[redacted]DUSTRIAL AVE,
S[redacted]E 3
M[redacted]WAH NJ 07430

P[redacted]E: 201.684.0055
F[redacted] 201.684.0066

Transcend Wireless

June 17th, 2022

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

RE: Notice of Exempt Modification
20 Post Office Lane, Westport, CT 06880
Latitude: 41.12346728
Longitude: -73.31308307
T-Mobile Site#: CT11012B - Anchor / Sprint Consolidation

Dear Ms. Bachman:

T-Mobile currently maintains eleven (11) antennas at the 90-foot level of the existing 142-foot monopole tower at 20 Post Office Lane in Westport, CT. Sprint currently maintains eleven (11) antennas at the 120-foot level of the tower. The 142-foot monopole tower is owned and operated by American Tower. The property is owned by Sherwood Jay. T-Mobile now intends to remove all existing Sprint equipment from the 120-foot level and all existing T-Mobile equipment at the 90-foot level. T-Mobile will then install nine (9) antennas at the 120-foot level. These antennas will support 5G services.

**Planned Modifications:**
**Tower:**
Install New:
(3) Ericsson AIR 6419 B41 Antennas
(3) Commscope VV-65A-R1 Antennas
(3) RFS APXVAALL24 Antennas
(3) Radio 4460 B25 B66
(3) Radio 4480 B71 B85
(3) 1.99” Hybrid Cables

To Be Removed:
(11) Sprint Antennas
(9) Sprint RRUs
Other associated Sprint equipment

(9) T-Mobile antennas
(3) T-Mobile RRUs
Other associated T-Mobile equipment
**Ground:**
Install (1) 6160 Power Enclosure, and (1) B160 Battery Rack, (2) RP 6651, (1) PSU 4813, and (1) CSR IXRE.
Remove (1) RBS 6102 Cabinet, (2) DUW30, (8) RUS01 B4 Radios.

This facility was originally approved by the Council in Petition No. 394 on August 25, 1998. This modification will not break any of the conditions set forth in this approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectwoman Jennifer Tooker, Elected Official, and Laurie Montagna, Zoning Official, as well as the tower and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S;A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

**Eric Breun**
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Jennifer Tooker - First Selectwoman of Westport
Laurie Montagna - Zoning Official of Westport
American Tower - Tower Owner
Sherwood Jay - Property Owner

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

**SHIP TO:**
ZONING OFFICIAL
LAURIE MONTAGNA
110 MYRTLE AVENUE
**WESTPORT CT 06880**

**CT 066 9-02**

**UPS GROUND**
TRACKING #: 1Z V25 742 03 9954 8566

BILLING: P/P

Reference #1: CT11012B

XOL 22.05.57 NV45 25.0A 06/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

**SHIP TO:**
FIRST SELECTWOMAN
JENNIFER TOOKER
110 MYRTLE AVENUE
**WESTPORT CT 06880**

**CT 066 9-02**

**UPS GROUND**
TRACKING #: 1Z V25 742 03 9107 3093

BILLING: P/P

Reference #1: CT11012B

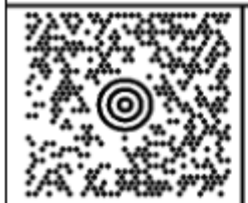
XOL 22.05.57 NV45 25.0A 06/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

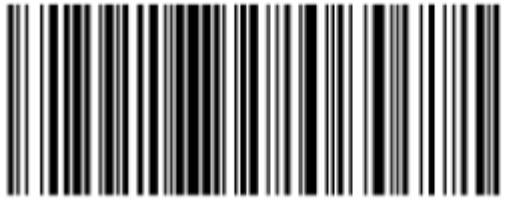
1 OF 1

**SHIP TO:**
SHERWOOD JAY
MAPLE LANE
**WESTPORT CT 06880**



**CT 066 9-02**

**UPS GROUND**
TRACKING #: 1Z V25 742 03 9669 8570



BILLING: P/P

Reference #1: CT11012B

XOL 22.05.57 NV45 25.0A 06/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

**SHIP TO:**
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
**WOBURN MA 01801**

**MA 018 9-04**

**UPS GROUND**
TRACKING #: 1Z V25 742 03 9031 5109

BILLING: P/P

Reference #1: CT11012B

XOL 22.05.57 NV45 25.0A 06/2022*

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 06/15/2022

**Delivery Time:** 10:03 AM

**Signed by:** PAUL

## TRANSCEND WIRELESS

| | |
|---|---|
| **Tracking Number:** | 1ZV257420391073093 |
| **Ship To:** | JENNIFER TOOKER<br>110 MYRTLE AVENUE<br>WESTPORT, CT 06880<br>US |
| **Number of Packages:** | 1 |
| **UPS Service:** | UPS Ground |
| **Package Weight:** | 1.0 LBS |
| **Reference Number:** | CT11012B |

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 06/15/2022

**Delivery Time:** 10:03 AM

**Signed by:** PAUL

## TRANSCEND WIRELESS

| | |
|---|---|
| **Tracking Number:** | 1ZV257420399548566 |
| **Ship To:** | LAURIE MONTAGNA<br>110 MYRTLE AVENUE<br>WESTPORT, CT 06880<br>US |
| **Number of Packages:** | 1 |
| **UPS Service:** | UPS Ground |
| **Package Weight:** | 1.0 LBS |
| **Reference Number:** | CT11012B |

**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 06/15/2022

**Delivery Time:** 11:26 AM

**Signed by:** LONG

## TRANSCEND WIRELESS

| | |
|---|---|
| **Tracking Number:** | 1ZV257420390315109 |
| **Ship To:** | AMERICAN TOWER CORPORATION<br>10 PRESIDENTIAL WAY<br>WOBURN, MA 01801<br>US |
| **Number of Packages:** | 1 |
| **UPS Service:** | UPS Ground |
| **Package Weight:** | 1.0 LBS |
| **Reference Number:** | CT11012B |

**Shipment Details** | Shipment Progress

Tracking Number
1ZV257420396698570

Ship From
TRANSCEND WIRELESS
TRANSCEND WIRELESS
1 INTERNATIONAL BLVD
MAHWAH, NJ, 074950025, US

Service
UPS Ground

Weight
1.00 LBS

Shipment Category
Package

Reference Number(s)
CT11012B

Shipped / Billed On
06/14/2022

Your shipment from

## TRANSCEND WIRELESS

Estimated delivery

**The delivery date will be provided as soon as possible.**

- Label Created
- On the Way
- **Address Change Requested**
- Out for Delivery
- Delivery


H06016000
INTERSTATE 95
MAPLE LANE
Click OR Press down to start and let go to finish
H06017000
H06028000
AYTON STREET
H06034000
H06018000
H06012000
H06011000
H06035000
H06009000
H06036000
Parcel #: H06017000
Documents & Links
Assessment
Properties on Sewer
+ BuildingPhoto (8)
Vision Online Property Records

| | | | | | |
|---|---|---|---|---|---|
| Property Location | MAPLE LN | Map ID | H06/ / 017/000 / | Bldg Name | State Use 435 |
| Vision ID 7785 | Account # 11910 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 1 | Print Date 5/18/2022 3:18:04 PM |

## CONSTRUCTION DETAIL

| Element | Cd | Description |
|---|---|---|
| Style: | 94 | Outbuildings |
| Model | 00 | Vacant |
| Grade: | | |
| Stories: | | |
| Occupancy | | |
| Exterior Wall 1 | | |
| Exterior Wall 2 | | |
| Roof Structure: | | |
| Roof Cover | | |
| Interior Wall 1 | | |
| Interior Wall 2 | | |
| Interior Flr 1 | | |
| Interior Flr 2 | | |
| Heat Fuel | | |
| Heat Type: | | |
| AC Type: | | |
| Total Bedrooms | | |
| Total Bthrms: | | |
| Total Half Baths | | |
| Total Xtra Fixtrs | | |
| Total Rooms: | | |
| Bath Style: | | |
| Kitchen Style: | | |
| Kitchens | | |
| Whirlpool Tubs | | |
| Hot Tubs | | |
| Sauna (SF Area | | |
| Fin Basement | | |
| Fin Bsmt Qual | | |
| Bsmt. Garages | | |
| Interior Cond | | |
| Fireplaces | | |
| Ceiling Height | | |

## CONSTRUCTION DETAIL (CONTINUED)

| Element | Cd | Description |
|---|---|---|
| Fireplaces | | |
| Ceiling Height | | |
| Elevator | | |

## CONDO DATA

| | | | | | |
|---|---|---|---|---|---|
| Parcel Id | | C | | Owne | |
| | | B | | S | |

| Adjust Type | Code | Description | Factor% |
|---|---|---|---|
| Condo Flr | | | |
| Condo Unit | | | |

## COST / MARKET VALUATION

| | |
|---|---|
| Building Value New | 0 |
| Year Built | 0 |
| Effective Year Built | |
| Depreciation Code | |
| Remodel Rating | |
| Year Remodeled | |
| Depreciation % | 0 |
| Functional Obsol | 0 |
| External Obsol | 0 |
| Trend Factor | 1 |
| Condition | |
| Condition % | 100 |
| Percent Good | |
| Cns Sect Rcnld | 0 |
| Dep % Ovr | |
| Dep Ovr Comment | |
| Misc Imp Ovr | |
| Misc Imp Ovr Comment | |
| Cost to Cure Ovr | |
| Cost to Cure Ovr Comment | |

No Sketch

## OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)

| Code | Descript | Sub | Sub Ty | L/B | Units | Unit Pric | Yr Blt | Cond. C | % Gd | Grade | Grade A | Appr. V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CELL | Cell on | TW | | L | 5 | 328000. | 2010 | | 100 | 2 | 0.75 | 1,253,9 |

## BUILDING SUB-AREA SUMMARY SECTION

| Code | Description | Living Area | Floor Area | Eff Area | Unit Cost | Undeprec Value |
|---|---|---|---|---|---|---|
| | Ttl Gross Liv / Lease Area | 0 | 0 | | | 0 |

Property Location MAPLE LN | Map ID H06/ / 017/000 / | Bldg Name | State Use 435
Vision ID 7785 | Account # 11910 | Bldg # 1 | Sec # 1 of 1 | Card # 1 of 1 | Print Date 5/18/2022 3:18:05 PM

## CURRENT OWNER

SHERWOOD JAY

P O BOX 48

WESTPORT CT 06881

1

| TOPO | UTILITIES | STRT / ROAD | LOCATION |
|---|---|---|---|
| | 2 Public Water | 1 Public | |

## SUPPLEMENTAL DATA

| | | | |
|---|---|---|---|
| Alt Prcl ID | 5452217-C | Lift Hse | |
| Historic ID | | Asking $ | |
| Census | 506 | | |
| WestportC | L3 | | |
| Survey Ma | 3206 | | |
| Survey Ma | | | |
| GIS ID | H06017000 | Assoc Pid# | |

