |
| 8 | MF-CP1 | PL3/8X6 HRA      | Beam   | RECT         | A36 Gr.36      | Typical     | 2.28                    | 0.027                  | 6.84                   | 0.105                |
| 9 | MF-H3  | L6.63x4.33x.25   | Beam   | Single Angle | A36 Gr.36      | Typical     | 2.678                   | 4.383                  | 12.502                 | 0.054                |

### Cold Formed Steel Section Sets

|   | Label | Shape       | Type | Design List | Material     | Design Rule | Area [in <sup>2</sup> ] | Iyy [in <sup>4</sup> ] | Izz [in <sup>4</sup> ] | J [in <sup>4</sup> ] |
|---|-------|-------------|------|-------------|--------------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 1 | CF1   | 8CU1.25X057 | Beam | None        | A653 SS Gr33 | Typical     | 0.581                   | 0.057                  | 4.41                   | 0.00063              |

### Member Primary Data

|    | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type   | Design List  | Material       | Design Rule |
|----|-------|--------|--------|-------------|---------------|--------|--------------|----------------|-------------|
| 1  | 1     | 1      | 2      |             | SF-H1         | Beam   | Tube         | A500 Gr.B Rect | Typical     |
| 2  | 2     | 5      | 3      | 180         | SF-H2         | Beam   | Channel      | A36 Gr.36      | Typical     |
| 3  | 3     | 3      | 4      | 180         | SF-H2         | Beam   | Channel      | A36 Gr.36      | Typical     |
| 4  | 4     | 7      | 8      |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 5  | 5     | 6      | 9      |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 6  | 6     | 14     | 15     |             | MF-H1         | Beam   | Pipe         | A500 Gr.C      | Typical     |
| 7  | 7     | 16     | 4      |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 8  | 8     | 5      | 19     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 9  | 9     | 25     | 24     |             | SF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 10 | 10    | 23     | 22     |             | SF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 11 | 11    | 6      | 7      |             | SF-H4         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 12 | 12    | 28     | 24     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 13 | 13    | 29     | 25     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 14 | 14    | 27     | 23     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 15 | 15    | 26     | 22     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 16 | 16    | 32     | 30     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 17 | 17    | 33     | 31     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 18 | 18    | 35     | 37     |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 19 | 19    | 34     | 36     |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 20 | 20    | 38     | 39     |             | MF-H2         | Beam   | Pipe         | A500 Gr.C      | Typical     |
| 21 | 21    | 11     | 10     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 22 | 22    | 18     | 17     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 23 | 23    | 13     | 12     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 24 | 24    | 21     | 20     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 25 | 25    | 41     | 40     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 26 | 26    | 42     | 43     |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 27 | 27    | 45     | 48     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 28 | 28    | 46     | 49     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 29 | 29    | 47     | 50     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 30 | 30    | 52     | 51     | 180         | MF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 31 | 31    | 59     | 60     |             | SF-H1         | Beam   | Tube         | A500 Gr.B Rect | Typical     |
| 32 | 32    | 63     | 61     | 180         | SF-H2         | Beam   | Channel      | A36 Gr.36      | Typical     |
| 33 | 33    | 61     | 62     | 180         | SF-H2         | Beam   | Channel      | A36 Gr.36      | Typical     |
| 34 | 34    | 65     | 66     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 35 | 35    | 64     | 67     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 36 | 36    | 72     | 62     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 37 | 37    | 63     | 75     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 38 | 38    | 81     | 80     |             | SF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 39 | 39    | 79     | 78     |             | SF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |

**Member Primary Data (Continued)**

|    | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type   | Design List  | Material       | Design Rule |
|----|-------|--------|--------|-------------|---------------|--------|--------------|----------------|-------------|
| 40 | 40    | 64     | 65     |             | SF-H4         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 41 | 41    | 84     | 80     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 42 | 42    | 85     | 81     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 43 | 43    | 83     | 79     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 44 | 44    | 82     | 78     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 45 | 45    | 69     | 68     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 46 | 46    | 74     | 73     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 47 | 47    | 71     | 70     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 48 | 48    | 77A    | 76     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 49 | 49    | 87     | 86A    | 180         | MF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 50 | 50    | 88     | 89     |             | SF-H1         | Beam   | Tube         | A500 Gr.B Rect | Typical     |
| 51 | 51    | 92     | 90     | 180         | SF-H2         | Beam   | Channel      | A36 Gr.36      | Typical     |
| 52 | 52    | 90     | 91     | 180         | SF-H2         | Beam   | Channel      | A36 Gr.36      | Typical     |
| 53 | 53    | 94     | 95     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 54 | 54    | 93     | 96     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 55 | 55    | 101    | 91     |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 56 | 56    | 92     | 104    |             | MF-CP1        | Beam   | RECT         | A36 Gr.36      | Typical     |
| 57 | 57    | 110    | 109    |             | SF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 58 | 58    | 108    | 107    |             | SF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 59 | 59    | 93     | 94     |             | SF-H4         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 60 | 60    | 113    | 109    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 61 | 61    | 114    | 110    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 62 | 62    | 112    | 108    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 63 | 63    | 111    | 107    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 64 | 64    | 98A    | 97     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 65 | 65    | 103A   | 102    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 66 | 66    | 100    | 99     |             | RIGID         | None   | None         | RIGID          | Typical     |
| 67 | 67    | 106    | 105    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 68 | 68    | 116A   | 115    | 180         | MF-H3         | Beam   | Single Angle | A36 Gr.36      | Typical     |
| 69 | 69    | 111A   | 112A   |             | MF-H1         | Beam   | Pipe         | A500 Gr.C      | Typical     |
| 70 | 70    | 115A   | 113A   |             | RIGID         | None   | None         | RIGID          | Typical     |
| 71 | 71    | 116    | 114A   |             | RIGID         | None   | None         | RIGID          | Typical     |
| 72 | 72    | 118    | 120    |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 73 | 73    | 117    | 119    |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 74 | 74    | 121    | 122    |             | MF-H2         | Beam   | Pipe         | A500 Gr.C      | Typical     |
| 75 | 75    | 124    | 123    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 76 | 76    | 125    | 126    |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 77 | 77    | 127    | 130    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 78 | 78    | 128    | 131    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 79 | 79    | 129    | 132    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 80 | 80    | 133    | 134    |             | MF-H1         | Beam   | Pipe         | A500 Gr.C      | Typical     |
| 81 | 81    | 137    | 135    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 82 | 82    | 138    | 136    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 83 | 83    | 140    | 142    |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 84 | 84    | 139    | 141    |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 85 | 85    | 143    | 144    |             | MF-H2         | Beam   | Pipe         | A500 Gr.C      | Typical     |
| 86 | 86    | 146    | 145    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 87 | 87    | 147    | 148    |             | MF-P1         | Column | Pipe         | A500 Gr.C      | Typical     |
| 88 | 88    | 149    | 152    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 89 | 89    | 150    | 153    |             | RIGID         | None   | None         | RIGID          | Typical     |
| 90 | 90    | 151    | 154    |             | RIGID         | None   | None         | RIGID          | Typical     |

### Member Advanced Data

|    | Label | I Release | I Offset [in] | J Offset [in] | Physical | Deflection Ratio Options | Seismic DR |
|----|-------|-----------|---------------|---------------|----------|--------------------------|------------|
| 1  | 1     |           |               |               | Yes      | N/A                      | None       |
| 2  | 2     |           |               | 2             | Yes      | N/A                      | None       |
| 3  | 3     |           | 2             |               | Yes      | N/A                      | None       |
| 4  | 4     |           |               |               | Yes      | Default                  | None       |
| 5  | 5     |           |               |               | Yes      | Default                  | None       |
| 6  | 6     |           |               |               | Yes      | N/A                      | None       |
| 7  | 7     |           |               |               | Yes      | Default                  | None       |
| 8  | 8     |           |               |               | Yes      | Default                  | None       |
| 9  | 9     |           |               |               | Yes      | N/A                      | None       |
| 10 | 10    |           |               |               | Yes      | N/A                      | None       |
| 11 | 11    |           |               |               | Yes      | N/A                      | None       |
| 12 | 12    |           |               |               | Yes      | ** NA **                 | None       |
| 13 | 13    |           |               |               | Yes      | ** NA **                 | None       |
| 14 | 14    |           |               |               | Yes      | ** NA **                 | None       |
| 15 | 15    |           |               |               | Yes      | ** NA **                 | None       |
| 16 | 16    |           |               |               | Yes      | ** NA **                 | None       |
| 17 | 17    |           |               |               | Yes      | ** NA **                 | None       |
| 18 | 18    |           |               |               | Yes      | ** NA **                 | None       |
| 19 | 19    |           |               |               | Yes      | ** NA **                 | None       |
| 20 | 20    |           |               |               | Yes      | N/A                      | None       |
| 21 | 21    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 22 | 22    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 23 | 23    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 24 | 24    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 25 | 25    |           |               |               | Yes      | ** NA **                 | None       |
| 26 | 26    |           |               |               | Yes      | ** NA **                 | None       |
| 27 | 27    |           |               |               | Yes      | ** NA **                 | None       |
| 28 | 28    |           |               |               | Yes      | ** NA **                 | None       |
| 29 | 29    |           |               |               | Yes      | ** NA **                 | None       |
| 30 | 30    |           |               |               | Yes      | Default                  | None       |
| 31 | 31    |           |               |               | Yes      | N/A                      | None       |
| 32 | 32    |           |               | 2             | Yes      | N/A                      | None       |
| 33 | 33    |           | 2             |               | Yes      | N/A                      | None       |
| 34 | 34    |           |               |               | Yes      | Default                  | None       |
| 35 | 35    |           |               |               | Yes      | Default                  | None       |
| 36 | 36    |           |               |               | Yes      | Default                  | None       |
| 37 | 37    |           |               |               | Yes      | Default                  | None       |
| 38 | 38    |           |               |               | Yes      | N/A                      | None       |
| 39 | 39    |           |               |               | Yes      | N/A                      | None       |
| 40 | 40    |           |               |               | Yes      | N/A                      | None       |
| 41 | 41    |           |               |               | Yes      | ** NA **                 | None       |
| 42 | 42    |           |               |               | Yes      | ** NA **                 | None       |
| 43 | 43    |           |               |               | Yes      | ** NA **                 | None       |
| 44 | 44    |           |               |               | Yes      | ** NA **                 | None       |
| 45 | 45    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 46 | 46    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 47 | 47    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 48 | 48    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 49 | 49    |           |               |               | Yes      | Default                  | None       |
| 50 | 50    |           |               |               | Yes      | N/A                      | None       |
| 51 | 51    |           |               | 2             | Yes      | N/A                      | None       |
| 52 | 52    |           | 2             |               | Yes      | N/A                      | None       |
| 53 | 53    |           |               |               | Yes      | Default                  | None       |
| 54 | 54    |           |               |               | Yes      | Default                  | None       |
| 55 | 55    |           |               |               | Yes      | Default                  | None       |



### Member Advanced Data (Continued)

|    | Label | I Release | I Offset [in] | J Offset [in] | Physical | Deflection Ratio Options | Seismic DR |
|----|-------|-----------|---------------|---------------|----------|--------------------------|------------|
| 56 | 56    |           |               |               | Yes      | Default                  | None       |
| 57 | 57    |           |               |               | Yes      | N/A                      | None       |
| 58 | 58    |           |               |               | Yes      | N/A                      | None       |
| 59 | 59    |           |               |               | Yes      | N/A                      | None       |
| 60 | 60    |           |               |               | Yes      | ** NA **                 | None       |
| 61 | 61    |           |               |               | Yes      | ** NA **                 | None       |
| 62 | 62    |           |               |               | Yes      | ** NA **                 | None       |
| 63 | 63    |           |               |               | Yes      | ** NA **                 | None       |
| 64 | 64    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 65 | 65    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 66 | 66    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 67 | 67    | OOOOOX    |               |               | Yes      | ** NA **                 | None       |
| 68 | 68    |           |               |               | Yes      | Default                  | None       |
| 69 | 69    |           |               |               | Yes      | N/A                      | None       |
| 70 | 70    |           |               |               | Yes      | ** NA **                 | None       |
| 71 | 71    |           |               |               | Yes      | ** NA **                 | None       |
| 72 | 72    |           |               |               | Yes      | ** NA **                 | None       |
| 73 | 73    |           |               |               | Yes      | ** NA **                 | None       |
| 74 | 74    |           |               |               | Yes      | N/A                      | None       |
| 75 | 75    |           |               |               | Yes      | ** NA **                 | None       |
| 76 | 76    |           |               |               | Yes      | ** NA **                 | None       |
| 77 | 77    |           |               |               | Yes      | ** NA **                 | None       |
| 78 | 78    |           |               |               | Yes      | ** NA **                 | None       |
| 79 | 79    |           |               |               | Yes      | ** NA **                 | None       |
| 80 | 80    |           |               |               | Yes      | N/A                      | None       |
| 81 | 81    |           |               |               | Yes      | ** NA **                 | None       |
| 82 | 82    |           |               |               | Yes      | ** NA **                 | None       |
| 83 | 83    |           |               |               | Yes      | ** NA **                 | None       |
| 84 | 84    |           |               |               | Yes      | ** NA **                 | None       |
| 85 | 85    |           |               |               | Yes      | N/A                      | None       |
| 86 | 86    |           |               |               | Yes      | ** NA **                 | None       |
| 87 | 87    |           |               |               | Yes      | ** NA **                 | None       |
| 88 | 88    |           |               |               | Yes      | ** NA **                 | None       |
| 89 | 89    |           |               |               | Yes      | ** NA **                 | None       |
| 90 | 90    |           |               |               | Yes      | ** NA **                 | None       |