## CURRENT ASSESSMENT

| Description | Code | Appraised | Assessed |
|---|---|---|---|
| UTL LAND | 4-1 | 313,000 | 219,100 |
| UTL BLDG | 4-2 | -89,500 | -62,700 |
| UTL OUTBL | 4-3 | 1,253,900 | 877,730 |
| | Total | 1,477,400 | 1,034,130 |

6158

WESTPORT, CT

**VISION**

## RECORD OF OWNERSHIP

| RECORD OF OWNERSHIP | BK-VOL/PAGE | | SALE DATE | Q/U | V/I | SALE PRICE | VC |
|---|---|---|---|---|---|---|---|
| SHERWOOD JAY | 0469 | 0137 | 12-08-1977 | U | V | 0 | 29 |

## PREVIOUS ASSESSMENTS (HISTORY)

| Year | Code | Assessed | Year | Code | Assessed V | Year | Code | Assessed |
|---|---|---|---|---|---|---|---|---|
| 2021 | 4-1 | 219,100 | 2020 | 4-1 | 219,100 | 2020 | 4-1 | 219,100 |
| | 4-2 | -62,700 | | 4-2 | -62,700 | | 4-2 | -62,700 |
| | 4-3 | 877,730 | | 4-3 | 877,730 | | 4-3 | 877,730 |
| | Total | 1,034,130 | | Total | 1,034,130 | | Total | 1,034,130 |

## EXEMPTIONS

| Year | Code | Description | Amount |
|---|---|---|---|
| | | Total | 0.00 |

## OTHER ASSESSMENTS

| Code | Description | Number | Amount | Comm Int |
|---|---|---|---|---|

This signature acknowledges a visit by a Data Collector or Assessor

## ASSESSING NEIGHBORHOOD

| Nbhd | Sub | Nbhd Name | B | Tracing | Batch |
|---|---|---|---|---|---|
| 0001 | R | 0001 | | | |

## NOTES

M/ 3206 M/ 9505 TEMPORARY EASEMENT SEE ASSOCIATED DOCUMENTS

CELL TOWER 5 SITES

MG'D BY AMERICAN TOWER -- WSPT SOUTH

SITE # 302511 -- PH: 877 518-6937

## APPRAISED VALUE SUMMARY

| | |
|---|---|
| Appraised Bldg. Value (Card) | -89,500 |
| Appraised Xf (B) Value (Bldg) | 0 |
| Appraised Ob (B) Value (Bldg) | 1,253,900 |
| Appraised Land Value (Bldg) | 313,000 |
| Special Land Value | 0 |
| Total Appraised Parcel Value | 1,477,400 |
| Valuation Method | I |
| Total Appraised Parcel Value | 1,477,400 |

## BUILDING PERMIT RECORD

| Permit Id | Issue Date | Type | Description | Amount | Insp Date | % Comp | Date Comp | Comments |
|---|---|---|---|---|---|---|---|---|
| 82271 | 01-13-2017 | NA | Miscellaneous | 5,000 | 04-11-2017 | 100 | | NEW WORK ON EXISTING T |
| 81426 | 05-12-2016 | AL | Alterations | 25,000 | 04-11-2017 | 100 | 03-06-2017 | AKA 20 POST OFFICE LN UP |
| 81189 | 03-07-2016 | AL | Alterations | 15,000 | 04-11-2017 | 100 | 04-01-2016 | INSTALL 3 ANTENNAS FOR " |
| 79224 | 10-28-2014 | AL | Alterations | 27,000 | 10-01-2015 | 100 | | INSTALL 3 PANEL ANTENNA |

| Permit Id | Comments |
|---|---|
| 82271 | NEW WORK ON EXISTING TOWER FOR ANTENNA EXPANSION. AKA 20 POST OFFICE LANE. |
| 81426 | AKA 20 POST OFFICE LN UPGRADE ANTENNAS - PE TO INSPECT & SIGN OFF UPON COMPLETION OF WORK |
| 81189 | INSTALL 3 ANTENNAS FOR "T MOBIL" PE MUST SIGN OFF UPON COMPLETION" |
| 79224 | INSTALL 3 PANEL ANTENNAS & 3 RRU'S ** NEED ENGINEER SIGNOFF UPON COMPLETION OF WORK** |
| 73207 | AKA 19 - 20 POST OFFICE LN, ADD THREE ANTENNAS TO EXISTING POLE**PE SIGN-OFF UPON COMPLETION OF WORK REQUIRED FOR CO** |

## VISIT / CHANGE HISTORY

| Date | Id | Type | Is | Cd | Purpost/Result |
|---|---|---|---|---|---|
| 06-12-2020 | SR | | | 19 | Field Review |
| 04-11-2017 | TM | 2 | | 55 | NOAH - Visual |
| 10-01-2015 | AG | 2 | | 69 | Partial Int Inspn (See Perm |
| 05-14-2015 | VA | | | 66 | INSPECTION NOTICE SE |

## LAND LINE VALUATION SECTION

| B | Use Code | Description | Zone | Land | Land Units | | Unit Price | Size Adj | Site Index | Cond. | Nbhd. | Nbhd. Adj | Notes | Location Adjustment | | Adj Unit P | Land Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 435 | Cell Site Vac Lnd | AAA | | 2.070 | AC | 1,080,000. | 1.00000 | C | 0.10 | 140 | 1.400 | GRAVEL STORAGE | | 1.0000 | | 313,000 |
| | | | | Total Card Land Units | 2.070 | AC | Parcel Total Land Area | 2 | | | | | | | Total Land Value | | 313,000 |

Petition No. 394
Springwich Cellular Limited Partnership
Staff Report
July 9, 1998

On Monday, June 22, 1998, Connecticut Siting Council (Council) members Edward S. Wilensky and Brian Emerick, and Council staff Joel M. Rinebold, Robert K. Erling, and Paul M. Aresta met Springwich Cellular Limited Partnership's (SCLP) representative Peter W. van Wilgen, for a site inspection for the proposed replacement of an existing telecommunications tower and expansion of the site boundaries to accommodate tower sharing, located on Post Office Lane, in Westport, Connecticut. SCLP is petitioning the Council for a declaratory ruling that the proposed project would have no substantial adverse environmental effect.

SCLP proposes to replace an existing 130-foot monopole structure with a new 130-foot monopole structure and increase the site boundaries to accommodate tower sharing by SCLP, Bell Atlantic Mobile (BAM), Sprint Spectrum L.P. (Sprint), Nextel Communications (Nextel), and Omnipoint Communications, Inc. (Omnipoint). The existing tower, which was approved by the Council in Docket 166 on August 29, 1995, measures approximately 36 inches at the base and 15 inches at the top. The existing tower is not capable of supporting the additional carriers' antennas requiring the construction of a new tower of stronger design, measuring approximately six feet at the base and 3 feet at the top. The replacement tower is proposed to be located approximately 20 feet south of the existing tower, and would support the antennas for SCLP at the 130-foot level; Sprint at the 120-foot level, Nextel at the 110-foot level; BAM at the 100-foot level. In addition, Omnipoint would either place a low-profile 16-inch diameter antenna array on a mounting post at the top of the replacement tower resulting in an overall height of approximately 143 feet including appurtenances, or mount their antennas on a platform at the 90 foot level. The site currently consists of an existing 130-foot tower, a 12-foot by 26-foot equipment building, and an 8-foot high chain-link fence on a 2,400 square foot parcel. BAM would install a 12-foot by 30-foot equipment building with a generator to be shared with SCLP; Nextel would install a 10-foot by 20-foot equipment building; and Sprint and Omnipoint would each install a 10-foot by 12-foot concrete pad for their equipment cabinets. The existing 8-foot high chain-link fence would be extended around all of the equipment structures. The existing access road would be utilized by all of the carriers.

The height of the tower will remain unchanged. The noise levels at the existing facility would not increase by six decibels, under normal operating conditions. The operation of all the carriers' proposed antennas would not exceed the maximum permissible exposure limit for the worst case radio frequency power density at the base of the structure. The calculated cumulative worst case power density would not exceed 30.52 percent of the applicable standard. There are no wetlands on the proposed site and no clearing would be required. SCLP contends that the incremental visual impact from placing additional antennas on one tower is preferable to the construction of multiple towers.

SCLP contends that the proposed replacement of an existing 130-foot tower and expansion of the site boundaries to accommodate tower sharing does not cause a significant change or alteration in the physical and environmental characteristics of the site, and would not cause a substantial adverse environmental effect.

Ss
PETITION NO. 394 - Springwich Cellular Limited Partnership (Springwich) Petition for a Declaratory Ruling that no amendment to the Certificate of Environmental Compatibility and Public Need is required to replace the existing tower and expand the site boundaries to accommodate tower sharing at an existing telecommunications facility located at 20 Post Office Lane in Westport, Connecticut. }

}

}

} Connecticut

Siting

Council

August 25, 1998

Decision & Order

Pursuant to the foregoing Findings of Fact and Opinion, and in accordance with the provisions of Regulations of Connecticut State Agencies §§ 16-50j-38 through 16-50j-39, the proposed modifications to an existing telecommunications facility located at 20 Post Office Lane in Westport, Connecticut will not have a substantial adverse environmental effect; therefore, an amendment to the Certificate of Environmental Compatibility and Public Need issued in Docket 166 on August 29, 1995, is not required.

The modifications shall be implemented substantially as specified in the Council's record in this matter and subject to the following conditions:

1. Springwich Cellular Limited Partnership (SCLP) shall provide the Council a recalculated report of electromagnetic radio frequency power density when circumstances in operation cause a change in power density above the levels originally calculated and provided in the petition.

2. If the facility does not provide, or permanently ceases to provide the proposed telecommunications services following completion of construction, this Decision and Order shall be void, and the petitioner shall dismantle and remove the tower, antennas, and all associated equipment within 60

days after such equipment ceases to provide the proposed telecommunications services or reapply to the Council for any proposed new use.

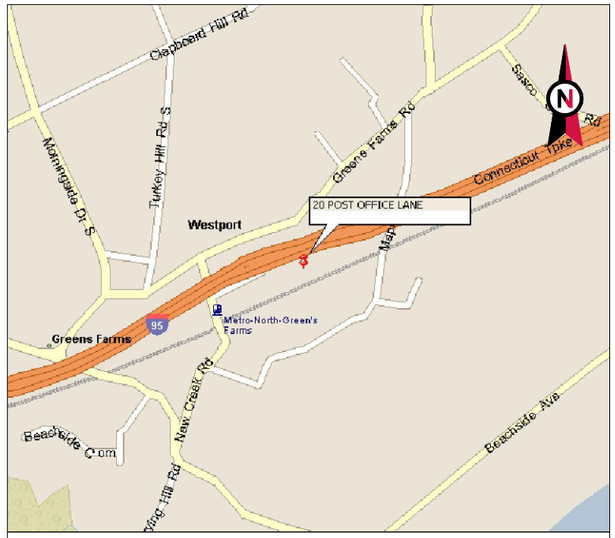
3. SCLP shall provide advance notice two days prior to the commencement of construction. SCLP shall notify the Council upon completion of construction and commencement of operations.

4. No fill material or structures shall be placed in the area adjacent to the facility compound designated as a 100-year flood zone.

5. Low profile platforms, similar in design and appearance, shall be used and painted blue to match the color of the replacement tower.

6. The antenna canister for Omnipoint Communications may not be located above the top of the replacement tower.

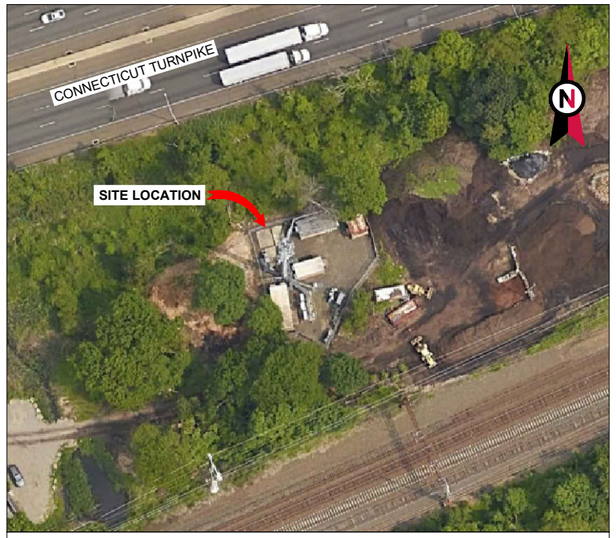
7. All other applicable orders issued in the Council's Decision and Order for Docket 166 remain in effect.




VICINITY MAP

# AMERICAN TOWER®

ATC SITE NAME: WSPT - SOUTH
ATC SITE NUMBER: 302511
T-MOBILE SITE NAME: WESTPORT/ I-95/ X18/ SHER
T-MOBILE SITE NUMBER: CT11012B
SITE ADDRESS: 20 POST OFFICE LANE
WESTPORT, CT 06880-6226




LOCATION MAP

## T-MOBILE ANCHOR AMENDMENT PLAN
## 67D5998E CONFIGURATION

### COMPLIANCE CODE

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

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

### UTILITY COMPANIES

POWER COMPANY: UNITED
PHONE: (800) 468-8809

TELEPHONE COMPANY: NOT PROVIDED
PHONE: NOT PROVIDED

811 Know what's below. Call before you dig.

### PROJECT SUMMARY

SITE ADDRESS:

20 POST OFFICE LANE
WESTPORT, CT 06880-6226
COUNTY: FAIRFIELD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.12346728°
LONGITUDE: -73.31308307°
GROUND ELEVATION: 15' AMSL

ZONING INFORMATION:

JURISDICTION: CONNECTICUT SITING COUNCIL
APN: H06017000
ZONING CODE: RESIDENTIAL

### PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

T-MOBILE

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

SHERWOOD JAY
P O BOX 48
WESTPORT, CT 6881

### PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

TOWER WORK:
REMOVE ALL EQUIPMENT & MOUNTS @ 90' AND ALL EQUIPMENT & MOUNTS @ 120'.
INSTALL (9) ANTENNA(s), (3) RRU(s), (3) 6x24 HYBRID CABLES @ 120'.

GROUND WORK:
REMOVE (1) RBS 6102 CABINET, (2) DUW30 AND (8) RUS01 B4 RADIOS FROM RBS 6102 CABINET.

RELOCATE (1) DUG20 AND (2) BB 6630 TO RBS 6131 CABINET.

INSTALL (1) 6160 AC V1 CABINET, (1) B160 BATTERY CABINET, (2) RP 6651, (1) PSU 4813 VR4A AND (1) CSR IXRE V2 (GEN2).

EXISTING (1) RBS 6131 CABINET TO REMAIN.

### PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.
6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

### PROJECT LOCATION DIRECTIONS

FROM HARTFORD TAKE I-91 SOUTH TO I-95 SOUTH. TAKE EXIT 18 STAYING TO THE RIGHT OFF THE EXIT. AT SECOND LIGHT TAKE A RIGHT AND FOLLOW ABOUT 1.25 MILES AND TURN RIGHT ONTO NEW CREEK ROAD. GO UNDER BRIDGE AND TURN LEFT ONTO POST OFFICE LANE. FOLLOW TO END PAST THE HOUSE TO THE SITE.

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| SHEET NO: | DESCRIPTION: | REV: | DATE: | BY: |
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| R-605 | SUPPLEMENTAL | - | - | - |
| R-606 | SUPPLEMENTAL | - | - | - |
| R-607 | SUPPLEMENTAL | - | - | - |
| R-608 | SUPPLEMENTAL | - | - | - |
| | | | | |

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| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:


B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

T-Mobile

| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

TITLE SHEET

SHEET NUMBER: G-001

REVISION: 0

## GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

## STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
   - H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
   - I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T-MOBILE PROJECT MANAGER IN WRITING

## SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
   - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL
   - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
   - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.
   - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

## CONCRETE AND REINFORCING STEEL NOTES:

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF ALL APPLICABLE CODES INCLUDING: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 117 "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS", AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
2. MIX DESIGN SHALL BE APPROVED BY T-MOBILE REP PRIOR TO PLACING CONCRETE.
3. CONCRETE SHALL BE NORMAL WEIGHT, 6 % AIR ENTRAINED (+/- 1.5%) WITH A SLUMP RANGE OF 3-6" AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE NOTED.
4. THE FOLLOWING MATERIALS SHALL BE USED:

| | |
|---|---|
| PORTLAND CEMENT: | ASTM C150, TYPE 2 |
| REINFORCEMENT: | ASTM A185, PLAIN STEEL WELDED WIRE FABRIC |
| REINFORCEMENT BARS: | ASTM A615, GRADE 60, DEFORMED |
| NORMAL WEIGHT AGGREGATE: | ASTM C33 |
| WATER: | ASTM C 94/C 94M |
| WELDED WIRE FABRIC: | ASTM A185 |
| ADMIXTURES: | |
| -WATER-REDUCING AGENT: | ASTM C 494/C 494M, TYPE A |
| -AIR-ENTERING AGENT: | ASTM C 260/C 260M |
| -SUPERPLASTICIZER: | ASTM C494, TYPE F OR TYPE G |
| -RETARDING: | ASTM C 494/C 494M, TYPE B |

5. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE NO LESS THAN 3".
6. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE IN ACCORDANCE WITH ACI 301 SECTION 4.2.4, UNLESS NOTED OTHERWISE.
7. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL, OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR APPROVAL FROM AN ATC ENGINEER WHEN DRILLING HOLES IN CONCRETE.
8. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN "METHOD 1" OF ACI 301.
9. DO NOT WELD OR TACK WELD REINFORCING STEEL.
10. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
11. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
12. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
13. FOR COLD-WEATHER (ACI 306) AND HOT-WEATHER (ACI 301M) CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS, MINIMUM.
14. ALL CONCRETE SHALL HAVE A "SMOOTH FORM FINISH."
15. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE CONTRACT DRAWINGS OR AS ACCEPTED BY THE ENGINEER. UNLESS OTHERWISE SHOWN OR NOTED REINFORCING STEEL SHALL BE SPLICED TO DEVELOP ITS FULL TENSILE CAPACITY (CLASS A) IN ACCORDANCE WITH ACI 318.
16. DETAILING OF REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315).
17. ALL SLAB CONSTRUCTION SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS SHOWN IN THE CONTRACT DRAWINGS.
18. LOCATION OF ALL CONSTRUCTION JOINTS ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONFORMANCE WITH ACI 318, AND ACCEPTANCE OF THE ENGINEER. DRAWINGS SHOWING LOCATION OF DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED WITH REINFORCING STEEL PLACEMENT DRAWINGS.
19. SPLICES OF WWF, AT ALL SPLICED EDGES, SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRE PLUS 2 INCHES, NOR LESS THAN 6".
20. BAR SUPPORTS SHALL BE ALL-GALVANIZED METAL WITH PLASTIC TIPS.
21. ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE TO PREVENT DISPLACEMENT BY CONSTRUCTION TRAFFIC OR CONCRETE. TIE WIRE SHALL BE OF SUFFICIENT STRENGTH FOR INTENDED PURPOSE, BUT NOT LESS THAN NO. 18 GAUGE.
22. SLAB ON GROUND: COMPACT STRUCTURAL FILL TO 95% DENSITY AND THEN PLACE 6" GRAVEL BENEATH SLAB.

## ELECTRICAL NOTES:

1. ELECTRICAL WORK SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES) ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS, IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF ATC. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUNDING CABLES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUNDING LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

**ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.**

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| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:


B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

T-Mobile

| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

GENERAL NOTES

SHEET NUMBER: G-002

REVISION: 0

SITE PLAN NOTES:

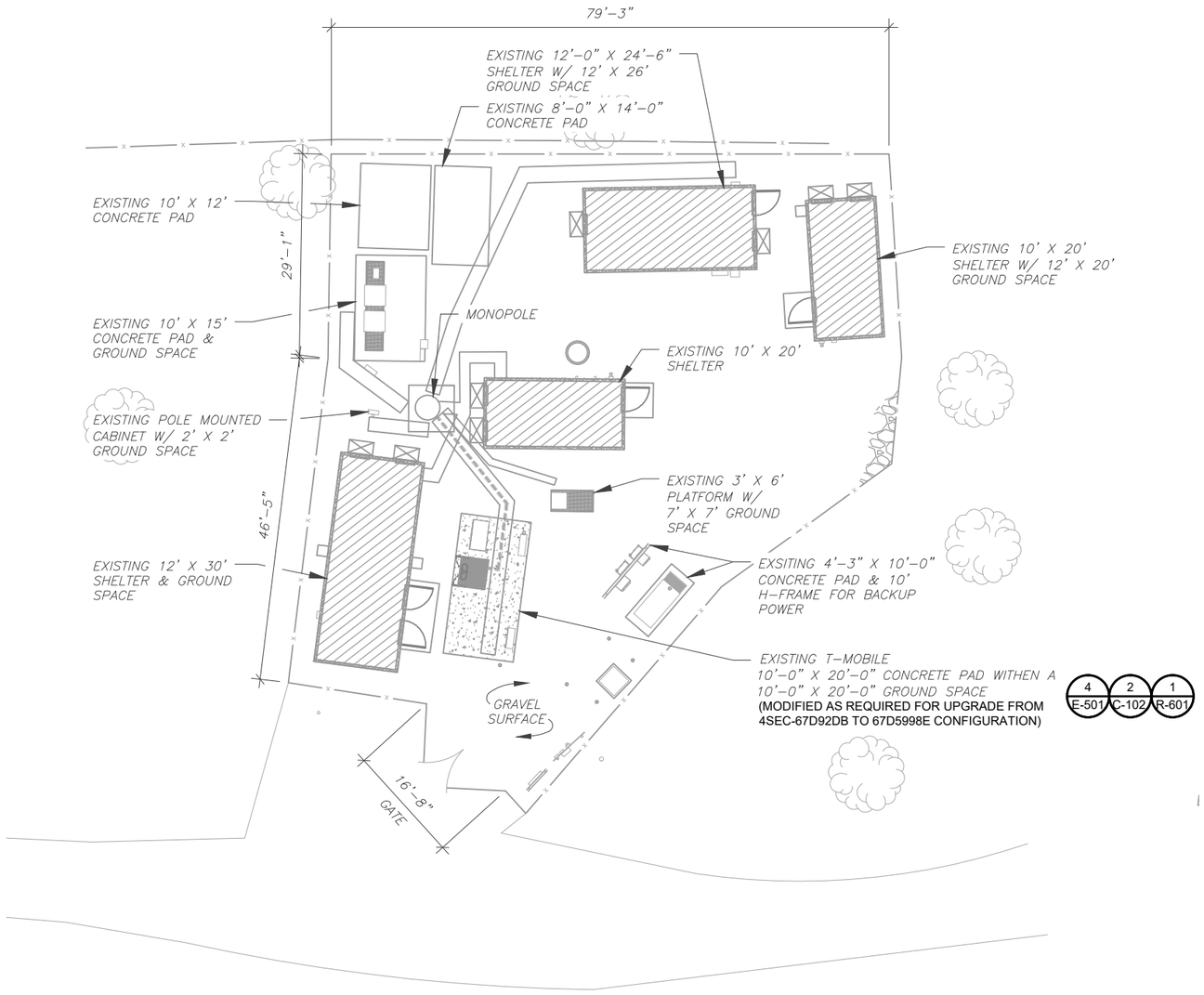
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.