### Hot Rolled Steel Design Parameters

|    | Label | Shape  | Length [ft] | Lcomp top [ft] | Function |
|----|-------|--------|-------------|----------------|----------|
| 1  | 1     | SF-H1  | 3.333       | Lbyy           | Lateral  |
| 2  | 2     | SF-H2  | 2.758       | Lbyy           | Lateral  |
| 3  | 3     | SF-H2  | 2.758       | Lbyy           | Lateral  |
| 4  | 4     | MF-CP1 | 0.292       | Lbyy           | Lateral  |
| 5  | 5     | MF-CP1 | 0.292       | Lbyy           | Lateral  |
| 6  | 6     | MF-H1  | 8           | Lbyy           | Lateral  |
| 7  | 7     | MF-CP1 | 0.208       | Lbyy           | Lateral  |
| 8  | 8     | MF-CP1 | 0.208       | Lbyy           | Lateral  |
| 9  | 9     | SF-H3  | 2.309       | Lbyy           | Lateral  |
| 10 | 10    | SF-H3  | 2.309       | Lbyy           | Lateral  |
| 11 | 11    | SF-H4  | 3.207       | Lbyy           | Lateral  |
| 12 | 18    | MF-P1  | 8           | Lbyy           | Lateral  |
| 13 | 19    | MF-P1  | 8           | Lbyy           | Lateral  |
| 14 | 20    | MF-H2  | 10          | Lbyy           | Lateral  |
| 15 | 26    | MF-P1  | 8           | Lbyy           | Lateral  |
| 16 | 30    | MF-H3  | 3.25        | Lbyy           | Lateral  |
| 17 | 31    | SF-H1  | 3.333       | Lbyy           | Lateral  |

### Hot Rolled Steel Design Parameters (Continued)

|    | Label | Shape  | Length [ft] | Lcomp top [ft] | Function |
|----|-------|--------|-------------|----------------|----------|
| 18 | 32    | SF-H2  | 2.758       | Lbyy           | Lateral  |
| 19 | 33    | SF-H2  | 2.758       | Lbyy           | Lateral  |
| 20 | 34    | MF-CP1 | 0.292       | Lbyy           | Lateral  |
| 21 | 35    | MF-CP1 | 0.292       | Lbyy           | Lateral  |
| 22 | 36    | MF-CP1 | 0.208       | Lbyy           | Lateral  |
| 23 | 37    | MF-CP1 | 0.208       | Lbyy           | Lateral  |
| 24 | 38    | SF-H3  | 2.309       | Lbyy           | Lateral  |
| 25 | 39    | SF-H3  | 2.309       | Lbyy           | Lateral  |
| 26 | 40    | SF-H4  | 3.207       | Lbyy           | Lateral  |
| 27 | 49    | MF-H3  | 3.25        | Lbyy           | Lateral  |
| 28 | 50    | SF-H1  | 3.333       | Lbyy           | Lateral  |
| 29 | 51    | SF-H2  | 2.758       | Lbyy           | Lateral  |
| 30 | 52    | SF-H2  | 2.758       | Lbyy           | Lateral  |
| 31 | 53    | MF-CP1 | 0.292       | Lbyy           | Lateral  |
| 32 | 54    | MF-CP1 | 0.292       | Lbyy           | Lateral  |
| 33 | 55    | MF-CP1 | 0.208       | Lbyy           | Lateral  |
| 34 | 56    | MF-CP1 | 0.208       | Lbyy           | Lateral  |
| 35 | 57    | SF-H3  | 2.309       | Lbyy           | Lateral  |
| 36 | 58    | SF-H3  | 2.309       | Lbyy           | Lateral  |
| 37 | 59    | SF-H4  | 3.207       | Lbyy           | Lateral  |
| 38 | 68    | MF-H3  | 3.25        | Lbyy           | Lateral  |
| 39 | 69    | MF-H1  | 8           | Lbyy           | Lateral  |
| 40 | 72    | MF-P1  | 8           | Lbyy           | Lateral  |
| 41 | 73    | MF-P1  | 8           | Lbyy           | Lateral  |
| 42 | 74    | MF-H2  | 10          | Lbyy           | Lateral  |
| 43 | 76    | MF-P1  | 8           | Lbyy           | Lateral  |
| 44 | 80    | MF-H1  | 8           | Lbyy           | Lateral  |
| 45 | 83    | MF-P1  | 8           | Lbyy           | Lateral  |
| 46 | 84    | MF-P1  | 8           | Lbyy           | Lateral  |
| 47 | 85    | MF-H2  | 10          | Lbyy           | Lateral  |
| 48 | 87    | MF-P1  | 8           | Lbyy           | Lateral  |

### Member Point Loads (BLC 1 : Dead)

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | Y         | -0.032              | %15                |
| 2  | 26           | Y         | -0.032              | %85                |
| 3  | 26           | Y         | -0.075              | %20                |
| 4  | 26           | Y         | -0.064              | %60                |
| 5  | 26           | Y         | 0                   | 0                  |
| 6  | 31           | Y         | -0.022              | %20                |
| 7  | 31           | Y         | 0                   | 0                  |
| 8  | 31           | Y         | 0                   | 0                  |
| 9  | 31           | Y         | 0                   | 0                  |
| 10 | 31           | Y         | 0                   | 0                  |
| 11 | 87           | Y         | -0.032              | %15                |
| 12 | 87           | Y         | -0.032              | %85                |
| 13 | 87           | Y         | -0.075              | %20                |
| 14 | 87           | Y         | -0.064              | %60                |
| 15 | 87           | Y         | 0                   | 0                  |
| 16 | 76           | Y         | -0.032              | %15                |
| 17 | 76           | Y         | -0.032              | %85                |
| 18 | 76           | Y         | -0.075              | %20                |
| 19 | 76           | Y         | -0.064              | %60                |
| 20 | 76           | Y         | 0                   | 0                  |

**Member Point Loads (BLC 2 : 0 Wind - No Ice)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | Z         | -0.157              | %15                |
| 2  | 26           | Z         | -0.157              | %85                |
| 3  | 26           | Z         | -0.069              | %20                |
| 4  | 26           | Z         | -0.069              | %60                |
| 5  | 26           | Z         | 0                   | 0                  |
| 6  | 31           | Z         | -0.071              | %20                |
| 7  | 31           | Z         | 0                   | 0                  |
| 8  | 31           | Z         | 0                   | 0                  |
| 9  | 31           | Z         | 0                   | 0                  |
| 10 | 31           | Z         | 0                   | 0                  |
| 11 | 87           | Z         | -0.157              | %15                |
| 12 | 87           | Z         | -0.157              | %85                |
| 13 | 87           | Z         | -0.069              | %20                |
| 14 | 87           | Z         | -0.069              | %60                |
| 15 | 87           | Z         | 0                   | 0                  |
| 16 | 76           | Z         | -0.157              | %15                |
| 17 | 76           | Z         | -0.157              | %85                |
| 18 | 76           | Z         | -0.069              | %20                |
| 19 | 76           | Z         | -0.069              | %60                |
| 20 | 76           | Z         | 0                   | 0                  |

**Member Point Loads (BLC 3 : 90 Wind - No Ice)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | X         | -0.063              | %15                |
| 2  | 26           | X         | -0.063              | %85                |
| 3  | 26           | X         | -0.042              | %20                |
| 4  | 26           | X         | -0.037              | %60                |
| 5  | 26           | X         | 0                   | 0                  |
| 6  | 31           | X         | -0.04               | %20                |
| 7  | 31           | X         | 0                   | 0                  |
| 8  | 31           | X         | 0                   | 0                  |
| 9  | 31           | X         | 0                   | 0                  |
| 10 | 31           | X         | 0                   | 0                  |
| 11 | 87           | X         | -0.063              | %15                |
| 12 | 87           | X         | -0.063              | %85                |
| 13 | 87           | X         | -0.042              | %20                |
| 14 | 87           | X         | -0.037              | %60                |
| 15 | 87           | X         | 0                   | 0                  |
| 16 | 76           | X         | -0.063              | %15                |
| 17 | 76           | X         | -0.063              | %85                |
| 18 | 76           | X         | -0.042              | %20                |
| 19 | 76           | X         | -0.037              | %60                |
| 20 | 76           | X         | 0                   | 0                  |

**Member Point Loads (BLC 4 : 0 Wind - Ice)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 26           | Z         | -0.031              | %15                |
| 2 | 26           | Z         | -0.031              | %85                |
| 3 | 26           | Z         | -0.012              | %20                |
| 4 | 26           | Z         | -0.012              | %60                |
| 5 | 26           | Z         | 0                   | 0                  |
| 6 | 31           | Z         | -0.012              | %20                |

**Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 7  | 31           | Z         | 0                   | 0                  |
| 8  | 31           | Z         | 0                   | 0                  |
| 9  | 31           | Z         | 0                   | 0                  |
| 10 | 31           | Z         | 0                   | 0                  |
| 11 | 87           | Z         | -0.031              | %15                |
| 12 | 87           | Z         | -0.031              | %85                |
| 13 | 87           | Z         | -0.012              | %20                |
| 14 | 87           | Z         | -0.012              | %60                |
| 15 | 87           | Z         | 0                   | 0                  |
| 16 | 76           | Z         | -0.031              | %15                |
| 17 | 76           | Z         | -0.031              | %85                |
| 18 | 76           | Z         | -0.012              | %20                |
| 19 | 76           | Z         | -0.012              | %60                |
| 20 | 76           | Z         | 0                   | 0                  |

**Member Point Loads (BLC 5 : 90 Wind - Ice)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | X         | -0.014              | %15                |
| 2  | 26           | X         | -0.014              | %85                |
| 3  | 26           | X         | -0.007              | %20                |
| 4  | 26           | X         | -0.006              | %60                |
| 5  | 26           | X         | 0                   | 0                  |
| 6  | 31           | X         | -0.007              | %20                |
| 7  | 31           | X         | 0                   | 0                  |
| 8  | 31           | X         | 0                   | 0                  |
| 9  | 31           | X         | 0                   | 0                  |
| 10 | 31           | X         | 0                   | 0                  |
| 11 | 87           | X         | -0.014              | %15                |
| 12 | 87           | X         | -0.014              | %85                |
| 13 | 87           | X         | -0.007              | %20                |
| 14 | 87           | X         | -0.006              | %60                |
| 15 | 87           | X         | 0                   | 0                  |
| 16 | 76           | X         | -0.014              | %15                |
| 17 | 76           | X         | -0.014              | %85                |
| 18 | 76           | X         | -0.007              | %20                |
| 19 | 76           | X         | -0.006              | %60                |
| 20 | 76           | X         | 0                   | 0                  |

**Member Point Loads (BLC 6 : 0 Wind - Service)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | Z         | -0.01               | %15                |
| 2  | 26           | Z         | -0.01               | %85                |
| 3  | 26           | Z         | -0.004              | %20                |
| 4  | 26           | Z         | -0.004              | %60                |
| 5  | 26           | Z         | 0                   | 0                  |
| 6  | 31           | Z         | -0.004              | %20                |
| 7  | 31           | Z         | 0                   | 0                  |
| 8  | 31           | Z         | 0                   | 0                  |
| 9  | 31           | Z         | 0                   | 0                  |
| 10 | 31           | Z         | 0                   | 0                  |
| 11 | 87           | Z         | -0.01               | %15                |
| 12 | 87           | Z         | -0.01               | %85                |
| 13 | 87           | Z         | -0.004              | %20                |

**Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 14 | 87           | Z         | -0.004              | %60                |
| 15 | 87           | Z         | 0                   | 0                  |
| 16 | 76           | Z         | -0.01               | %15                |
| 17 | 76           | Z         | -0.01               | %85                |
| 18 | 76           | Z         | -0.004              | %20                |
| 19 | 76           | Z         | -0.004              | %60                |
| 20 | 76           | Z         | 0                   | 0                  |

**Member Point Loads (BLC 7 : 90 Wind - Service)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | X         | -0.004              | %15                |
| 2  | 26           | X         | -0.004              | %85                |
| 3  | 26           | X         | -0.003              | %20                |
| 4  | 26           | X         | -0.002              | %60                |
| 5  | 26           | X         | 0                   | 0                  |
| 6  | 31           | X         | -0.003              | %20                |
| 7  | 31           | X         | 0                   | 0                  |
| 8  | 31           | X         | 0                   | 0                  |
| 9  | 31           | X         | 0                   | 0                  |
| 10 | 31           | X         | 0                   | 0                  |
| 11 | 87           | X         | -0.004              | %15                |
| 12 | 87           | X         | -0.004              | %85                |
| 13 | 87           | X         | -0.003              | %20                |
| 14 | 87           | X         | -0.002              | %60                |
| 15 | 87           | X         | 0                   | 0                  |
| 16 | 76           | X         | -0.004              | %15                |
| 17 | 76           | X         | -0.004              | %85                |
| 18 | 76           | X         | -0.003              | %20                |
| 19 | 76           | X         | -0.002              | %60                |
| 20 | 76           | X         | 0                   | 0                  |

**Member Point Loads (BLC 8 : Ice)**

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | Y         | -0.118              | %15                |
| 2  | 26           | Y         | -0.118              | %85                |
| 3  | 26           | Y         | -0.035              | %20                |
| 4  | 26           | Y         | -0.034              | %60                |
| 5  | 26           | Y         | 0                   | 0                  |
| 6  | 31           | Y         | -0.035              | %20                |
| 7  | 31           | Y         | 0                   | 0                  |
| 8  | 31           | Y         | 0                   | 0                  |
| 9  | 31           | Y         | 0                   | 0                  |
| 10 | 31           | Y         | 0                   | 0                  |
| 11 | 87           | Y         | -0.118              | %15                |
| 12 | 87           | Y         | -0.118              | %85                |
| 13 | 87           | Y         | -0.035              | %20                |
| 14 | 87           | Y         | -0.034              | %60                |
| 15 | 87           | Y         | 0                   | 0                  |
| 16 | 76           | Y         | -0.118              | %15                |
| 17 | 76           | Y         | -0.118              | %85                |
| 18 | 76           | Y         | -0.035              | %20                |
| 19 | 76           | Y         | -0.034              | %60                |
| 20 | 76           | Y         | 0                   | 0                  |