## LEGEND

| | |
|---|---|
| ⊗ | GROUNDING TEST WELL |
| ATS | AUTOMATIC TRANSFER SWITCH |
| B | BOLLARD |
| CSC | CELL SITE CABINET |
| D | DISCONNECT |
| E | ELECTRICAL |
| F | FIBER |
| GEN | GENERATOR |
| G | GENERATOR RECEPTACAL |
| HH, V | HAND HOLE, VAULT |
| IB | ICE BRIDGE |
| K | KENTROX BOX |
| LC | LIGHTING CONTROL |
| M | METER |
| PB | PULL BOX |
| PP | POWER POLE |
| T | TELCO |
| TRN | TRANSFORMER |
| ——x—— | CHAINLINK FENCE |




**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **145'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

1 DETAILED SITE PLAN

GRAPHIC SCALE

## 0 ## ##

( IN FEET )
1 UNIT = ## FEET

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1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
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| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:


B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

T-Mobile

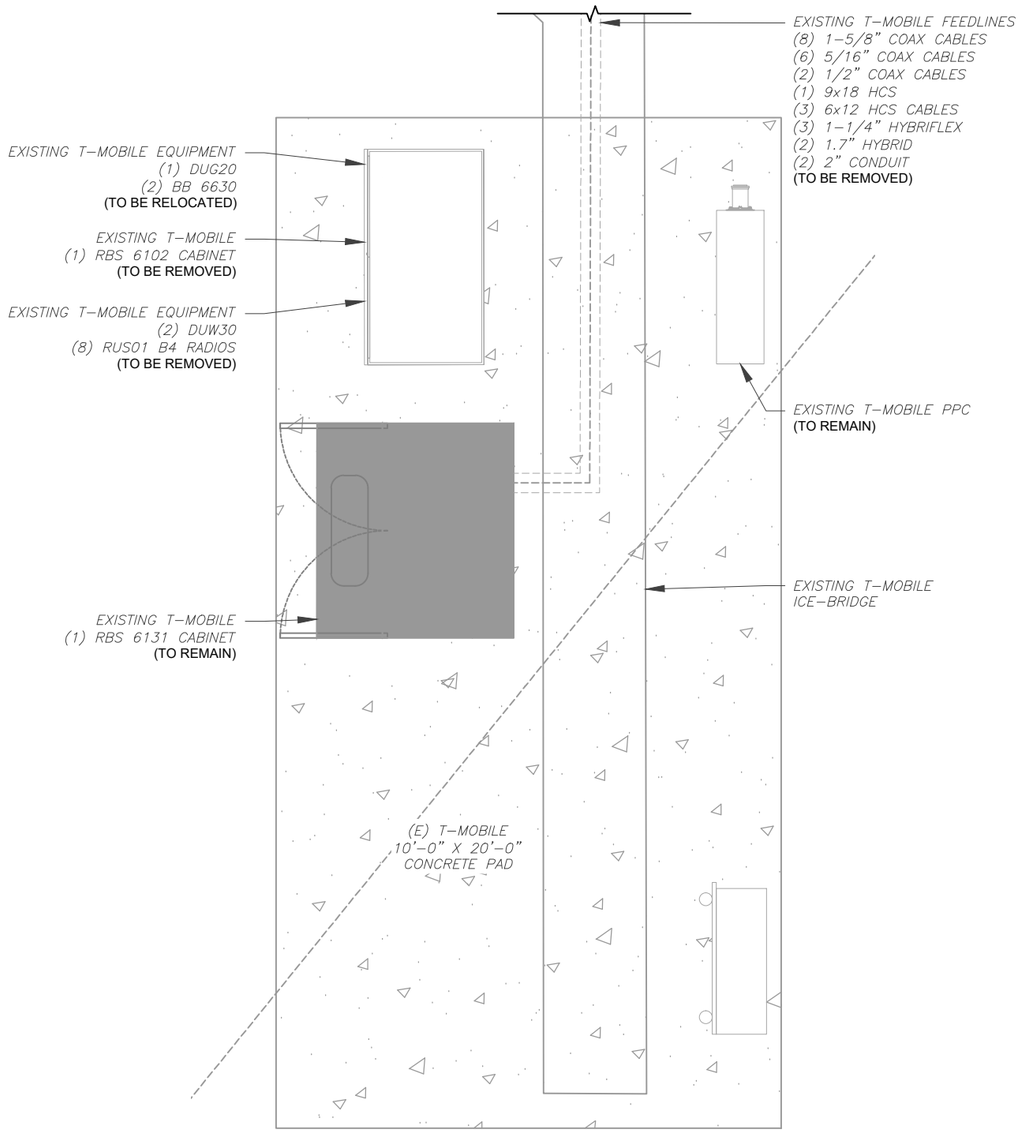
| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

DETAILED SITE PLAN

| SHEET NUMBER: | REVISION: |
|---|---|
| C-101 | 0 |

SITE PLAN NOTES:

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
3. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

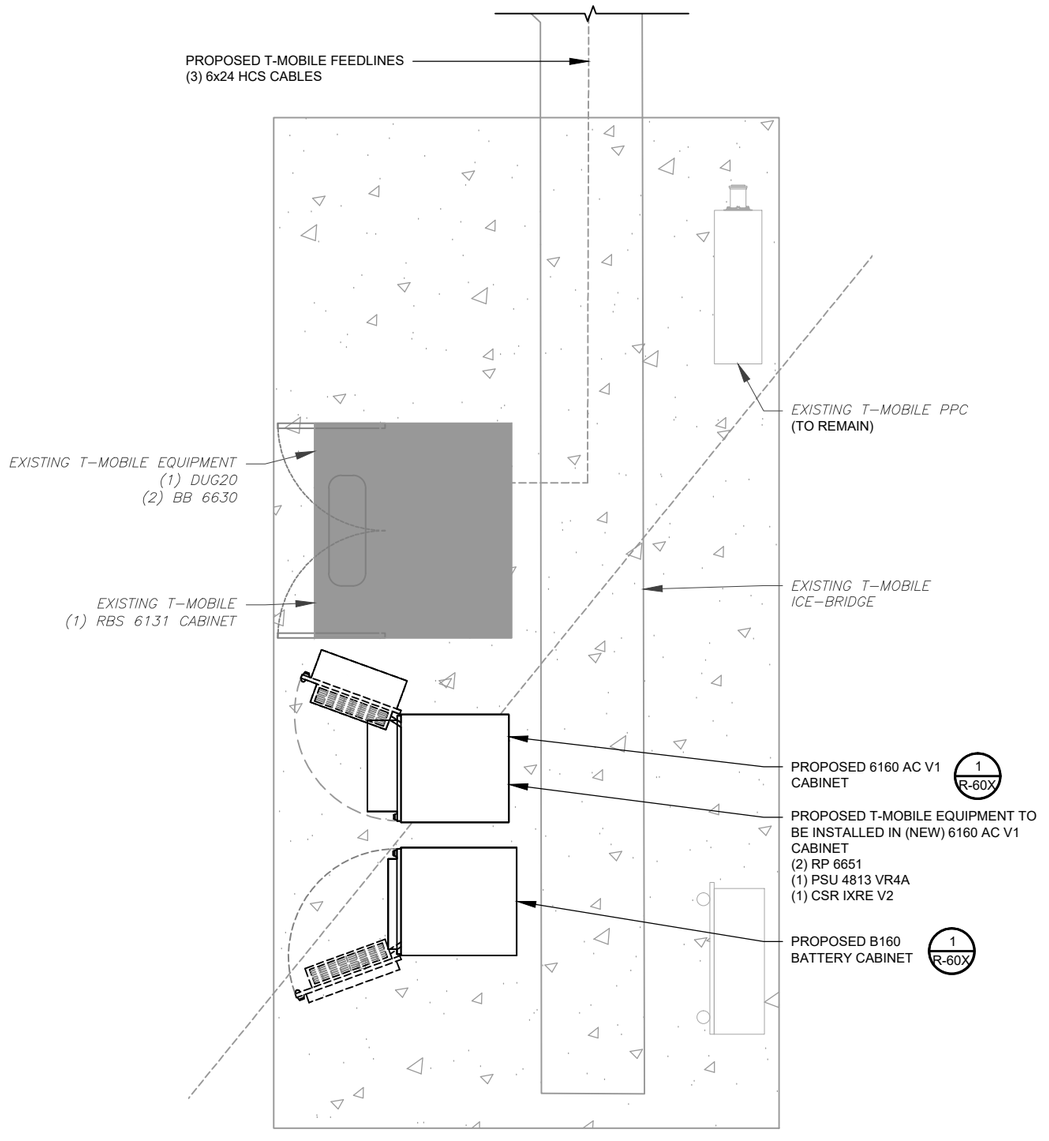



1 EXISTING GROUND EQUIPMENT LAYOUT

0 3 6

SCALE: 1"=3' (11X17)
1"=1.5' (22X34)

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS.
ALL ABOVE GROUND CONDUIT MUST BE RGS.
ALL PVC CONDUIT MUST BE BURIED.




2 PROPOSED GROUND EQUIPMENT LAYOUT

0 3 6

SCALE: 1"=3' (11X17)
1"=1.5' (22X34)

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| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:


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Expires 2/10/23

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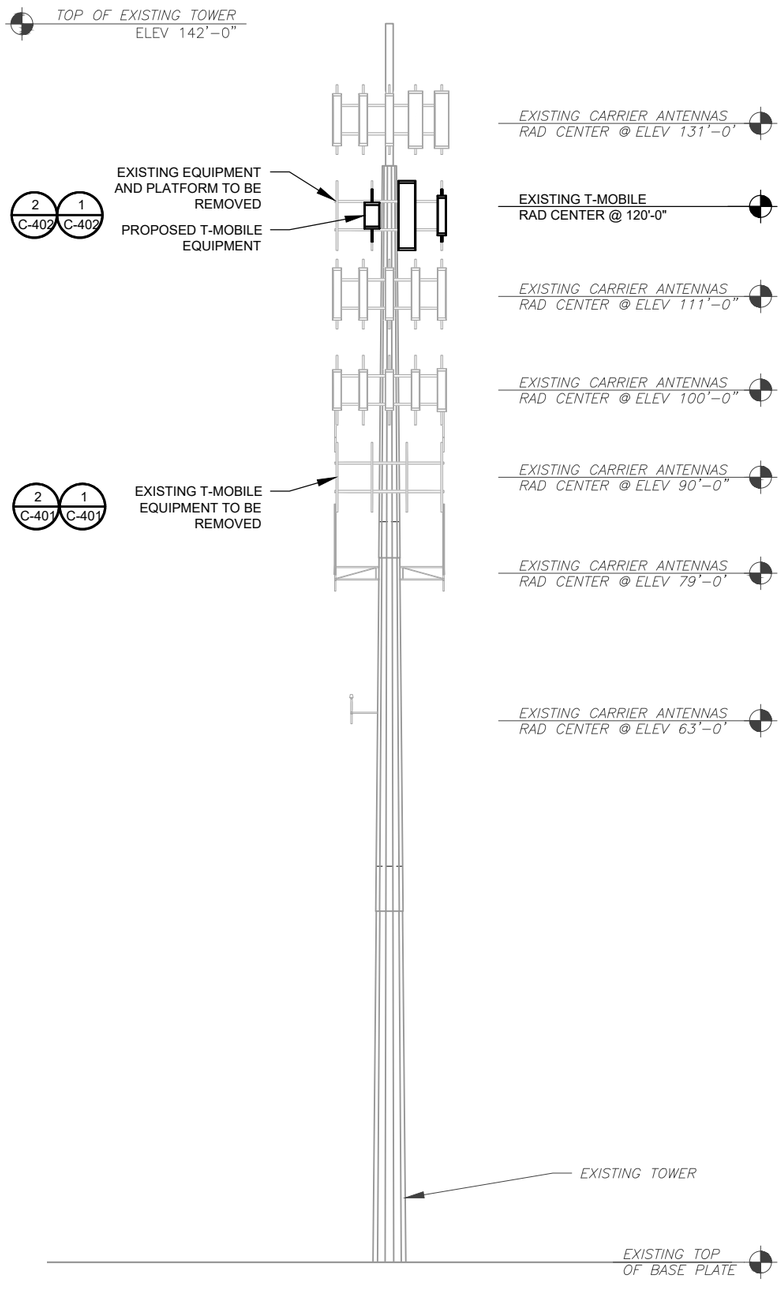
| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

DETAILED GROUND PLAN

| SHEET NUMBER: | REVISION: |
|---|---|
| C-102 | 0 |

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORP, DATED 4/19/2022, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.




1 TOWER ELEVATION
SCALE: N.T.S.

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
3. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
5. TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.

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|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

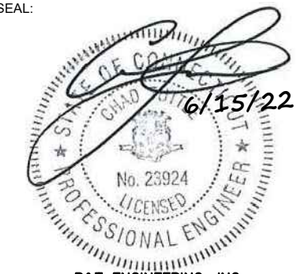
ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:

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PEC.0001564
Expires 2/10/23

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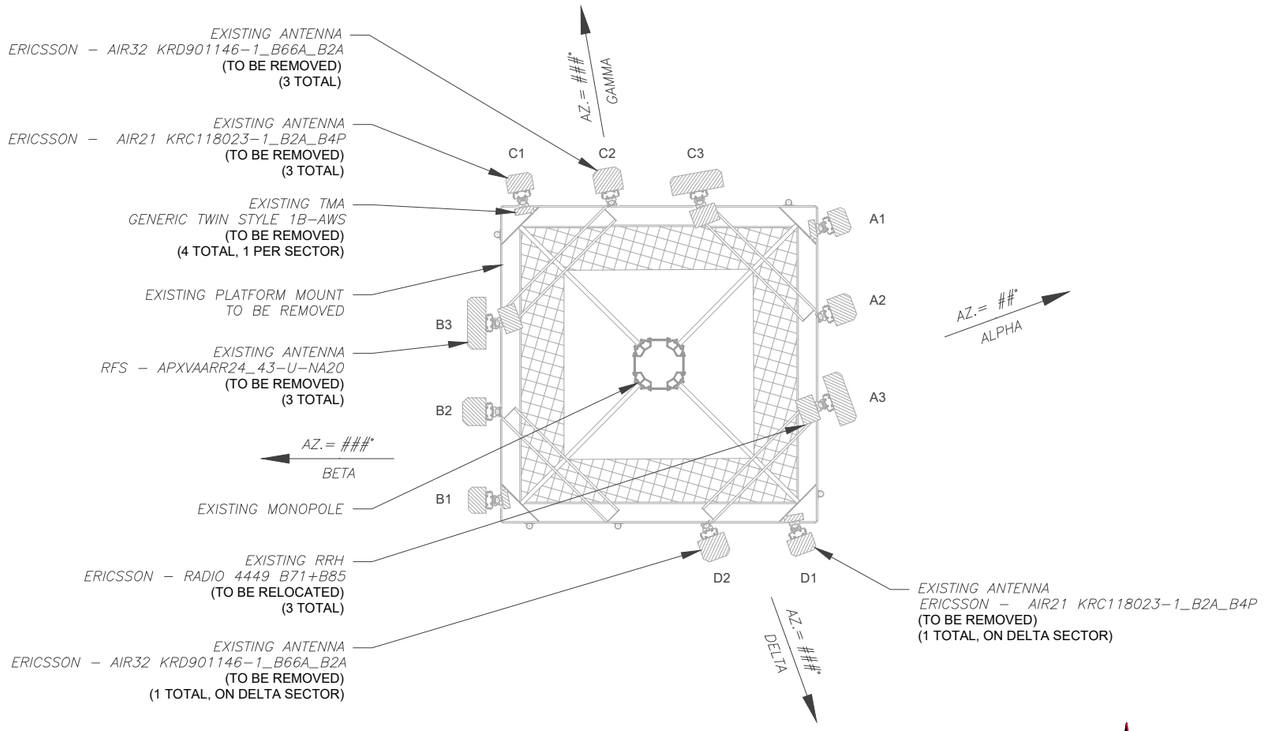
| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

TOWER ELEVATION

| SHEET NUMBER: | REVISION: |
|---|---|
| C-201 | 0 |




1 EXISTING ANTENNA PLAN @ 90'-0"

SCALE: N.T.S.


EXISTING ANTENNA SCHEDULE

| LOCATION | | | ANTENNA SUMMARY | | | | | NON ANTENNA SUMMARY | |
|---|---|---|---|---|---|---|---|---|---|
| SECTOR | RAD | AZ | POS | ANTENNA | BAND | MECH/ELEC D-TILT | STATUS | ADDITIONAL TOWER MOUNTED EQUIPMENT | STATUS |
| ALPHA | 90' | 70° | A1 | ERICSSON - AIR21 KRC118023-1_B2A_B4P | G1900/U2100/U1900 | 0° | RMV | (1) GENERIC TWIN STYLE 1B-AWS | RMV |
| | | | A2 | ERICSSON - AIR32 KRD901146-1_B66A_B2A | L2100/L1900 | 0° | RMV | - | - |
| | | | A3 | RFS - APXVAARR24_43-U-NA20. | L700/L600/N600 | 0° | RMV | (1) RRUS- 4449 B71+B85 | RMV |
| BETA | 90' | 270° | B1 | ERICSSON - AIR21 KRC118023-1_B2A_B4P | G1900/U2100/U1900 | 0° | RMV | (1) GENERIC TWIN STYLE 1B-AWS | RMV |
| | | | B2 | ERICSSON - AIR32 KRD901146-1_B66A_B2A | L2100/L1900 | 0° | RMV | - | - |
| | | | B3 | RFS - APXVAARR24_43-U-NA20. | L700/L600/N600 | 0° | RMV | (1) RRUS- 4449 B71+B85 | RMV |
| GAMMA | 90' | 350° | C1 | ERICSSON - AIR21 KRC118023-1_B2A_B4P | G1900/U2100/U1900 | 0° | RMV | (1) GENERIC TWIN STYLE 1B-AWS | RMV |
| | | | C2 | ERICSSON - AIR32 KRD901146-1_B66A_B2A | L2100/L1900 | 0° | RMV | - | - |
| | | | C3 | RFS - APXVAARR24_43-U-NA20. | L700/L600/N600 | 0° | RMV | (1) RRUS- 4449 B71+B85 | RMV |
| DELTA | 90' | 160° | D1 | ERICSSON - AIR21 KRC118023-1_B2A_B4P | G1900/U2100/U1900 | 0° | RMV | (1) GENERIC TWIN STYLE 1B-AWS | RMV |
| | | | D2 | ERICSSON - AIR32 KRD901146-1_B66A_B2A | L2100/L1900 | 0° | RMV | - | - |

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
*RMN*: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

| FINAL FIBER DISTRIBUTION / OVP BOX | | FINAL CABLING SUMMARY | | |
|---|---|---|---|---|
| MODEL NUMBER | STATUS | COAX | HYBRID | STATUS |
| - | - | – | (3) 6X12 HCS | RMV |
| - | - | (8) 1-5/8" COAX | (1) 9X18 HCS | RMV |

2 EQUIPMENT SCHEDULES

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| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

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WESTPORT, CT 06880-6226

SEAL:


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Expires 2/10/23

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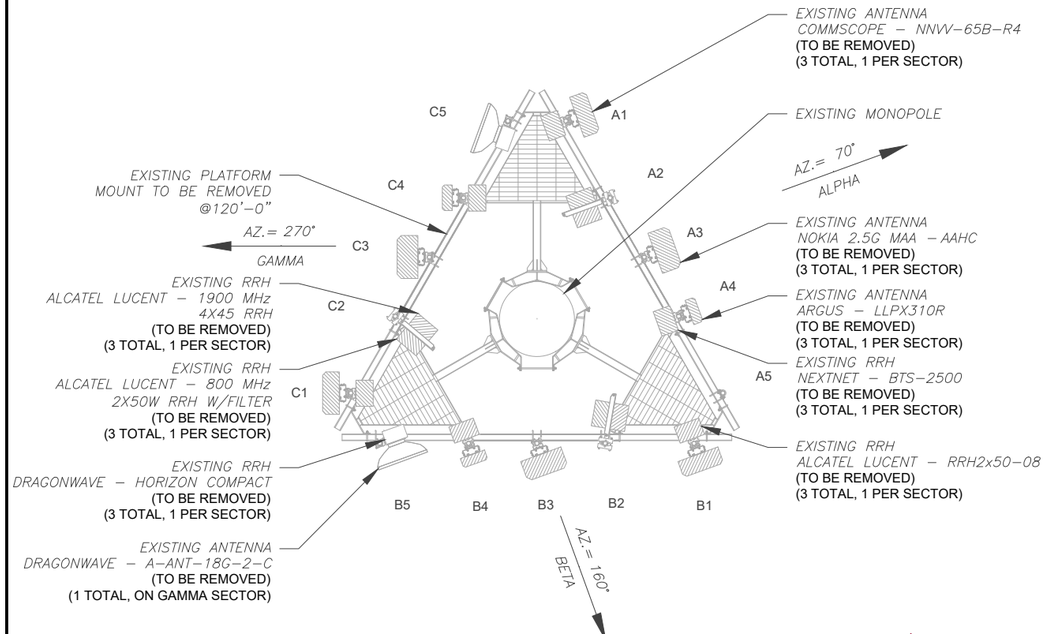
| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