### Member Point Loads (BLC 9 : 0 Seismic)

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | Z         | -0.018              | %15                |
| 2  | 26           | Z         | -0.018              | %85                |
| 3  | 26           | Z         | -0.02               | %20                |
| 4  | 26           | Z         | -0.017              | %60                |
| 5  | 26           | Z         | 0                   | 0                  |
| 6  | 31           | Z         | -0.006              | %20                |
| 7  | 31           | Z         | 0                   | 0                  |
| 8  | 31           | Z         | 0                   | 0                  |
| 9  | 31           | Z         | 0                   | 0                  |
| 10 | 31           | Z         | 0                   | 0                  |
| 11 | 87           | Z         | -0.018              | %15                |
| 12 | 87           | Z         | -0.018              | %85                |
| 13 | 87           | Z         | -0.02               | %20                |
| 14 | 87           | Z         | -0.017              | %60                |
| 15 | 87           | Z         | 0                   | 0                  |
| 16 | 76           | Z         | -0.018              | %15                |
| 17 | 76           | Z         | -0.018              | %85                |
| 18 | 76           | Z         | -0.02               | %20                |
| 19 | 76           | Z         | -0.017              | %60                |
| 20 | 76           | Z         | 0                   | 0                  |

### Member Point Loads (BLC 10 : 90 Seismic)

|    | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1  | 26           | X         | -0.018              | %15                |
| 2  | 26           | X         | -0.018              | %85                |
| 3  | 26           | X         | -0.02               | %20                |
| 4  | 26           | X         | -0.017              | %60                |
| 5  | 26           | X         | 0                   | 0                  |
| 6  | 31           | X         | -0.006              | %20                |
| 7  | 31           | X         | 0                   | 0                  |
| 8  | 31           | X         | 0                   | 0                  |
| 9  | 31           | X         | 0                   | 0                  |
| 10 | 31           | X         | 0                   | 0                  |
| 11 | 87           | X         | -0.018              | %15                |
| 12 | 87           | X         | -0.018              | %85                |
| 13 | 87           | X         | -0.02               | %20                |
| 14 | 87           | X         | -0.017              | %60                |
| 15 | 87           | X         | 0                   | 0                  |
| 16 | 76           | X         | -0.018              | %15                |
| 17 | 76           | X         | -0.018              | %85                |
| 18 | 76           | X         | -0.02               | %20                |
| 19 | 76           | X         | -0.017              | %60                |
| 20 | 76           | X         | 0                   | 0                  |

### Member Point Loads (BLC 15 : Maint LL 1)

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 69           | Y         | -0.25               | %5                 |

**Member Point Loads (BLC 16 : Maint LL 2)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 80           | Y         | -0.25               | %5                 |

**Member Point Loads (BLC 17 : Maint LL 3)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 6            | Y         | -0.25               | %5                 |

**Member Point Loads (BLC 18 : Maint LL 4)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 74           | Y         | -0.25               | %5                 |

**Member Point Loads (BLC 19 : Maint LL 5)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 85           | Y         | -0.25               | %5                 |

**Member Point Loads (BLC 20 : Maint LL 6)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 20           | Y         | -0.25               | %5                 |

**Member Point Loads (BLC 21 : Maint LL 7)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 1            | Y         | -0.25               | %95                |

**Member Point Loads (BLC 22 : Maint LL 8)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 31           | Y         | -0.25               | %95                |

**Member Point Loads (BLC 23 : Maint LL 9)**

|   | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 50           | Y         | -0.25               | %95                |

**Member Distributed Loads (BLC 2 : 0 Wind - No Ice)**

|    | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|----|--------------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1  | 1            | Z         | -0.017                                  | -0.017                                | 0                        | %100                   |
| 2  | 2            | Z         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 3  | 3            | Z         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 4  | 4            | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 5  | 5            | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 6  | 6            | Z         | -0.012                                  | -0.012                                | 0                        | %100                   |
| 7  | 7            | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 8  | 8            | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 9  | 9            | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 10 | 10           | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 11 | 11           | Z         | -0.029                                  | -0.029                                | 0                        | %100                   |



**Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 12     | 18    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 13     | 19    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 14     | 20    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 15     | 26    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 16     | 30    | Z         | -0.026                                  | -0.026                                | 0                        | %100                   |
| 17     | 31    | Z         | -0.017                                  | -0.017                                | 0                        | %100                   |
| 18     | 32    | Z         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 19     | 33    | Z         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 20     | 34    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 21     | 35    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 22     | 36    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 23     | 37    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 24     | 38    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 25     | 39    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 26     | 40    | Z         | -0.029                                  | -0.029                                | 0                        | %100                   |
| 27     | 49    | Z         | -0.026                                  | -0.026                                | 0                        | %100                   |
| 28     | 50    | Z         | -0.017                                  | -0.017                                | 0                        | %100                   |
| 29     | 51    | Z         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 30     | 52    | Z         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 31     | 53    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 32     | 54    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 33     | 55    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 34     | 56    | Z         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 35     | 57    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 36     | 58    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 37     | 59    | Z         | -0.029                                  | -0.029                                | 0                        | %100                   |
| 38     | 68    | Z         | -0.026                                  | -0.026                                | 0                        | %100                   |
| 39     | 69    | Z         | -0.012                                  | -0.012                                | 0                        | %100                   |
| 40     | 72    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 41     | 73    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 42     | 74    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 43     | 76    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 44     | 80    | Z         | -0.012                                  | -0.012                                | 0                        | %100                   |
| 45     | 83    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 46     | 84    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 47     | 85    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 48     | 87    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |

**Member Distributed Loads (BLC 3 : 90 Wind - No Ice)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | X         | -0.017                                  | -0.017                                | 0                        | %100                   |
| 2      | 2     | X         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 3      | 3     | X         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 4      | 4     | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 5      | 5     | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 6      | 6     | X         | -0.012                                  | -0.012                                | 0                        | %100                   |
| 7      | 7     | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 8      | 8     | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 9      | 9     | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 10     | 10    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 11     | 11    | X         | -0.029                                  | -0.029                                | 0                        | %100                   |
| 12     | 18    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 13     | 19    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 14     | 20    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 15     | 26    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |

**Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 16     | 30    | X         | -0.026                                  | -0.026                                | 0                        | %100                   |
| 17     | 31    | X         | -0.017                                  | -0.017                                | 0                        | %100                   |
| 18     | 32    | X         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 19     | 33    | X         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 20     | 34    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 21     | 35    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 22     | 36    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 23     | 37    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 24     | 38    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 25     | 39    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 26     | 40    | X         | -0.029                                  | -0.029                                | 0                        | %100                   |
| 27     | 49    | X         | -0.026                                  | -0.026                                | 0                        | %100                   |
| 28     | 50    | X         | -0.017                                  | -0.017                                | 0                        | %100                   |
| 29     | 51    | X         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 30     | 52    | X         | -0.015                                  | -0.015                                | 0                        | %100                   |
| 31     | 53    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 32     | 54    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 33     | 55    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 34     | 56    | X         | -0.021                                  | -0.021                                | 0                        | %100                   |
| 35     | 57    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 36     | 58    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 37     | 59    | X         | -0.029                                  | -0.029                                | 0                        | %100                   |
| 38     | 68    | X         | -0.026                                  | -0.026                                | 0                        | %100                   |
| 39     | 69    | X         | -0.012                                  | -0.012                                | 0                        | %100                   |
| 40     | 72    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 41     | 73    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 42     | 74    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 43     | 76    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 44     | 80    | X         | -0.012                                  | -0.012                                | 0                        | %100                   |
| 45     | 83    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 46     | 84    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 47     | 85    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 48     | 87    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |

**Member Distributed Loads (BLC 4 : 0 Wind - Ice)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 2      | 2     | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 3      | 3     | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 4      | 4     | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 5      | 5     | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 6      | 6     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 7      | 7     | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 8      | 8     | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 9      | 9     | Z         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 10     | 10    | Z         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 11     | 11    | Z         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 12     | 18    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 13     | 19    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 14     | 20    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 15     | 26    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 16     | 30    | Z         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 17     | 31    | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 18     | 32    | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 19     | 33    | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |

**Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 20     | 34    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 21     | 35    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 22     | 36    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 23     | 37    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 24     | 38    | Z         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 25     | 39    | Z         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 26     | 40    | Z         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 27     | 49    | Z         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 28     | 50    | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 29     | 51    | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 30     | 52    | Z         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 31     | 53    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 32     | 54    | Z         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 33     | 55    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 34     | 56    | Z         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 35     | 57    | Z         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 36     | 58    | Z         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 37     | 59    | Z         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 38     | 68    | Z         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 39     | 69    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 40     | 72    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 41     | 73    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 42     | 74    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 43     | 76    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 44     | 80    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 45     | 83    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 46     | 84    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 47     | 85    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 48     | 87    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |

**Member Distributed Loads (BLC 5 : 90 Wind - Ice)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 2      | 2     | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 3      | 3     | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 4      | 4     | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 5      | 5     | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 6      | 6     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 7      | 7     | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 8      | 8     | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 9      | 9     | X         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 10     | 10    | X         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 11     | 11    | X         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 12     | 18    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 13     | 19    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 14     | 20    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 15     | 26    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 16     | 30    | X         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 17     | 31    | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 18     | 32    | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 19     | 33    | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 20     | 34    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 21     | 35    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 22     | 36    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 23     | 37    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |

**Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 24     | 38    | X         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 25     | 39    | X         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 26     | 40    | X         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 27     | 49    | X         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 28     | 50    | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 29     | 51    | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 30     | 52    | X         | -0.005                                  | -0.005                                | 0                        | %100                   |
| 31     | 53    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 32     | 54    | X         | -0.009                                  | -0.009                                | 0                        | %100                   |
| 33     | 55    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 34     | 56    | X         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 35     | 57    | X         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 36     | 58    | X         | -0.004                                  | -0.004                                | 0                        | %100                   |
| 37     | 59    | X         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 38     | 68    | X         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 39     | 69    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 40     | 72    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 41     | 73    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 42     | 74    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 43     | 76    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 44     | 80    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 45     | 83    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 46     | 84    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 47     | 85    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 48     | 87    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |

**Member Distributed Loads (BLC 6 : 0 Wind - Service)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 2      | 2     | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 3      | 3     | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 4      | 4     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 5      | 5     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 6      | 6     | Z         | -0.0004                                 | -0.0004                               | 0                        | %100                   |
| 7      | 7     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 8      | 8     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 9      | 9     | Z         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 10     | 10    | Z         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 11     | 11    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 12     | 18    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 13     | 19    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 14     | 20    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 15     | 26    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 16     | 30    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 17     | 31    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 18     | 32    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 19     | 33    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 20     | 34    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 21     | 35    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 22     | 36    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 23     | 37    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 24     | 38    | Z         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 25     | 39    | Z         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 26     | 40    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 27     | 49    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |

**Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 28     | 50    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 29     | 51    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 30     | 52    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 31     | 53    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 32     | 54    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 33     | 55    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 34     | 56    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 35     | 57    | Z         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 36     | 58    | Z         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 37     | 59    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 38     | 68    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 39     | 69    | Z         | -0.0004                                 | -0.0004                               | 0                        | %100                   |
| 40     | 72    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 41     | 73    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 42     | 74    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 43     | 76    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 44     | 80    | Z         | -0.0004                                 | -0.0004                               | 0                        | %100                   |
| 45     | 83    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 46     | 84    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 47     | 85    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 48     | 87    | Z         | -0.0003                                 | -0.0003                               | 0                        | %100                   |

**Member Distributed Loads (BLC 7 : 90 Wind - Service)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 2      | 2     | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 3      | 3     | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 4      | 4     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 5      | 5     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 6      | 6     | X         | -0.0004                                 | -0.0004                               | 0                        | %100                   |
| 7      | 7     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 8      | 8     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 9      | 9     | X         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 10     | 10    | X         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 11     | 11    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 12     | 18    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 13     | 19    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 14     | 20    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 15     | 26    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 16     | 30    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 17     | 31    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 18     | 32    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 19     | 33    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 20     | 34    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 21     | 35    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 22     | 36    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 23     | 37    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 24     | 38    | X         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 25     | 39    | X         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 26     | 40    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 27     | 49    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 28     | 50    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 29     | 51    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 30     | 52    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 31     | 53    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |

**Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 32     | 54    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 33     | 55    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 34     | 56    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 35     | 57    | X         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 36     | 58    | X         | -0.0006                                 | -0.0006                               | 0                        | %100                   |
| 37     | 59    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 38     | 68    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 39     | 69    | X         | -0.0004                                 | -0.0004                               | 0                        | %100                   |
| 40     | 72    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 41     | 73    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 42     | 74    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 43     | 76    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 44     | 80    | X         | -0.0004                                 | -0.0004                               | 0                        | %100                   |
| 45     | 83    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 46     | 84    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 47     | 85    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |
| 48     | 87    | X         | -0.0003                                 | -0.0003                               | 0                        | %100                   |

**Member Distributed Loads (BLC 8 : Ice)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 2      | 2     | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 3      | 3     | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 4      | 4     | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 5      | 5     | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 6      | 6     | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 7      | 7     | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 8      | 8     | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 9      | 9     | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 10     | 10    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 11     | 11    | Y         | -0.013                                  | -0.013                                | 0                        | %100                   |
| 12     | 18    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 13     | 19    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 14     | 20    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 15     | 26    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 16     | 30    | Y         | -0.013                                  | -0.013                                | 0                        | %100                   |
| 17     | 31    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 18     | 32    | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 19     | 33    | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 20     | 34    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 21     | 35    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 22     | 36    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 23     | 37    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 24     | 38    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 25     | 39    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 26     | 40    | Y         | -0.013                                  | -0.013                                | 0                        | %100                   |
| 27     | 49    | Y         | -0.013                                  | -0.013                                | 0                        | %100                   |
| 28     | 50    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 29     | 51    | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 30     | 52    | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 31     | 53    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 32     | 54    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 33     | 55    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 34     | 56    | Y         | -0.01                                   | -0.01                                 | 0                        | %100                   |
| 35     | 57    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |

**Member Distributed Loads (BLC 8 : Ice) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 36     | 58    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 37     | 59    | Y         | -0.013                                  | -0.013                                | 0                        | %100                   |
| 38     | 68    | Y         | -0.013                                  | -0.013                                | 0                        | %100                   |
| 39     | 69    | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 40     | 72    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 41     | 73    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 42     | 74    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 43     | 76    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 44     | 80    | Y         | -0.007                                  | -0.007                                | 0                        | %100                   |
| 45     | 83    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 46     | 84    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 47     | 85    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |
| 48     | 87    | Y         | -0.006                                  | -0.006                                | 0                        | %100                   |