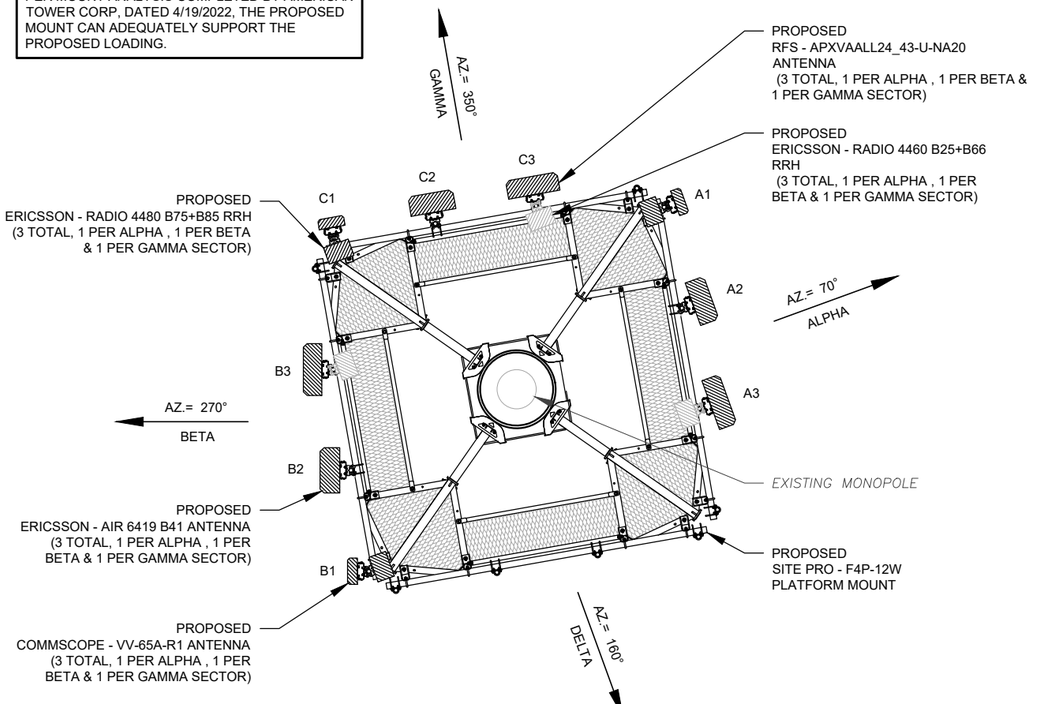
ANTENNA INFORMATION & SCHEDULE

| SHEET NUMBER: | REVISION: |
|---|---|
| C-401 | 0 |




1 EXISTING ANTENNA PLAN @ 120'-0"
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORP, DATED 4/19/2022, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.




2 FINAL ANTENNA PLAN @ 120'-0"
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

| LOCATION | | | ANTENNA SUMMARY | | | | | NON ANTENNA SUMMARY | |
|---|---|---|---|---|---|---|---|---|---|
| SECTOR | RAD | AZ | POS | ANTENNA | BAND | MECH/ELEC D-TILT | STATUS | ADDITIONAL TOWER MOUNTED EQUIPMENT | STATUS |
| ALPHA | 120' | 70° | A1 | COMMSCOPE - NNVV-65B-R4 | - | - | RMV | (1) RRH2x50-08 | RMV |
| | | | A2 | RRU PIPE | - | - | - | (1) 1900 MHz 4X45 RRH<br>(1) 800 MHz 2X50W RRH W/FILTER | RMV<br>RMV |
| | | | A3 | NOKIA - 2.5G MAA - AAHC(64T64R) | - | - | RMV | - | - |
| | | | A4 | ARGUS - LLPX310R | - | - | RMV | (1) BTS-2500 | RMV |
| | | | A5 | RRU PIPE | - | - | - | | |
| BETA | 120' | 160° | B1 | COMMSCOPE - NNVV-65B-R4 | - | - | RMV | (1) RRH2x50-08 | RMV |
| | | | B2 | RRU PIPE | - | - | - | (1) 1900 MHz 4X45 RRH<br>(1) 800 MHz 2X50W RRH W/FILTER | RMV<br>RMV |
| | | | B3 | NOKIA - 2.5G MAA - AAHC(64T64R) | - | - | RMV | - | - |
| | | | B4 | ARGUS - LLPX310R | - | - | RMV | (1) BTS-2500 | RMV |
| | | | B5 | DRAGONWAVE - A-ANT-18G-2-C | - | - | RMV | (1) HORIZON COMPACT | RMV |
| GAMMA | 120' | 270° | C1 | COMMSCOPE - NNVV-65B-R4 | - | - | RMV | (1) RRH2x50-08 | RMV |
| | | | C2 | RRU PIPE | - | - | - | (1) 1900 MHz 4X45 RRH<br>(1) 800 MHz 2X50W RRH W/FILTER | RMV<br>RMV |
| | | | C3 | NOKIA - 2.5G MAA - AAHC(64T64R) | - | - | RMV | - | - |
| | | | C4 | ARGUS - LLPX310R | - | - | RMV | (1) BTS-2500 | RMV |
| | | | C5 | DRAGONWAVE - A-ANT-18G-2-C | - | - | RMV | (1) HORIZON COMPACT | RMV |

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
*RMN*: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE

| LOCATION | | | ANTENNA SUMMARY | | | | | NON ANTENNA SUMMARY | |
|---|---|---|---|---|---|---|---|---|---|
| SECTOR | RAD | AZ | POS | ANTENNA | BAND | MECH/ELEC D-TILT | STATUS | ADDITIONAL TOWER MOUNTED EQUIPMENT | STATUS |
| ALPHA | 120' | 70° | A1 | COMMSCOPE - VV-65A-R1 | L2100/L1900/G1900 | - | ADD | (1) 4460 B25+B66 | ADD |
| | | | A2 | ERICSSON - AIR 6419 B41 | L2500/N2500 | - | ADD | - | - |
| | | | A3 | RFS - APXVAALL24_43-U-NA20 | L700/L600/N600 | - | ADD | (1) RRUS- 4480 B71+B85 | ADD |
| BETA | 120' | 270° | B1 | COMMSCOPE - VV-65A-R1 | L2100/L1900/G1900 | - | ADD | (1) 4460 B25+B66 | ADD |
| | | | B2 | ERICSSON - AIR 6419 B41 | L2500/N2500 | - | ADD | - | - |
| | | | B3 | RFS - APXVAALL24_43-U-NA20 | L700/L600/N600 | - | ADD | (1) RRUS- 4480 B71+B85 | ADD |
| GAMMA | 120' | 350° | C1 | COMMSCOPE - VV-65A-R1 | L2100/L1900/G1900 | - | ADD | (1) 4460 B25+B66 | ADD |
| | | | C2 | ERICSSON - AIR 6419 B41 | L2500/N2500 | - | ADD | - | - |
| | | | C3 | RFS - APXVAALL24_43-U-NA20 | L700/L600/N600 | - | ADD | (1) RRUS- 4480 B71+B85 | ADD |

| FINAL FIBER DISTRIBUTION / OVP BOX | | FINAL CABLING SUMMARY | | |
|---|---|---|---|---|
| MODEL NUMBER | STATUS | COAX | HYBRID | STATUS |
| - | - | (6) 5/16" COAX | (3) 1-1/4" HYBRIFLEX | RMV |
| - | - | (2) 1/2" COAX | (2) 1.7" HYBRID | RMV |
| - | - | - | (2) 2" CONDUIT | RMV |

| FINAL FIBER DISTRIBUTION / OVP BOX | | FINAL CABLING SUMMARY | | |
|---|---|---|---|---|
| MODEL NUMBER | STATUS | COAX | HYBRID | STATUS |
| – | – | – | (3) 6x24 HCS | ADD |

3 EQUIPMENT SCHEDULES

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| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:


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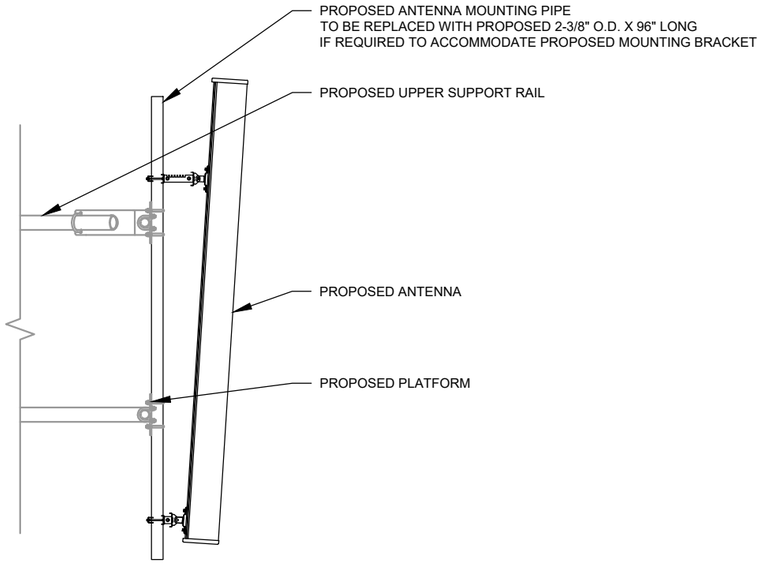
PEC.0001564
Expires 2/10/23

T-Mobile

| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

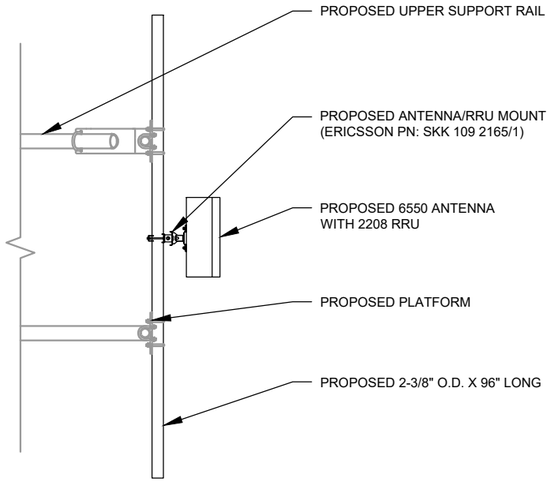
ANTENNA INFORMATION & SCHEDULE

| SHEET NUMBER: | REVISION: |
|---|---|
| C-402 | 0 |



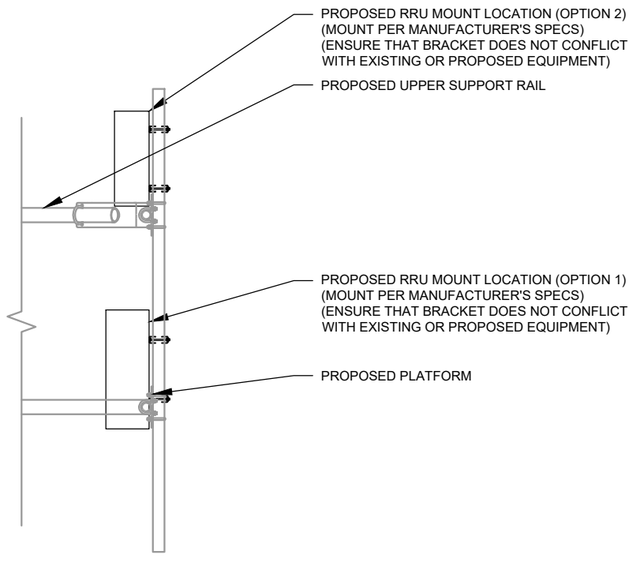

1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: NOT TO SCALE




2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.