**Member Distributed Loads (BLC 9 : 0 Seismic)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 2      | 2     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 3      | 3     | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 4      | 4     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 5      | 5     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 6      | 6     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 7      | 7     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 8      | 8     | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 9      | 9     | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 10     | 10    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 11     | 11    | Z         | -0.003                                  | -0.003                                | 0                        | %100                   |
| 12     | 18    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 13     | 19    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 14     | 20    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 15     | 26    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 16     | 30    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 17     | 31    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 18     | 32    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 19     | 33    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 20     | 34    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 21     | 35    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 22     | 36    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 23     | 37    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 24     | 38    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 25     | 39    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 26     | 40    | Z         | -0.003                                  | -0.003                                | 0                        | %100                   |
| 27     | 49    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 28     | 50    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 29     | 51    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 30     | 52    | Z         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 31     | 53    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 32     | 54    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 33     | 55    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 34     | 56    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 35     | 57    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 36     | 58    | Z         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 37     | 59    | Z         | -0.003                                  | -0.003                                | 0                        | %100                   |
| 38     | 68    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 39     | 69    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |



**Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 40     | 72    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 41     | 73    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 42     | 74    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 43     | 76    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 44     | 80    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 45     | 83    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 46     | 84    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 47     | 85    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 48     | 87    | Z         | -0.002                                  | -0.002                                | 0                        | %100                   |

**Member Distributed Loads (BLC 10 : 90 Seismic)**

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 1     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 2      | 2     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 3      | 3     | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 4      | 4     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 5      | 5     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 6      | 6     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 7      | 7     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 8      | 8     | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 9      | 9     | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 10     | 10    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 11     | 11    | X         | -0.003                                  | -0.003                                | 0                        | %100                   |
| 12     | 18    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 13     | 19    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 14     | 20    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 15     | 26    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 16     | 30    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 17     | 31    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 18     | 32    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 19     | 33    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 20     | 34    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 21     | 35    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 22     | 36    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 23     | 37    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 24     | 38    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 25     | 39    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 26     | 40    | X         | -0.003                                  | -0.003                                | 0                        | %100                   |
| 27     | 49    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 28     | 50    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 29     | 51    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 30     | 52    | X         | -0.001                                  | -0.001                                | 0                        | %100                   |
| 31     | 53    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 32     | 54    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 33     | 55    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 34     | 56    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 35     | 57    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 36     | 58    | X         | -0.0009                                 | -0.0009                               | 0                        | %100                   |
| 37     | 59    | X         | -0.003                                  | -0.003                                | 0                        | %100                   |
| 38     | 68    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 39     | 69    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 40     | 72    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 41     | 73    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 42     | 74    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 43     | 76    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |

### Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 44     | 80    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 45     | 83    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 46     | 84    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 47     | 85    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |
| 48     | 87    | X         | -0.002                                  | -0.002                                | 0                        | %100                   |

### Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 10    | Y         | -0.02                                   | -0.026                                | 1.27                     | 2.309                  |
| 2      | 38    | Y         | -0.035                                  | -0.016                                | 0                        | 1.155                  |
| 3      | 38    | Y         | -0.016                                  | 0.0006163                             | 1.155                    | 2.309                  |
| 4      | 39    | Y         | -0.018                                  | -0.016                                | 0.231                    | 2.309                  |
| 5      | 57    | Y         | -0.018                                  | -0.016                                | 0                        | 2.078                  |
| 6      | 58    | Y         | 0.0006164                               | -0.016                                | 0                        | 1.155                  |
| 7      | 58    | Y         | -0.016                                  | -0.035                                | 1.155                    | 2.309                  |
| 8      | 9     | Y         | -0.015                                  | -0.015                                | 0                        | 2.078                  |
| 9      | 10    | Y         | -0.014                                  | -0.02                                 | 0.231                    | 1.27                   |

### Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|-----------------------------------------|---------------------------------------|--------------------------|------------------------|
| 1      | 9     | Y         | -0.017                                  | -0.017                                | 0                        | 2.078                  |
| 2      | 10    | Y         | -0.016                                  | -0.022                                | 0.231                    | 1.27                   |
| 3      | 10    | Y         | -0.022                                  | -0.029                                | 1.27                     | 2.309                  |
| 4      | 38    | Y         | -0.038                                  | -0.017                                | 0                        | 1.155                  |
| 5      | 38    | Y         | -0.017                                  | 0.000678                              | 1.155                    | 2.309                  |
| 6      | 39    | Y         | -0.02                                   | -0.017                                | 0.231                    | 2.309                  |
| 7      | 57    | Y         | -0.02                                   | -0.017                                | 0                        | 2.078                  |
| 8      | 58    | Y         | 0.0006781                               | -0.017                                | 0                        | 1.155                  |
| 9      | 58    | Y         | -0.017                                  | -0.038                                | 1.155                    | 2.309                  |

### Basic Load Cases

|    | BLC Description   | Category | Y Gravity | Nodal | Point | Distributed | Area(Member) |
|----|-------------------|----------|-----------|-------|-------|-------------|--------------|
| 1  | Dead              | DL       | -1        |       | 20    |             | 3            |
| 2  | 0 Wind - No Ice   | WLZ      |           |       | 20    | 48          |              |
| 3  | 90 Wind - No Ice  | WLX      |           |       | 20    | 48          |              |
| 4  | 0 Wind - Ice      | WLZ      |           |       | 20    | 48          |              |
| 5  | 90 Wind - Ice     | WLX      |           |       | 20    | 48          |              |
| 6  | 0 Wind - Service  | WLZ      |           |       | 20    | 48          |              |
| 7  | 90 Wind - Service | WLX      |           |       | 20    | 48          |              |
| 8  | Ice               | OL1      |           |       | 20    | 48          | 3            |
| 9  | 0 Seismic         | ELZ      |           |       | 20    | 48          |              |
| 10 | 90 Seismic        | ELX      |           |       | 20    | 48          |              |
| 11 | Live Load a       | LL       |           | 3     |       |             |              |
| 12 | Live Load b       | LL       |           | 3     |       |             |              |
| 13 | Live Load c       | LL       |           | 3     |       |             |              |
| 14 | Live Load d       | LL       |           |       |       |             |              |
| 15 | Maint LL 1        | LL       |           |       | 1     |             |              |
| 16 | Maint LL 2        | LL       |           |       | 1     |             |              |
| 17 | Maint LL 3        | LL       |           |       | 1     |             |              |
| 18 | Maint LL 4        | LL       |           |       | 1     |             |              |
| 19 | Maint LL 5        | LL       |           |       | 1     |             |              |
| 20 | Maint LL 6        | LL       |           |       | 1     |             |              |

### Basic Load Cases (Continued)

|    | BLC Description            | Category | Y Gravity | Nodal | Point | Distributed | Area(Member) |
|----|----------------------------|----------|-----------|-------|-------|-------------|--------------|
| 21 | Maint LL 7                 | LL       |           |       | 1     |             |              |
| 22 | Maint LL 8                 | LL       |           |       | 1     |             |              |
| 23 | Maint LL 9                 | LL       |           |       | 1     |             |              |
| 24 | Maint LL 10                | LL       |           |       |       |             |              |
| 25 | Maint LL 11                | LL       |           |       |       |             |              |
| 26 | Maint LL 12                | LL       |           |       |       |             |              |
| 27 | Maint LL 13                | LL       |           |       |       |             |              |
| 28 | Maint LL 14                | LL       |           |       |       |             |              |
| 29 | Maint LL 15                | LL       |           |       |       |             |              |
| 30 | BLC 1 Transient Area Loads | None     |           |       |       | 9           |              |
| 31 | BLC 8 Transient Area Loads | None     |           |       |       | 9           |              |

### Load Combinations

|    | Description                       | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|-----------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 1  | 1.4 Dead                          | Yes   | Y       | 1   | 1.4    |     |        |     |        |     |        |
| 2  | 1.2 D + 1.0 - 0 W                 | Yes   | Y       | 1   | 1.2    | 2   | 1      |     |        |     |        |
| 3  | 1.2 D + 1.0 - 30 W                | Yes   | Y       | 1   | 1.2    | 2   | 0.866  | 3   | 0.5    |     |        |
| 4  | 1.2 D + 1.0 - 60 W                | Yes   | Y       | 1   | 1.2    | 3   | 0.866  | 2   | 0.5    |     |        |
| 5  | 1.2 D + 1.0 - 90 W                | Yes   | Y       | 1   | 1.2    | 3   | 1      |     |        |     |        |
| 6  | 1.2 D + 1.0 - 120 W               | Yes   | Y       | 1   | 1.2    | 3   | 0.866  | 2   | -0.5   |     |        |
| 7  | 1.2 D + 1.0 - 150 W               | Yes   | Y       | 1   | 1.2    | 2   | -0.866 | 3   | 0.5    |     |        |
| 8  | 1.2 D + 1.0 - 180 W               | Yes   | Y       | 1   | 1.2    | 2   | -1     |     |        |     |        |
| 9  | 1.2 D + 1.0 - 210 W               | Yes   | Y       | 1   | 1.2    | 2   | -0.866 | 3   | -0.5   |     |        |
| 10 | 1.2 D + 1.0 - 240 W               | Yes   | Y       | 1   | 1.2    | 3   | -0.866 | 2   | -0.5   |     |        |
| 11 | 1.2 D + 1.0 - 270 W               | Yes   | Y       | 1   | 1.2    | 3   | -1     |     |        |     |        |
| 12 | 1.2 D + 1.0 - 300 W               | Yes   | Y       | 1   | 1.2    | 3   | -0.866 | 2   | 0.5    |     |        |
| 13 | 1.2 D + 1.0 - 330 W               | Yes   | Y       | 1   | 1.2    | 2   | 0.866  | 3   | -0.5   |     |        |
| 14 | 1.2 D + 1.0 - 0 W/Ice             | Yes   | Y       | 1   | 1.2    | 4   | 1      |     |        | 8   | 1      |
| 15 | 1.2 D + 1.0 - 30 W/Ice            | Yes   | Y       | 1   | 1.2    | 4   | 0.866  | 5   | 0.5    | 8   | 1      |
| 16 | 1.2 D + 1.0 - 60 W/Ice            | Yes   | Y       | 1   | 1.2    | 5   | 0.866  | 4   | 0.5    | 8   | 1      |
| 17 | 1.2 D + 1.0 - 90 W/Ice            | Yes   | Y       | 1   | 1.2    | 5   | 1      |     |        | 8   | 1      |
| 18 | 1.2 D + 1.0 - 120 W/Ice           | Yes   | Y       | 1   | 1.2    | 5   | 0.866  | 4   | -0.5   | 8   | 1      |
| 19 | 1.2 D + 1.0 - 150 W/Ice           | Yes   | Y       | 1   | 1.2    | 4   | -0.866 | 5   | 0.5    | 8   | 1      |
| 20 | 1.2 D + 1.0 - 180 W/Ice           | Yes   | Y       | 1   | 1.2    | 4   | -1     |     |        | 8   | 1      |
| 21 | 1.2 D + 1.0 - 210 W/Ice           | Yes   | Y       | 1   | 1.2    | 4   | -0.866 | 5   | -0.5   | 8   | 1      |
| 22 | 1.2 D + 1.0 - 240 W/Ice           | Yes   | Y       | 1   | 1.2    | 5   | -0.866 | 4   | -0.5   | 8   | 1      |
| 23 | 1.2 D + 1.0 - 270 W/Ice           | Yes   | Y       | 1   | 1.2    | 5   | -1     |     |        | 8   | 1      |
| 24 | 1.2 D + 1.0 - 300 W/Ice           | Yes   | Y       | 1   | 1.2    | 5   | -0.866 | 4   | 0.5    | 8   | 1      |
| 25 | 1.2 D + 1.0 - 330 W/Ice           | Yes   | Y       | 1   | 1.2    | 4   | 0.866  | 5   | -0.5   | 8   | 1      |
| 26 | 1.2 D + 1.0 E - 0                 | Yes   | Y       | 1   | 1.2    | 9   | 1      |     |        |     |        |
| 27 | 1.2 D + 1.0 E - 30                | Yes   | Y       | 1   | 1.2    | 9   | 0.866  | 10  | 0.5    |     |        |
| 28 | 1.2 D + 1.0 E - 60                | Yes   | Y       | 1   | 1.2    | 10  | 0.866  | 9   | 0.5    |     |        |
| 29 | 1.2 D + 1.0 E - 90                | Yes   | Y       | 1   | 1.2    | 10  | 1      |     |        |     |        |
| 30 | 1.2 D + 1.0 E - 120               | Yes   | Y       | 1   | 1.2    | 10  | 0.866  | 9   | -0.5   |     |        |
| 31 | 1.2 D + 1.0 E - 150               | Yes   | Y       | 1   | 1.2    | 9   | -0.866 | 10  | 0.5    |     |        |
| 32 | 1.2 D + 1.0 E - 180               | Yes   | Y       | 1   | 1.2    | 9   | -1     |     |        |     |        |
| 33 | 1.2 D + 1.0 E - 210               | Yes   | Y       | 1   | 1.2    | 9   | -0.866 | 10  | -0.5   |     |        |
| 34 | 1.2 D + 1.0 E - 240               | Yes   | Y       | 1   | 1.2    | 10  | -0.866 | 9   | -0.5   |     |        |
| 35 | 1.2 D + 1.0 E - 270               | Yes   | Y       | 1   | 1.2    | 10  | -1     |     |        |     |        |
| 36 | 1.2 D + 1.0 E - 300               | Yes   | Y       | 1   | 1.2    | 10  | -0.866 | 9   | 0.5    |     |        |
| 37 | 1.2 D + 1.0 E - 330               | Yes   | Y       | 1   | 1.2    | 9   | 0.866  | 10  | -0.5   |     |        |
| 38 | 1.2 D + 1.5 LL a + Service - 0 W  | Yes   | Y       | 1   | 1.2    | 6   | 1      |     |        | 11  | 1.5    |
| 39 | 1.2 D + 1.5 LL a + Service - 30 W | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | 0.5    | 11  | 1.5    |
| 40 | 1.2 D + 1.5 LL a + Service - 60 W | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | 0.5    | 11  | 1.5    |
| 41 | 1.2 D + 1.5 LL a + Service - 90 W | Yes   | Y       | 1   | 1.2    | 7   | 1      |     |        | 11  | 1.5    |

### Load Combinations (Continued)

|    | Description                        | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 42 | 1.2 D + 1.5 LL a + Service - 120 W | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | -0.5   | 11  | 1.5    |
| 43 | 1.2 D + 1.5 LL a + Service - 150 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | 0.5    | 11  | 1.5    |
| 44 | 1.2 D + 1.5 LL a + Service - 180 W | Yes   | Y       | 1   | 1.2    | 6   | -1     |     |        | 11  | 1.5    |
| 45 | 1.2 D + 1.5 LL a + Service - 210 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | -0.5   | 11  | 1.5    |
| 46 | 1.2 D + 1.5 LL a + Service - 240 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | -0.5   | 11  | 1.5    |
| 47 | 1.2 D + 1.5 LL a + Service - 270 W | Yes   | Y       | 1   | 1.2    | 7   | -1     |     |        | 11  | 1.5    |
| 48 | 1.2 D + 1.5 LL a + Service - 300 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | 0.5    | 11  | 1.5    |
| 49 | 1.2 D + 1.5 LL a + Service - 330 W | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | -0.5   | 11  | 1.5    |
| 50 | 1.2 D + 1.5 LL b + Service - 0 W   | Yes   | Y       | 1   | 1.2    | 6   | 1      |     |        | 12  | 1.5    |
| 51 | 1.2 D + 1.5 LL b + Service - 30 W  | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | 0.5    | 12  | 1.5    |
| 52 | 1.2 D + 1.5 LL b + Service - 60 W  | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | 0.5    | 12  | 1.5    |
| 53 | 1.2 D + 1.5 LL b + Service - 90 W  | Yes   | Y       | 1   | 1.2    | 7   | 1      |     |        | 12  | 1.5    |
| 54 | 1.2 D + 1.5 LL b + Service - 120 W | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | -0.5   | 12  | 1.5    |
| 55 | 1.2 D + 1.5 LL b + Service - 150 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | 0.5    | 12  | 1.5    |
| 56 | 1.2 D + 1.5 LL b + Service - 180 W | Yes   | Y       | 1   | 1.2    | 6   | -1     |     |        | 12  | 1.5    |
| 57 | 1.2 D + 1.5 LL b + Service - 210 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | -0.5   | 12  | 1.5    |
| 58 | 1.2 D + 1.5 LL b + Service - 240 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | -0.5   | 12  | 1.5    |
| 59 | 1.2 D + 1.5 LL b + Service - 270 W | Yes   | Y       | 1   | 1.2    | 7   | -1     |     |        | 12  | 1.5    |
| 60 | 1.2 D + 1.5 LL b + Service - 300 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | 0.5    | 12  | 1.5    |
| 61 | 1.2 D + 1.5 LL b + Service - 330 W | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | -0.5   | 12  | 1.5    |
| 62 | 1.2 D + 1.5 LL c + Service - 0 W   | Yes   | Y       | 1   | 1.2    | 6   | 1      |     |        | 13  | 1.5    |
| 63 | 1.2 D + 1.5 LL c + Service - 30 W  | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | 0.5    | 13  | 1.5    |
| 64 | 1.2 D + 1.5 LL c + Service - 60 W  | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | 0.5    | 13  | 1.5    |
| 65 | 1.2 D + 1.5 LL c + Service - 90 W  | Yes   | Y       | 1   | 1.2    | 7   | 1      |     |        | 13  | 1.5    |
| 66 | 1.2 D + 1.5 LL c + Service - 120 W | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | -0.5   | 13  | 1.5    |
| 67 | 1.2 D + 1.5 LL c + Service - 150 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | 0.5    | 13  | 1.5    |
| 68 | 1.2 D + 1.5 LL c + Service - 180 W | Yes   | Y       | 1   | 1.2    | 6   | -1     |     |        | 13  | 1.5    |
| 69 | 1.2 D + 1.5 LL c + Service - 210 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | -0.5   | 13  | 1.5    |
| 70 | 1.2 D + 1.5 LL c + Service - 240 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | -0.5   | 13  | 1.5    |
| 71 | 1.2 D + 1.5 LL c + Service - 270 W | Yes   | Y       | 1   | 1.2    | 7   | -1     |     |        | 13  | 1.5    |
| 72 | 1.2 D + 1.5 LL c + Service - 300 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | 0.5    | 13  | 1.5    |
| 73 | 1.2 D + 1.5 LL c + Service - 330 W | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | -0.5   | 13  | 1.5    |
| 74 | 1.2 D + 1.5 LL d + Service - 0 W   | Yes   | Y       | 1   | 1.2    | 6   | 1      |     |        | 14  | 1.5    |
| 75 | 1.2 D + 1.5 LL d + Service - 30 W  | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | 0.5    | 14  | 1.5    |
| 76 | 1.2 D + 1.5 LL d + Service - 60 W  | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | 0.5    | 14  | 1.5    |
| 77 | 1.2 D + 1.5 LL d + Service - 90 W  | Yes   | Y       | 1   | 1.2    | 7   | 1      |     |        | 14  | 1.5    |
| 78 | 1.2 D + 1.5 LL d + Service - 120 W | Yes   | Y       | 1   | 1.2    | 7   | 0.866  | 6   | -0.5   | 14  | 1.5    |
| 79 | 1.2 D + 1.5 LL d + Service - 150 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | 0.5    | 14  | 1.5    |
| 80 | 1.2 D + 1.5 LL d + Service - 180 W | Yes   | Y       | 1   | 1.2    | 6   | -1     |     |        | 14  | 1.5    |
| 81 | 1.2 D + 1.5 LL d + Service - 210 W | Yes   | Y       | 1   | 1.2    | 6   | -0.866 | 7   | -0.5   | 14  | 1.5    |
| 82 | 1.2 D + 1.5 LL d + Service - 240 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | -0.5   | 14  | 1.5    |
| 83 | 1.2 D + 1.5 LL d + Service - 270 W | Yes   | Y       | 1   | 1.2    | 7   | -1     |     |        | 14  | 1.5    |
| 84 | 1.2 D + 1.5 LL d + Service - 300 W | Yes   | Y       | 1   | 1.2    | 7   | -0.866 | 6   | 0.5    | 14  | 1.5    |
| 85 | 1.2 D + 1.5 LL d + Service - 330 W | Yes   | Y       | 1   | 1.2    | 6   | 0.866  | 7   | -0.5   | 14  | 1.5    |
| 86 | 1.2 D + 1.5 LL Maint (1)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 15  | 1.5    |
| 87 | 1.2 D + 1.5 LL Maint (2)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 16  | 1.5    |
| 88 | 1.2 D + 1.5 LL Maint (3)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 17  | 1.5    |
| 89 | 1.2 D + 1.5 LL Maint (4)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 18  | 1.5    |
| 90 | 1.2 D + 1.5 LL Maint (5)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 19  | 1.5    |
| 91 | 1.2 D + 1.5 LL Maint (6)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 20  | 1.5    |
| 92 | 1.2 D + 1.5 LL Maint (7)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 21  | 1.5    |
| 93 | 1.2 D + 1.5 LL Maint (8)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 22  | 1.5    |
| 94 | 1.2 D + 1.5 LL Maint (9)           | Yes   | Y       | 1   | 1.2    |     |        |     |        | 23  | 1.5    |
| 95 | 1.2 D + 1.5 LL Maint (10)          | Yes   | Y       | 1   | 1.2    |     |        |     |        | 24  | 1.5    |
| 96 | 1.2 D + 1.5 LL Maint (11)          | Yes   | Y       | 1   | 1.2    |     |        |     |        | 25  | 1.5    |

### Load Combinations (Continued)

|     | Description               | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|---------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 97  | 1.2 D + 1.5 LL Maint (12) | Yes   | Y       | 1   | 1.2    |     |        |     |        | 26  | 1.5    |
| 98  | 1.2 D + 1.5 LL Maint (13) | Yes   | Y       | 1   | 1.2    |     |        |     |        | 27  | 1.5    |
| 99  | 1.2 D + 1.5 LL Maint (14) | Yes   | Y       | 1   | 1.2    |     |        |     |        | 28  | 1.5    |
| 100 | 1.2 D + 1.5 LL Maint (15) | Yes   | Y       | 1   | 1.2    |     |        |     |        | 29  | 1.5    |

### Envelope Node Reactions

| Node Label |         |     | X [k]  | LC | Y [k]  | LC | Z [k]  | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|------------|---------|-----|--------|----|--------|----|--------|----|-----------|----|-----------|----|-----------|----|
| 1          | 1       | max | 1.083  | 5  | 1.78   | 14 | 1.129  | 2  | 3.697     | 2  | 1.087     | 11 | 0.308     | 11 |
| 2          |         | min | -1.088 | 11 | -0.037 | 8  | -1.254 | 8  | -0.597    | 8  | -1.093    | 5  | -0.194    | 5  |
| 3          | 59      | max | 1.013  | 5  | 1.82   | 18 | 1.345  | 2  | 0.219     | 13 | 1.315     | 3  | 0.118     | 12 |
| 4          |         | min | -1.119 | 11 | 0.142  | 12 | -1.279 | 8  | -1.726    | 43 | -1.322    | 9  | -3.178    | 18 |
| 5          | 88      | max | 1.018  | 5  | 1.752  | 22 | 1.417  | 2  | 0.193     | 3  | 1.315     | 7  | 2.985     | 22 |
| 6          |         | min | -0.907 | 11 | 0.11   | 4  | -1.359 | 8  | -1.92     | 21 | -1.322    | 13 | -0.191    | 4  |
| 7          | Totals: | max | 3.114  | 5  | 4.946  | 14 | 3.892  | 2  |           |    |           |    |           |    |
| 8          |         | min | -3.114 | 11 | 2.397  | 8  | -3.892 | 8  |           |    |           |    |           |    |

### Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks

| Member | Shape | Code Check       | Loc [ft] | LC    | Shear | Check | Loc [ft] | Dir | L  | cphi*Pnc [k] | phi*Pnt [k] | phi*Mn y-y [k-ft] | phi*Mn z-z [k-ft] | Cb    | Eqn   |
|--------|-------|------------------|----------|-------|-------|-------|----------|-----|----|--------------|-------------|-------------------|-------------------|-------|-------|
| 1      | 1     | HSS4X4X2         | 0.495    | 0     | 13    | 0.112 | 0        | y   | 73 | 70.173       | 73.278      | 8.24              | 8.24              | 1.995 | H1-1b |
| 2      | 2     | C3.38X2.06X0.188 | 0.341    | 2.592 | 15    | 0.059 | 0.351    | y   | 64 | 38.433       | 43.394      | 1.694             | 4.483             | 1.634 | H1-1b |
| 3      | 3     | C3.38X2.06X0.188 | 0.325    | 0     | 13    | 0.063 | 2.241    | y   | 44 | 38.433       | 43.394      | 1.694             | 4.483             | 1.6   | H1-1b |
| 4      | 4     | PL3/8X6 HRA      | 0.078    | 0.164 | 7     | 0.153 | 0        | y   | 2  | 70.017       | 73.872      | 0.585             | 9.234             | 1.9   | H1-1b |
| 5      | 5     | PL3/8X6 HRA      | 0.076    | 0     | 3     | 0.121 | 0        | y   | 38 | 70.017       | 73.872      | 0.585             | 9.234             | 1.973 | H1-1b |
| 6      | 6     | PIPE 3.5x0.165   | 0.069    | 6.75  | 7     | 0.036 | 3        | y   | 5  | 45.872       | 71.57       | 6.336             | 6.336             | 1.909 | H1-1b |
| 7      | 7     | PL3/8X6 HRA      | 0.131    | 0.208 | 8     | 0.185 | 0.208    | y   | 61 | 71.879       | 73.872      | 0.585             | 9.234             | 1.586 | H1-1b |
| 8      | 8     | PL3/8X6 HRA      | 0.131    | 0     | 13    | 0.189 | 0        | y   | 51 | 71.879       | 73.872      | 0.585             | 9.234             | 2.981 | H1-1b |
| 9      | 9     | L2x2x4           | 0.248    | 0     | 7     | 0.03  | 2.309    | y   | 48 | 23.349       | 30.586      | 0.691             | 1.577             | 1.5   | H2-1  |
| 10     | 10    | L2x2x4           | 0.207    | 2.309 | 8     | 0.035 | 2.309    | y   | 16 | 23.349       | 30.586      | 0.691             | 1.577             | 1.5   | H2-1  |
| 11     | 11    | L7.63x2.5x6      | 0.316    | 1.604 | 8     | 0.076 | 0        | z   | 62 | 73.845       | 118.523     | 1.798             | 13.77             | 1.253 | H2-1  |
| 12     | 18    | PIPE 2.88x0.203  | 0.105    | 5.667 | 5     | 0.035 | 5.667    | y   | 5  | 35.519       | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 13     | 19    | PIPE 2.88x0.203  | 0.123    | 2.333 | 9     | 0.038 | 5.667    | y   | 9  | 35.519       | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 14     | 20    | PIPE 2.88x0.203  | 0.117    | 7.812 | 13    | 0.125 | 8.646    | y   | 2  | 24.131       | 70.68       | 5.029             | 5.029             | 2.41  | H1-1b |
| 15     | 26    | PIPE 2.88x0.203  | 0.106    | 2.333 | 7     | 0.037 | 2.333    | y   | 8  | 35.519       | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 16     | 30    | L6.63x4.33x.25   | 0.175    | 3.25  | 6     | 0.018 | 3.25     | z   | 12 | 49.975       | 86.751      | 2.311             | 6.976             | 1.5   | H2-1  |
| 17     | 31    | HSS4X4X2         | 0.483    | 0     | 7     | 0.115 | 0        | z   | 3  | 70.173       | 73.278      | 8.24              | 8.24              | 2.019 | H1-1b |
| 18     | 32    | C3.38X2.06X0.188 | 0.341    | 2.592 | 19    | 0.059 | 0.351    | y   | 68 | 38.433       | 43.394      | 1.694             | 4.483             | 1.633 | H1-1b |
| 19     | 33    | C3.38X2.06X0.188 | 0.317    | 0     | 56    | 0.063 | 2.241    | y   | 48 | 38.433       | 43.394      | 1.703             | 4.483             | 1.619 | H1-1b |
| 20     | 34    | PL3/8X6 HRA      | 0.067    | 0.164 | 10    | 0.144 | 0        | y   | 66 | 70.017       | 73.872      | 0.585             | 9.234             | 1.594 | H1-1b |
| 21     | 35    | PL3/8X6 HRA      | 0.078    | 0     | 7     | 0.121 | 0        | y   | 42 | 70.017       | 73.872      | 0.585             | 9.234             | 1.912 | H1-1b |
| 22     | 36    | PL3/8X6 HRA      | 0.114    | 0.208 | 13    | 0.185 | 0.208    | y   | 53 | 71.879       | 73.872      | 0.585             | 9.234             | 2.058 | H1-1b |
| 23     | 37    | PL3/8X6 HRA      | 0.109    | 0     | 5     | 0.19  | 0        | y   | 55 | 71.879       | 73.872      | 0.585             | 9.234             | 3     | H1-1b |
| 24     | 38    | L2x2x4           | 0.202    | 0     | 11    | 0.03  | 2.309    | y   | 39 | 23.349       | 30.586      | 0.691             | 1.577             | 1.5   | H2-1  |
| 25     | 39    | L2x2x4           | 0.194    | 2.309 | 13    | 0.034 | 0        | y   | 68 | 23.349       | 30.586      | 0.691             | 1.577             | 1.5   | H2-1  |
| 26     | 40    | L7.63x2.5x6      | 0.248    | 1.604 | 12    | 0.077 | 0.334    | y   | 67 | 73.845       | 118.523     | 1.798             | 13.904            | 1.283 | H2-1  |
| 27     | 49    | L6.63x4.33x.25   | 0.189    | 0     | 3     | 0.021 | 3.25     | y   | 9  | 49.975       | 86.751      | 2.311             | 6.976             | 1.5   | H2-1  |
| 28     | 50    | HSS4X4X2         | 0.494    | 0     | 9     | 0.117 | 0        | z   | 7  | 70.173       | 73.278      | 8.24              | 8.24              | 1.997 | H1-1b |
| 29     | 51    | C3.38X2.06X0.188 | 0.334    | 2.592 | 23    | 0.059 | 0.351    | y   | 73 | 38.433       | 43.394      | 1.694             | 4.483             | 1.63  | H1-1b |
| 30     | 52    | C3.38X2.06X0.188 | 0.325    | 0     | 9     | 0.063 | 2.241    | y   | 39 | 38.433       | 43.394      | 1.694             | 4.483             | 1.6   | H1-1b |
| 31     | 53    | PL3/8X6 HRA      | 0.087    | 0.164 | 3     | 0.146 | 0        | y   | 70 | 70.017       | 73.872      | 0.585             | 9.234             | 1.752 | H1-1b |
| 32     | 54    | PL3/8X6 HRA      | 0.064    | 0     | 11    | 0.12  | 0        | y   | 46 | 70.017       | 73.872      | 0.585             | 9.234             | 1.891 | H1-1b |
| 33     | 55    | PL3/8X6 HRA      | 0.106    | 0.208 | 4     | 0.184 | 0.208    | y   | 57 | 71.879       | 73.872      | 0.585             | 9.234             | 1.729 | H1-1b |
| 34     | 56    | PL3/8X6 HRA      | 0.133    | 0     | 9     | 0.19  | 0        | y   | 59 | 71.879       | 73.872      | 0.585             | 9.234             | 2.995 | H1-1b |
| 35     | 57    | L2x2x4           | 0.248    | 0     | 3     | 0.03  | 2.309    | y   | 43 | 23.349       | 30.586      | 0.691             | 1.577             | 1.5   | H2-1  |

**Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks (Continued)**

| Member |    | Shape           | Code Check | Loc[ft] | LC | Shear Check | Loc[ft] | Dir | LC | phi*Pnc [k] | phi*Pnt [k] | phi*Mn y-y [k-ft] | phi*Mn z-z [k-ft] | Cb    | Eqn   |
|--------|----|-----------------|------------|---------|----|-------------|---------|-----|----|-------------|-------------|-------------------|-------------------|-------|-------|
| 36     | 58 | L2x2x4          | 0.176      | 2.309   | 4  | 0.035       | 2.309   | y   | 24 | 23.349      | 30.586      | 0.691             | 1.577             | 1.5   | H2-1  |
| 37     | 59 | L7.63x2.5x6     | 0.29       | 1.604   | 3  | 0.076       | 0       | z   | 69 | 73.845      | 118.523     | 1.798             | 14.11             | 1.331 | H2-   |
| 38     | 68 | L6.63x4.33x.25  | 0.211      | 3.25    | 2  | 0.023       | 3.25    | y   | 13 | 49.975      | 86.751      | 2.311             | 6.976             | 1.5   | H2-1  |
| 39     | 69 | PIPE 3.5x0.165  | 0.074      | 1.25    | 2  | 0.044       | 4       |     | 9  | 45.872      | 71.57       | 6.336             | 6.336             | 1.776 | H1-1b |
| 40     | 72 | PIPE 2.88x0.203 | 0.126      | 5.667   | 9  | 0.04        | 5.667   |     | 9  | 35.519      | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 41     | 73 | PIPE 2.88x0.203 | 0.141      | 2.333   | 2  | 0.04        | 5.667   |     | 13 | 35.519      | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 42     | 74 | PIPE 2.88x0.203 | 0.115      | 2.187   | 13 | 0.107       | 2.187   |     | 13 | 24.131      | 70.68       | 5.029             | 5.029             | 2.269 | H1-1b |
| 43     | 76 | PIPE 2.88x0.203 | 0.111      | 5.667   | 9  | 0.036       | 2.333   |     | 13 | 35.519      | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 44     | 80 | PIPE 3.5x0.165  | 0.068      | 6.75    | 2  | 0.043       | 3       |     | 13 | 45.872      | 71.57       | 6.336             | 6.336             | 1.541 | H1-1b |
| 45     | 83 | PIPE 2.88x0.203 | 0.125      | 5.667   | 13 | 0.044       | 5.667   |     | 13 | 35.519      | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 46     | 84 | PIPE 2.88x0.203 | 0.117      | 2.333   | 6  | 0.031       | 5.667   |     | 5  | 35.519      | 70.68       | 5.029             | 5.029             | 3     | H1-1b |
| 47     | 85 | PIPE 2.88x0.203 | 0.111      | 7.812   | 9  | 0.119       | 8.646   |     | 9  | 24.131      | 70.68       | 5.029             | 5.029             | 2.451 | H1-1b |
| 48     | 87 | PIPE 2.88x0.203 | 0.126      | 5.667   | 2  | 0.032       | 5.667   |     | 3  | 35.519      | 70.68       | 5.029             | 5.029             | 3     | H1-1b |

## **APPENDIX B**

**(Additional Calculations)**



|         |                                   |            |
|---------|-----------------------------------|------------|
| PROJECT | <b>156305.003.01 - Putnam, CT</b> | <b>KSC</b> |
| SUBJECT | <b>Platform Mount Analysis</b>    |            |
| DATE    | <b>01/09/23</b>                   |            |



**B+T Group**  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587-4630

|                       |            |           |                     |
|-----------------------|------------|-----------|---------------------|
| Tower Type            | :          | Monopole  |                     |
| Ground Elevation      | $z_s$ :    | 474 ft    | [ASCE7 Hazard Tool] |
| Tower Height          | :          | 175.00 ft |                     |
| Mount Elevation       | :          | 165.00 ft |                     |
| Antenna Elevation     | :          | 165.00 ft |                     |
| Crest Height          | :          | 0 ft      |                     |
| Risk Category         | :          | II        | [Table 2-1 ]        |
| Exposure Category     | :          | B         | [Sec. 2.6.5.1.2]    |
| Topography Category   | :          | 1.00      | [Sec. 2.6.6.2]      |
| Wind Velocity         | $V$ :      | 120 mph   | [ASCE7 Hazard Tool] |
| Ice wind Velocity     | $V_i$ :    | 50 mph    | [ASCE7 Hazard Tool] |
| Service Velocity      | $V_s$ :    | 30 mph    | [ASCE7 Hazard Tool] |
| Base Ice thickness    | $t_i$ :    | 1.00 in   | [ASCE7 Hazard Tool] |
| Seismic Design Cat.   | :          | B         | [ASCE7 Hazard Tool] |
|                       | $S_s$ :    | 0.18      |                     |
|                       | $S_1$ :    | 0.06      |                     |
|                       | $S_{DS}$ : | 0.20      |                     |
|                       | $S_{D1}$ : | 0.09      |                     |
| Gust Factor           | $G_h$ :    | 1.00      | [Sec. 16.6]         |
| Pressure Coefficient  | $K_z$ :    | 1.14      | [Sec. 2.6.5.2]      |
| Topography Factor     | $K_{zt}$ : | 1.00      | [Sec. 2.6.6]        |
| Elevation Factor      | $K_e$ :    | 0.98      | [Sec. 2.6.8]        |
| Directionality Factor | $K_d$ :    | 0.95      | [Sec. 16.6]         |
| Shielding Factor      | $K_a$ :    | 0.90      | [Sec. 16.6]         |
| Design Ice Thickness  | $t_{iz}$ : | 1.17 in   | [Sec. 2.6.10]       |
| Importance Factor     | $I_e$ :    | 1         | [Table 2-3 ]        |
| Response Coefficient  | $C_s$ :    | 0.098     | [Sec. 2.7.7.1]      |
| Amplification         | $A_s$ :    | 2.771429  | [Sec. 16.7]         |
|                       | $q_z$ :    | 39.25 psf |                     |

|         |                            |     |
|---------|----------------------------|-----|
| PROJECT | 156305.003.01 - Putnam, CT | KSC |
| SUBJECT | Platform Mount Analysis    |     |
| DATE    | 01/09/23                   |     |



**B+T Group**  
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Tulsa, OK 74119  
(918) 587-4630

**B+T GRP**

| Manufacturer | Model            | Qty | Height | Width | Depth | Weight | C <sub>a</sub> A <sub>a</sub><br>(N)<br>(ft <sup>2</sup> ) | C <sub>a</sub> A <sub>a</sub><br>(T)<br>(ft <sup>2</sup> ) | C <sub>a</sub> A <sub>a</sub><br>(N) Ice<br>(ft <sup>2</sup> ) | C <sub>a</sub> A <sub>a</sub><br>(T) Ice<br>(ft <sup>2</sup> ) | F <sub>A</sub> (N)<br>(k) | F <sub>A</sub> (T)<br>(k) | F <sub>A</sub> (N)<br>Ice<br>(k) | F <sub>A</sub> (T)<br>Ice<br>(k) |
|--------------|------------------|-----|--------|-------|-------|--------|------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|---------------------------|---------------------------|----------------------------------|----------------------------------|
| JMA Wireless | MX08FRO665-21    | 0.5 | 72.0   | 20.0  | 8.0   | 64.5   | 4.01                                                       | 1.61                                                       | 4.53                                                           | 2.06                                                           | 0.16                      | 0.06                      | 0.03                             | 0.01                             |
| JMA Wireless | MX08FRO665-21    | 0.5 |        |       |       |        | 4.01                                                       | 1.61                                                       | 4.53                                                           | 2.06                                                           | 0.16                      | 0.06                      | 0.03                             | 0.01                             |
| Fujitsu      | TA08025-B605     | 1   | 15.8   | 15.0  | 9.1   | 75.0   | 1.96                                                       | 1.19                                                       | 2.61                                                           | 1.72                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
| Fujitsu      | TA08025-B604     | 1   | 15.8   | 15.0  | 7.9   | 63.9   | 1.96                                                       | 1.03                                                       | 2.61                                                           | 1.54                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
| RAYCAP       | RDIDC-9181-PF-48 | 1   | 16.6   | 14.6  | 8.2   | 21.9   | 2.01                                                       | 1.13                                                       | 2.67                                                           | 1.66                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
| JMA Wireless | MX08FRO665-21    | 0.5 | 72.0   | 20.0  | 8.0   | 64.5   | 4.01                                                       | 1.61                                                       | 4.53                                                           | 2.06                                                           | 0.16                      | 0.06                      | 0.03                             | 0.01                             |
| JMA Wireless | MX08FRO665-21    | 0.5 |        |       |       |        | 4.01                                                       | 1.61                                                       | 4.53                                                           | 2.06                                                           | 0.16                      | 0.06                      | 0.03                             | 0.01                             |
| Fujitsu      | TA08025-B605     | 1   | 15.8   | 15.0  | 9.1   | 75.0   | 1.96                                                       | 1.19                                                       | 2.61                                                           | 1.72                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
| Fujitsu      | TA08025-B604     | 1   | 15.8   | 15.0  | 7.9   | 63.9   | 1.96                                                       | 1.03                                                       | 2.61                                                           | 1.54                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
| JMA Wireless | MX08FRO665-21    | 0.5 | 72.0   | 20.0  | 8.0   | 64.5   | 4.01                                                       | 1.61                                                       | 4.53                                                           | 2.06                                                           | 0.16                      | 0.06                      | 0.03                             | 0.01                             |
| JMA Wireless | MX08FRO665-21    | 0.5 |        |       |       |        | 4.01                                                       | 1.61                                                       | 4.53                                                           | 2.06                                                           | 0.16                      | 0.06                      | 0.03                             | 0.01                             |
| Fujitsu      | TA08025-B605     | 1   | 15.8   | 15.0  | 9.1   | 75.0   | 1.96                                                       | 1.19                                                       | 2.61                                                           | 1.72                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
| Fujitsu      | TA08025-B604     | 1   | 15.8   | 15.0  | 7.9   | 63.9   | 1.96                                                       | 1.03                                                       | 2.61                                                           | 1.54                                                           | 0.07                      | 0.04                      | 0.01                             | 0.01                             |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
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|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |
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|              |                  |     |        |       |       |        |                                                            |                                                            |                                                                |                                                                |                           |                           |                                  |                                  |