3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.

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| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
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WESTPORT, CT 06880-6226

SEAL:


B&T ENGINEERING, INC.
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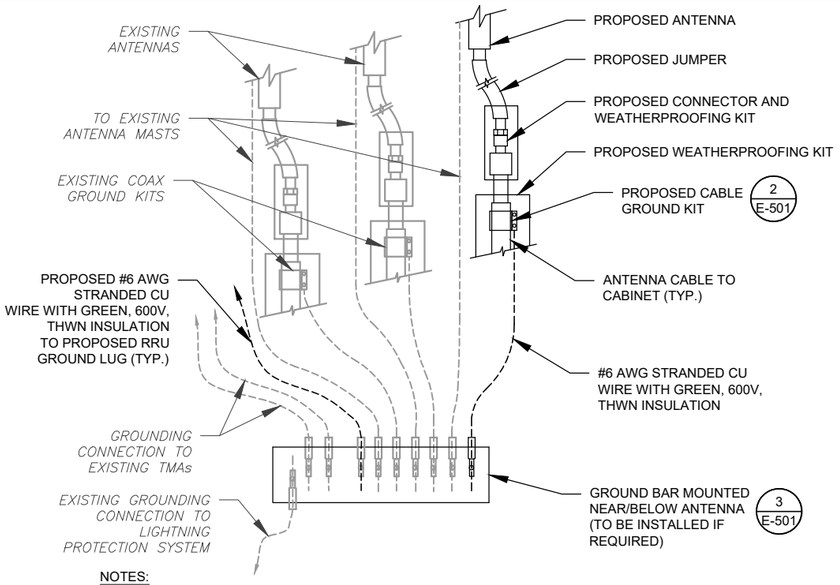
T-Mobile

| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

CONSTRUCTION DETAILS

| SHEET NUMBER: | REVISION: |
|---|---|
| C-501 | 0 |

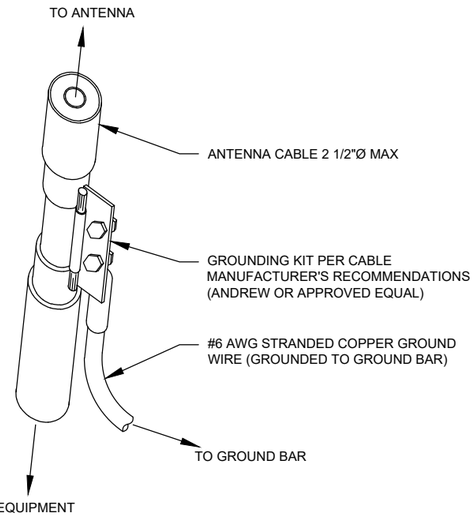



NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

## 1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

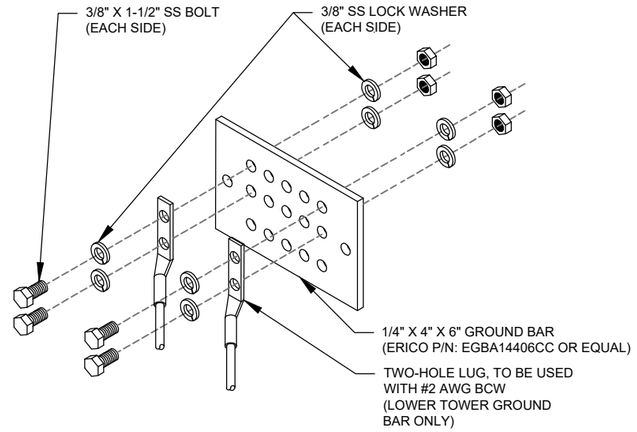



GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

## 2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: N.T.S.




GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

## 3 TOWER GROUND BAR DETAIL

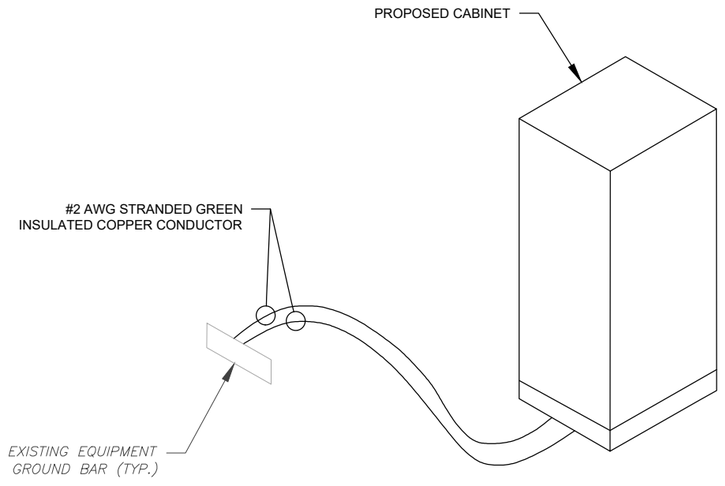
SCALE: N.T.S.

ELECTRICAL NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

| OCPD SIZE | WIRE SIZE | GROUND SIZE | CONDUIT SIZE |
|---|---|---|---|
| 80A/2P | 2#3 AWG | #8 AWG | 1-1/4" |
| 100/2P | 2#2 AWG | #8 AWG | 1-1/4" |
| 125A/2P | 2#1 AWG | #8 AWG | 1-1/2" |
| 150A/2P | 2#1/0 AWG | #8 AWG | 1-1/2" |

## 4 ELECTRICAL NOTES




## 5 CABINET GROUNDING DETAIL

SCALE: N.T.S.

AMERICAN TOWER®

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| A | PRELIMS | KJG | 3/16/22 |
| B | PRELIMS | KJG | 4/19/22 |
| C | PRELIMS | KJG | 4/25/22 |
| 0 | CONSTRUCTION | CLG | 6/15/22 |

ATC SITE NUMBER:
302511

ATC SITE NAME:
WSPT - SOUTH

T-MOBILE SITE NAME:
WESTPORT/ I-95/ X18/ SHER

SITE ADDRESS:
20 POST OFFICE LANE
WESTPORT, CT 06880-6226

SEAL:


B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

T-Mobile

| | |
|---|---|
| DATE DRAWN: | 4/25/22 |
| ATC JOB NO: | 13769201_G3 |
| CUSTOMER ID: | WESTPORT/ I-95/ X18/ SHER |
| CUSTOMER #: | CT11012B |

GROUNDING DETAILS

| SHEET NUMBER: | REVISION: |
|---|---|
| E-501 | 0 |

| Proposed RAN Equipment | | | | |
|---|---|---|---|---|
| Template: 67E5D998E Hybrid | | | | |
| Enclosure | 1 | 2 | 3 | 4 |
| Enclosure Type | RBS 6102 | Ancillary Equipment (Ericsson) | Enclosure 6160 AC V1 | B160 |
| Baseband | DUG20 G1900; BB 6630 L700 L600 N600; BB 6630 L2100 L1900 | | RP 6651 L2500 N2500 | |
| Hybrid Cable System | Ericsson Hybrid Trunk 6/24 4AWG 50m (x 2) | | PSU 4813 vR4A (Kit) (x 2); Ericsson Hybrid Trunk 6/24 4AWG 50m (x 2) | |
| Transport System | | | CSR IXRe V2 (Gen2) | |

**RAN Scope of Work:**

Remove and return cabinet Radios form existing cabinet 6102.

U2100 will be decom.

Add (1) Enclosure 6160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) RP 6651 for L2500/N2500 to new Enclosure 6160.

Add (2) PSU4813 Voltage Booster to new Enclosure 6160.

Add (1) Battery Cabinet B160.

Existing : (1) 9x18, (3) 6x12

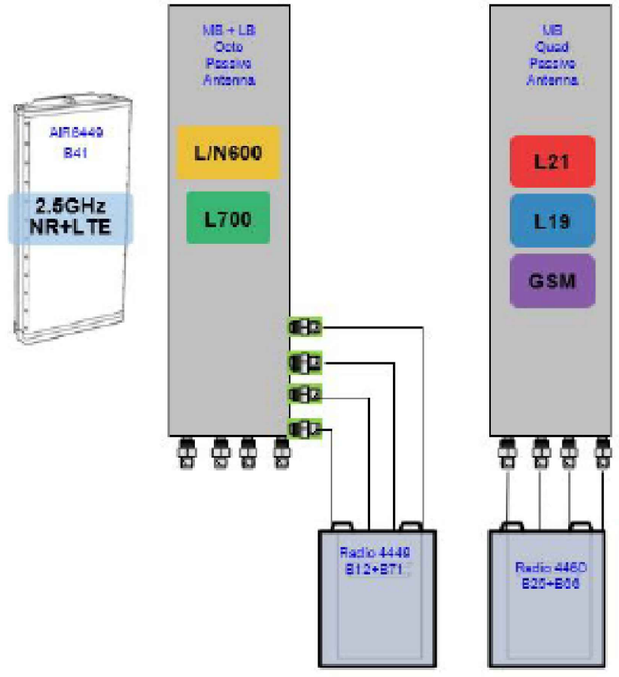
Remove all Coax, remove (1) 9x18 remove (3) 6x12.

Add (2) 6X24 HCS terminating at the Enclosure 6160 and (2) 6x24 terminating at existing 6102. Connect DC for the AIR6419 B41 to the PSU4813 Voltage Booster.