# ASCE 7 Hazards Report

**Address:**

No Address at This Location

**Standard:**

ASCE/SEI 7-16

**Risk Category:** II**Soil Class:**

D - Stiff Soil

**Latitude:**

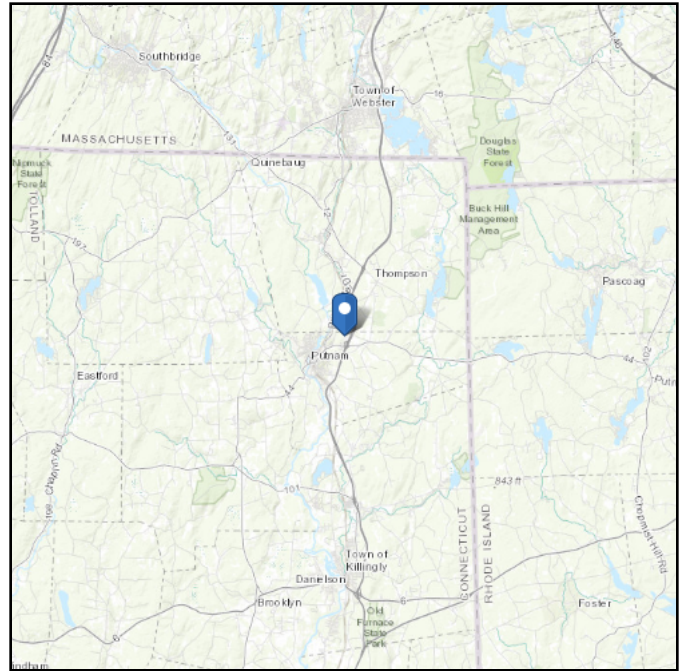
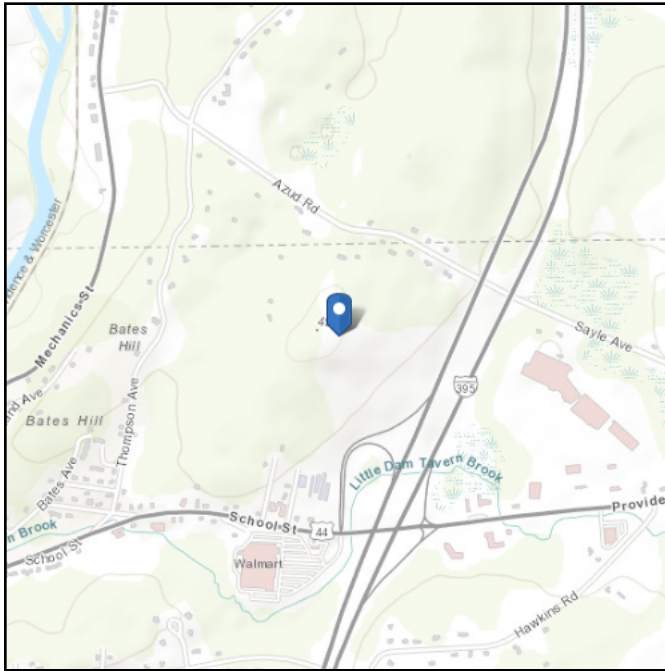
41.92946

**Longitude:**

-71.88633

**Elevation:**

474.01 ft (NAVD 88)



## Wind

**Results:**

|              |          |
|--------------|----------|
| Wind Speed   | 120 Vmph |
| 10-year MRI  | 75 Vmph  |
| 25-year MRI  | 84 Vmph  |
| 50-year MRI  | 93 Vmph  |
| 100-year MRI | 99 Vmph  |

**Data Source:**

ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

**Date Accessed:**

Mon Jan 09 2023

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

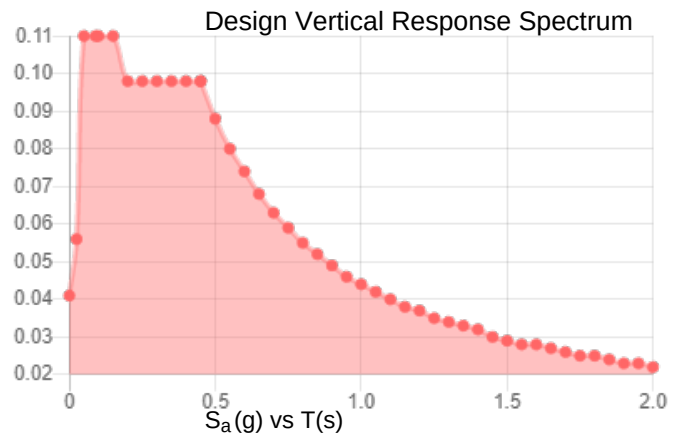
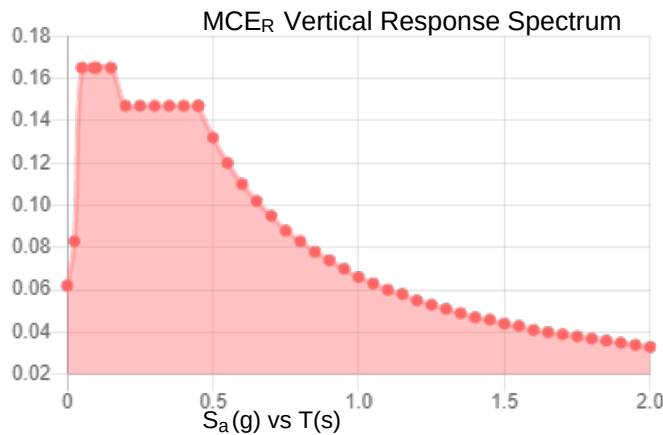
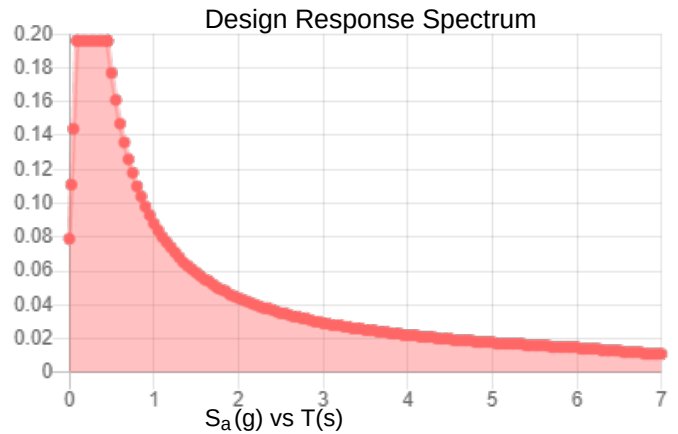
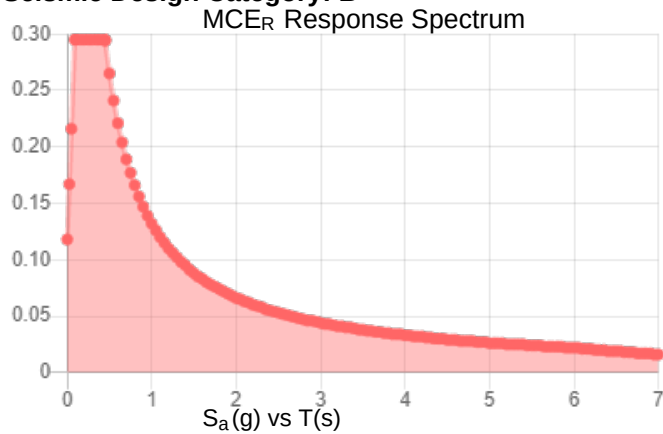
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:**

**Results:**

|            |       |                    |       |
|------------|-------|--------------------|-------|
| $S_S$ :    | 0.184 | $S_{D1}$ :         | 0.088 |
| $S_1$ :    | 0.055 | $T_L$ :            | 6     |
| $F_a$ :    | 1.6   | PGA :              | 0.099 |
| $F_v$ :    | 2.4   | PGA <sub>M</sub> : | 0.158 |
| $S_{MS}$ : | 0.295 | $F_{PGA}$ :        | 1.6   |
| $S_{M1}$ : | 0.132 | $I_e$ :            | 1     |
| $S_{DS}$ : | 0.196 | $C_v$ :            | 0.7   |

**Seismic Design Category: B**



**Data Accessed:** Mon Jan 09 2023

**Date Source:**

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

## Ice

---

### Results:

Ice Thickness: 1.00 in.  
Concurrent Temperature: 15 F  
Gust Speed 50 mph

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Mon Jan 09 2023

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

# Exhibit F

## **Power Density/RF Emissions Report**



# Radio Frequency Emissions Analysis Report



**Site ID: BOBOS00003C**

SBA Putnam  
154 Sayle Avenue  
Putnam, CT 06260

**December 13, 2022**

**Fox Hill Telecom Project Number: 222024**

| Site Compliance Summary                                          |                  |
|------------------------------------------------------------------|------------------|
| Compliance Status:                                               | <b>COMPLIANT</b> |
| Site total MPE% of FCC<br>general population<br>allowable limit: | <b>7.22 %</b>    |





December 13, 2022

Dish Wireless  
5701 South Santa Fe Drive  
Littleton, CO 80120

Emissions Analysis for Site: **BOBOS00003C – SBA Putnam**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **154 Sayle Avenue, Putnam, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 600 MHz band is approximately 400  $\mu\text{W}/\text{cm}^2$ . The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is 1000  $\mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



## CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **154 Sayle Avenue, Putnam, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \text{ ERP}}{R^2}$$

S = Power Density (in  $\mu\text{W}/\text{cm}^2$ )

ERP = Effective Radiated Power from antenna (watts)

R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



For each Dish sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

| Technology | Frequency Band          | Channel Count | Transmit Power per Channel (W) |
|------------|-------------------------|---------------|--------------------------------|
| 5G         | n71 (600 MHz)           | 4             | 61.5                           |
| 5G         | n70 (AWS-4 / 1995-2020) | 4             | 40                             |
| 5G         | n66 (AWS-4 / 2180-2200) | 4             | 40                             |

*Table 1: Channel Data Table*



The following **Dish** antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from Dish regarding anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

| Sector | Antenna Number | Antenna Make / Model | Antenna Centerline (ft) |
|--------|----------------|----------------------|-------------------------|
| A      | 1              | JMA MX08FRO665-21    | 165                     |
| B      | 1              | JMA MX08FRO665-21    | 165                     |
| C      | 1              | JMA MX08FRO665-21    | 165                     |

*Table 2: Antenna Data*

All calculations were done with respect to uncontrolled / general population threshold limits.



## RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

| Antenna ID              | Antenna Make / Model | Frequency Bands                                                         | Antenna Gain (dBd)       | Channel Count | Total TX Power (W) | ERP (W)   | MPE %       |
|-------------------------|----------------------|-------------------------------------------------------------------------|--------------------------|---------------|--------------------|-----------|-------------|
| Antenna A1              | JMA<br>MX08FRO665-21 | n71 (600 MHz) /<br>n70 (AWS-4 / 1995-2020) /<br>n66 (AWS-4 / 2180-2200) | 12.15 / 15.95 /<br>16.25 | 12            | 566                | 17,079.80 | 1.35        |
| Sector A Composite MPE% |                      |                                                                         |                          |               |                    |           | <b>1.35</b> |
| Antenna B1              | JMA<br>MX08FRO665-21 | n71 (600 MHz) /<br>n70 (AWS-4 / 1995-2020) /<br>n66 (AWS-4 / 2180-2200) | 12.15 / 15.95 /<br>16.25 | 12            | 566                | 17,079.80 | 1.35        |
| Sector B Composite MPE% |                      |                                                                         |                          |               |                    |           | <b>1.35</b> |
| Antenna C1              | JMA<br>MX08FRO665-21 | n71 (600 MHz) /<br>n70 (AWS-4 / 1995-2020) /<br>n66 (AWS-4 / 2180-2200) | 12.15 / 15.95 /<br>16.25 | 12            | 566                | 17,079.80 | 1.35        |
| Sector C Composite MPE% |                      |                                                                         |                          |               |                    |           | <b>1.35</b> |

*Table 3: Dish Emissions Levels*



The Following table (*Table 4*) shows all additional carriers on site and their emissions contribution estimates, along with the newly calculated **Dish** far field emissions contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site emissions values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite emissions value for the site.

| Site Composite MPE%         |        |
|-----------------------------|--------|
| Carrier                     | MPE%   |
| Dish – Max Per Sector Value | 1.35 % |
| T-Mobile / Sprint           | 0.98 % |
| Verizon Wireless            | 1.68 % |
| AT&T                        | 3.21 % |
| Site Total MPE %:           | 7.22 % |

*Table 4: All Carrier MPE Contributions*

|                      |        |
|----------------------|--------|
| Dish Sector A Total: | 1.35 % |
| Dish Sector B Total: | 1.35 % |
| Dish Sector C Total: | 1.35 % |
|                      |        |
| Site Total:          | 7.22 % |

*Table 5: Site MPE Summary*





Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

| Dish _ Frequency Band / Technology<br>Max Power Values<br>(Per Sector) | #<br>Channels | Watts ERP<br>(Per Channel) | Height<br>(feet) | Total Power<br>Density<br>( $\mu\text{W}/\text{cm}^2$ ) | Frequency<br>(MHz)      | Allowable<br>MPE<br>( $\mu\text{W}/\text{cm}^2$ ) | Calculated<br>% MPE |
|------------------------------------------------------------------------|---------------|----------------------------|------------------|---------------------------------------------------------|-------------------------|---------------------------------------------------|---------------------|
| Dish n71 (600 MHz) 5G                                                  | 4             | 1,008.96                   | 165              | 0.92                                                    | n71 (600 MHz)           | 400                                               | 0.23%               |
| Dish n70 (AWS-4 / 1995-2020) 5G                                        | 4             | 1,574.20                   | 165              | 2.30                                                    | n70 (AWS-4 / 1995-2020) | 1000                                              | 0.23%               |
| Dish n66 (AWS-4 / 2180-2200) 5G                                        | 4             | 1,686.79                   | 165              | 8.90                                                    | n66 (AWS-4 / 2180-2200) | 1000                                              | 0.89%               |
|                                                                        |               |                            |                  |                                                         |                         | <b>Total:</b>                                     | <b>1.35%</b>        |

Table 6: Dish Maximum Sector MPE Power Values



## Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| Dish Sector                         | Power Density Value (%) |
|-------------------------------------|-------------------------|
| Sector A:                           | 1.35 %                  |
| Sector B:                           | 1.35 %                  |
| Sector C:                           | 1.35 %                  |
| Dish Maximum Total<br>(per sector): | 1.35 %                  |
|                                     |                         |
| Site Total:                         | 7.22 %                  |
|                                     |                         |
| Site Compliance Status:             | <b>COMPLIANT</b>        |

The anticipated composite emissions value for this site, assuming all carriers present, is **7.22 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan  
Principal RF Engineer  
**Fox Hill Telecom, Inc**  
Worcester, MA 01609  
(978)660-3998

# Exhibit G

## **Letter of Authorization**

**SBA Letter of Authorization**

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

**Re: Tower Share Application**

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

Kri Pelletier  
Site Development Manager  
SBA COMMUNICATIONS CORPORATION  
134 Flanders Road, Suite 125  
Westboro, MA 01581

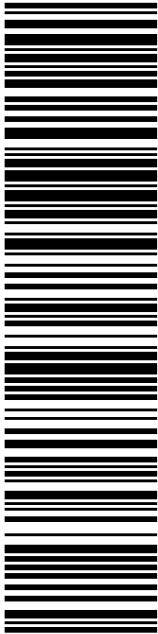
SBA

By: 

Date: 5-30-22

# Exhibit H

## **Recipient Mailings**

|                                                                                                                          |  |                                                                                                                                                                           |  |
|--------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  <b>UNITED STATES POSTAL SERVICE®</b> |  | <b>Click-N-Ship®</b>                                                                                                                                                      |  |
| <b>P</b>                                                                                                                 |  | <small>usps.com</small> 9405 5036 9930 0459 4963 47 0000 0000 0010 6260<br><b>US POSTAGE</b><br>Flat Rate Env<br><b>U.S. POSTAGE PAID</b><br><small>Click-N-Ship®</small> |  |
| 01/18/2023                                                                                                               |  | Mailed from 01566 986768562372910                                                                                                                                         |  |
| <b>PRIORITY MAIL®</b>                                                                                                    |  | Expected Delivery Date: 01/20/23<br>Ref#: SBDS-0003C<br><b>0000</b>                                                                                                       |  |
| DEBORAH CHASE<br>NORTHEAST SITE SOLUTIONS<br>STE 1<br>420 MAIN ST<br>STURBRIDGE MA 01566-1359                            |  |  BARNEY SENEY<br>MAYOR- TOWN OF PUTNAM<br>200 SCHOOL ST<br>PUTNAM CT 06260-1627          |  |
|                                         |  | <b>USPS TRACKING #</b><br><b>9405 5036 9930 0459 4963 47</b>                                                                                                              |  |
| Electronic Rate Approved #038555749                                                                                      |  |                                                                                          |  |

Cut on dotted line.

## Instructions

- Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
- To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
- Mail your package on the "Ship Date" you selected when creating this label.

## Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0459 4963 47**

Trans. #: 580821257  
 Print Date: 01/18/2023  
 Ship Date: 01/18/2023  
 Expected Delivery Date: 01/20/2023

Priority Mail® Postage: **\$9.90**  
 Total: **\$9.90**

**From:** DEBORAH CHASE  
 NORTHEAST SITE SOLUTIONS  
 STE 1  
 420 MAIN ST  
 STURBRIDGE MA 01566-1359

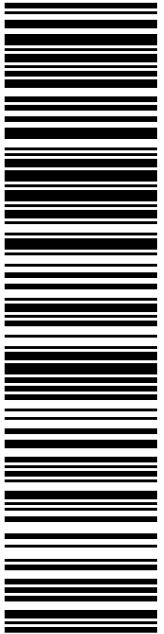
Ref#: SBDS-0003C

**To:** BARNEY SENEY  
 MAYOR- TOWN OF PUTNAM  
 200 SCHOOL ST  
 PUTNAM CT 06260-1627

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!  
 Check the status of your shipment on the USPS Tracking® page at usps.com

|                                                                                                                          |  |                                                                                                                                                                                          |  |
|--------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  <b>UNITED STATES POSTAL SERVICE®</b> |  | <b>Click-N-Ship®</b>                                                                                                                                                                     |  |
| <b>P</b>                                                                                                                 |  | <small>usps.com</small> 9405 5036 9930 0459 4963 61 0000 0000 0010 6260<br><b>US POSTAGE</b><br><small>Flat Rate Env</small><br><b>U.S. POSTAGE PAID</b><br><small>Click-N-Ship®</small> |  |
| 01/18/2023                                                                                                               |  | Mailed from 01566 986768562370857                                                                                                                                                        |  |
| <b>PRIORITY MAIL®</b>                                                                                                    |  | Expected Delivery Date: 01/20/23<br>Re#: SBDS-0003C<br><b>0000</b>                                                                                                                       |  |
| DEBORAH CHASE<br>NORTHEAST SITE SOLUTIONS<br>STE 1<br>420 MAIN ST<br>STURBRIDGE MA 01566-1359                            |  | <b>C002</b>                                                                                                                                                                              |  |
|                                         |  | CHAD SESSUMS<br>BUILDING OFFICIAL, ZONING ENFORCEMENT<br>200 SCHOOL ST<br>PUTNAM CT 06260-1627                                                                                           |  |
| <b>USPS TRACKING #</b>                                                                                                   |  |                                                                                                         |  |
| 9405 5036 9930 0459 4963 61                                                                                              |  |                                                                                                                                                                                          |  |
| Electronic Rate Approved #038555749                                                                                      |  |                                                                                                         |  |



Cut on dotted line.

## Instructions

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- Mail your package on the "Ship Date" you selected when creating this label.

## Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0459 4963 61**

Trans. #: 580821257  
Print Date: 01/18/2023  
Ship Date: 01/18/2023  
Expected  
Delivery Date: 01/20/2023

Priority Mail® Postage: **\$9.90**  
Total: **\$9.90**

**From:** DEBORAH CHASE  
NORTHEAST SITE SOLUTIONS  
STE 1  
420 MAIN ST  
STURBRIDGE MA 01566-1359

Re#: SBDS-0003C

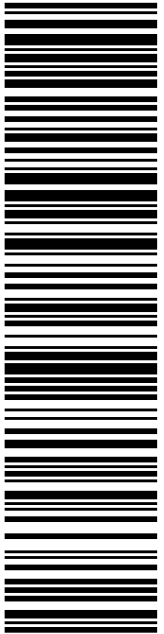
**To:** CHAD SESSUMS  
BUILDING OFFICIAL, ZONING ENFORCEMENT OFFICER  
200 SCHOOL ST  
PUTNAM CT 06260-1627

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!  
Check the status of your shipment on the USPS Tracking® page at usps.com



|                                                                                                                          |  |                                                                                                                              |  |
|--------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------|--|
|  <b>UNITED STATES POSTAL SERVICE®</b> |  | <b>Click-N-Ship®</b>                                                                                                         |  |
| <b>P</b>                                                                                                                 |  | <small>usps.com</small> 9405 5036 9930 0459 4963 78 0000 0000 0010 1581<br><b>US POSTAGE</b><br><small>Flat Rate Env</small> |  |
| 01/18/2023                                                                                                               |  | Mailed from 01566 986768562370291                                                                                            |  |
| <b>PRIORITY MAIL®</b>                                                                                                    |  | <b>U.S. POSTAGE PAID</b><br><small>Click-N-Ship®</small>                                                                     |  |
| DEBORAH CHASE<br>NORTHEAST SITE SOLUTIONS<br>STE 1<br>420 MAIN ST<br>STURBRIDGE MA 01566-1359                            |  | Expected Delivery Date: 01/19/23<br>Ref#: SBDS-0003C<br><b>0000</b>                                                          |  |
|                                         |  | <b>R005</b>                                                                                                                  |  |
| SBA COMMUNICATIONS CORPORATION<br>STE 125<br>13 FLANDERS RD<br>WESTBOROUGH MA 01581                                      |  |                                                                                                                              |  |
| <b>USPS TRACKING #</b>                                                                                                   |  |                                                                                                                              |  |
|                                         |  |                                                                                                                              |  |
| <b>9405 5036 9930 0459 4963 78</b>                                                                                       |  |                                                                                                                              |  |
| Electronic Rate Approved #038555749                                                                                      |  |                                                                                                                              |  |
|                                         |  |                                                                                                                              |  |



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## Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0459 4963 78**

Trans. #: 580821257  
Print Date: 01/18/2023  
Ship Date: 01/18/2023  
Expected Delivery Date: 01/19/2023

Priority Mail® Postage: **\$9.90**  
Total: **\$9.90**

**From:** DEBORAH CHASE  
NORTHEAST SITE SOLUTIONS  
STE 1  
420 MAIN ST  
STURBRIDGE MA 01566-1359

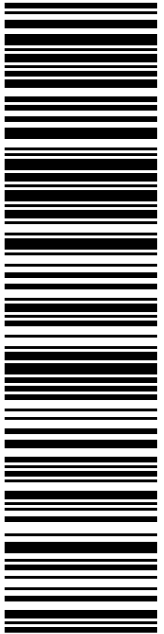
Ref#: SBDS-0003C

**To:** SBA COMMUNICATIONS CORPORATION  
STE 125  
13 FLANDERS RD  
WESTBOROUGH MA 01581

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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|                                                                                                                          |  |                                                                                                                              |  |
|--------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------|--|
|  <b>UNITED STATES POSTAL SERVICE®</b> |  | <b>Click-N-Ship®</b>                                                                                                         |  |
|                                       |  | <small>usps.com</small> 9405 5036 9930 0459 4963 85 0000 0000 0010 6277<br><b>US POSTAGE</b><br><small>Flat Rate Env</small> |  |
| 01/18/2023                                                                                                               |  | Mailed from 01566 986768562368847                                                                                            |  |
| <b>PRIORITY MAIL®</b>                                                                                                    |  |                                           |  |
| DEBORAH CHASE<br>NORTHEAST SITE SOLUTIONS<br>STE 1<br>420 MAIN ST<br>STURBRIDGE MA 01566-1359                            |  | Expected Delivery Date: 01/20/23<br>Ref#: SBDS-0003C<br><b>0000</b>                                                          |  |
|                                         |  | <b>B001</b>                                                                                                                  |  |
| MARGARET BLAIN WILLIAM MOSER<br>PO BOX 18<br>THOMPSON CT 06277-0018                                                      |  |                                                                                                                              |  |
| <b>USPS TRACKING #</b>                                                                                                   |  |                                                                                                                              |  |
|                                         |  |                                                                                                                              |  |
| 9405 5036 9930 0459 4963 85                                                                                              |  |                                                                                                                              |  |
| Electronic Rate Approved #038555749                                                                                      |  |                                                                                                                              |  |
|                                         |  |                                                                                                                              |  |



Cut on dotted line.

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## Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0459 4963 85**

Trans. #: 580821257  
Print Date: 01/18/2023  
Ship Date: 01/18/2023  
Expected Delivery Date: 01/20/2023

Priority Mail® Postage: **\$9.90**  
Total: **\$9.90**

**From:** DEBORAH CHASE  
NORTHEAST SITE SOLUTIONS  
STE 1  
420 MAIN ST  
STURBRIDGE MA 01566-1359

Ref#: SBDS-0003C

**To:** MARGARET BLAIN WILLIAM MOSER  
PO BOX 18  
THOMPSON CT 06277-0018

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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BOROSOWSKI



FARMINGTON  
210 MAIN ST  
FARMINGTON, CT 06032-9998  
(800)275-8777

01/20/2023

04:35 PM

| Product | Qty | Unit Price | Price |
|---------|-----|------------|-------|
|---------|-----|------------|-------|

|              |   |  |        |
|--------------|---|--|--------|
| Prepaid Mail | 1 |  | \$0.00 |
|--------------|---|--|--------|

Putnam, CT 06260  
Weight: 0 lb 7.70 oz  
Acceptance Date:  
Fri 01/20/2023  
Tracking #:

9405 5036 9930 0459 4963 47

|              |   |  |        |
|--------------|---|--|--------|
| Prepaid Mail | 1 |  | \$0.00 |
|--------------|---|--|--------|

Westborough, MA 01581  
Weight: 0 lb 1.90 oz  
Acceptance Date:  
Fri 01/20/2023  
Tracking #:

9405 5036 9930 0459 4963 78

|              |   |  |        |
|--------------|---|--|--------|
| Prepaid Mail | 1 |  | \$0.00 |
|--------------|---|--|--------|

Putnam, CT 06260  
Weight: 0 lb 7.70 oz  
Acceptance Date:  
Fri 01/20/2023  
Tracking #:

9405 5036 9930 0459 4963 61

|              |   |  |        |
|--------------|---|--|--------|
| Prepaid Mail | 1 |  | \$0.00 |
|--------------|---|--|--------|

Thompson, CT 06277  
Weight: 0 lb 7.60 oz  
Acceptance Date:  
Fri 01/20/2023  
Tracking #:

9405 5036 9930 0459 4963 85

|              |  |  |        |
|--------------|--|--|--------|
| Grand Total: |  |  | \$0.00 |
|--------------|--|--|--------|

Text your tracking number to 28777 (2USPS)  
to get the latest status. Standard Message  
and Data rates may apply. You may also  
visit [www.usps.com](http://www.usps.com) USPS Tracking or call  
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or scan this code with your mobile device,



or call 1-800-410-7420.

UFN: 082618-0132  
Receipt #: 840-50600020-1-5244990-1  
Clerk: 2