1 CABINET CONFIGURATION

## Section 3 - Proposed Template Images

67D6998E_1xAIR+1OP+1QP.JPG




2 ANTENNA CONFIGURATION

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER: R-601

REVISION: -

## STANDARD CONDUIT USE TABLE

| CONDUIT TYPE | USE CASE | LOCATION | USE CASE EXAMPLE |
|---|---|---|---|
| RMC (METALLIC) | AC, DC COMM | ABOVE GROUND | ABOVE GROUND PPC TO SSC |
| PVC | AC POWER | UNDERGROUND | UNDERGROUND PPC TO SSC OR BACKHAUL TRANSPORT HUB TO SSC |
| LFMC | AC, DC, COMM | MAX 6' PER CONDUIT RUN, ABOVE GROUND ONLY | TIGHT LOCATIONS BETWEEN HUB AND CONDUIT BUT NOT TO BE USED WHERE IT CAN BE STEPPED ON |
| EMT | INDOOR AC, DC COMM | INDOOR NOT EXPOSED TO THE OUTDOOR ENVIRONMENT (MUST BE DRY) | CIRCUIT PANEL TO JUNCTION BOX |
| LFNC | GROUND WIRE | CONCEALING AND PROTECTING BTCW RISERS ONLY | GROUND RING TO MGB OR SSC |

## EXCEPTION CONDUIT USE TABLE

| CONDUIT TYPE | USE CASE | LOCATION | USE CASE EXAMPLE |
|---|---|---|---|
| EMT (NOT PREFERRED) | OUTDOOR DC, COMM | OUTDOOR WHEN USED WITH WATERTIGHT HUBS ONLY | BETWEEN EQUIPMENT AND BATTERY CABINET OR EQUIPMENT TO EQUIPMENT CABINETS FOR INTER CABINET CONNECTION |
| RMC NONMETALLIC (ALUMINUM) | OUTDOOR/INDOOR PER NEC GUIDLINES | ABOVE GROUND | MAT BE USED AS A LOWER COST ALTERNATIVE TO METALLIC RMC, MUST MEET OR EXCEED FEDERAL SPEC: WW-C-540C, UL-6A, ANSI C80.5, NEC 344.10 (A) ALLOWS THE USE OF EITHER ALUMINUM OR GALVANIZED FITTINGS |

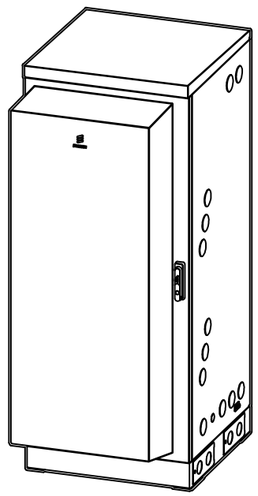
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

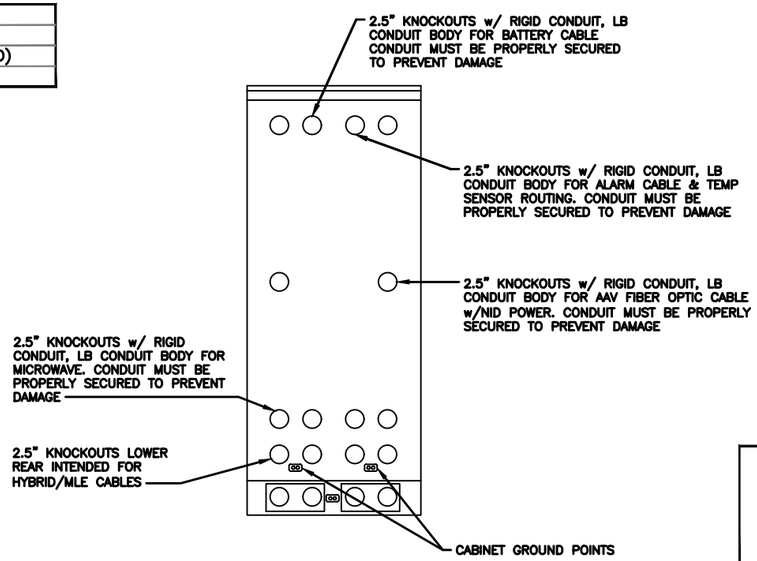
SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: -

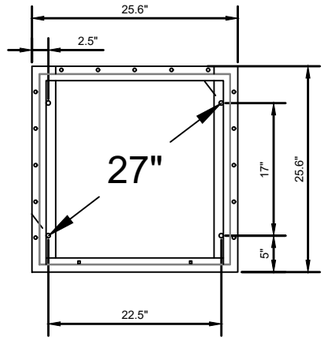
| | |
|---|---|
| MANUFACTURER: | ERICSSON |
| MODEL: | 6160 SITE SUPPORT CABINET |
| DIMENSIONS: | 63" x 25.6" x 33.6" (H x W x D) |
| WEIGHT: | 373 LBS |






REAR VIEW

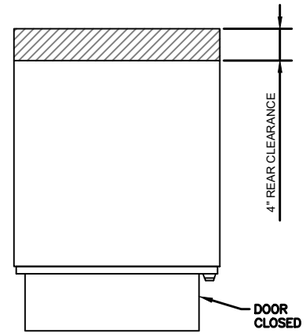
NOTE:
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING

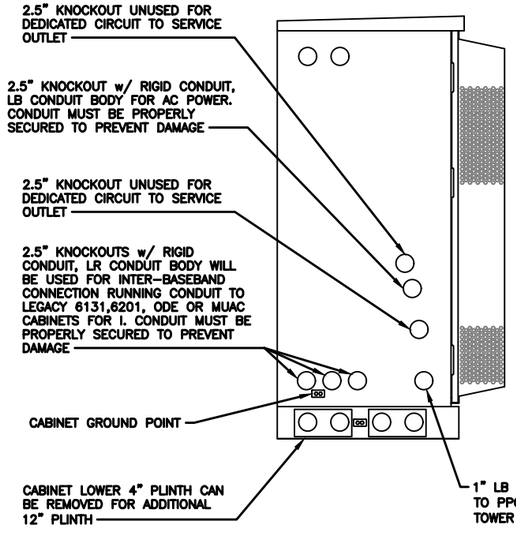



BOLT DOWN PATTERN

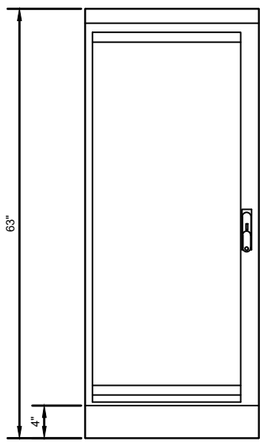
GROUNDING NOTE:

"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."

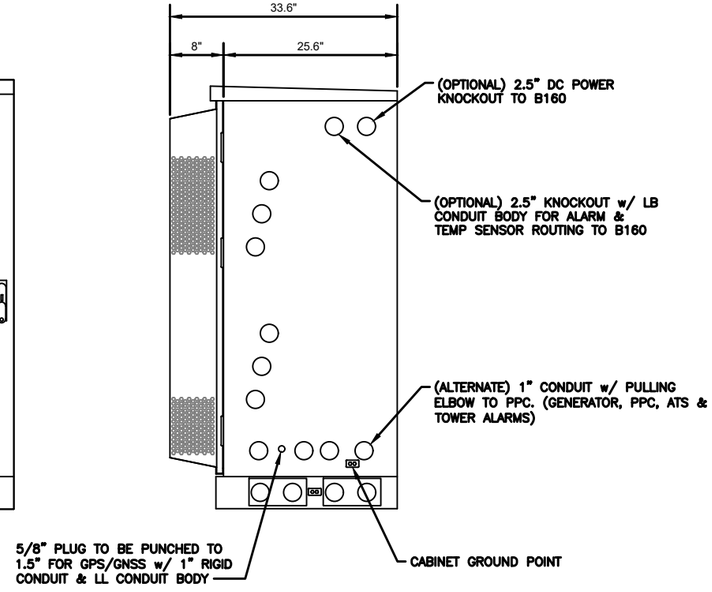


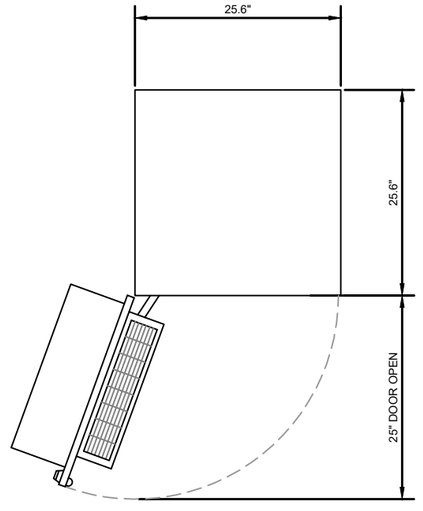

LEFT VIEW




FRONT VIEW




RIGHT VIEW




PLAN VIEW

1 ERICSSON 6160 SITE SUPPORT CABINET SPECIFICATIONS

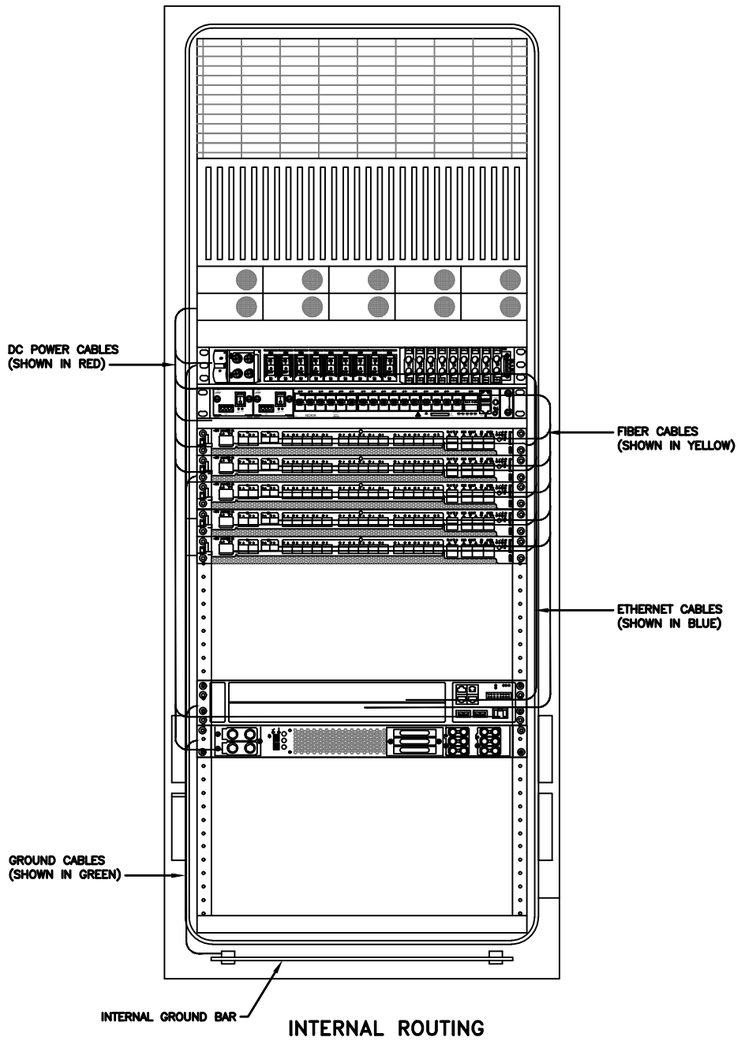
SCALE: N.T.S.

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

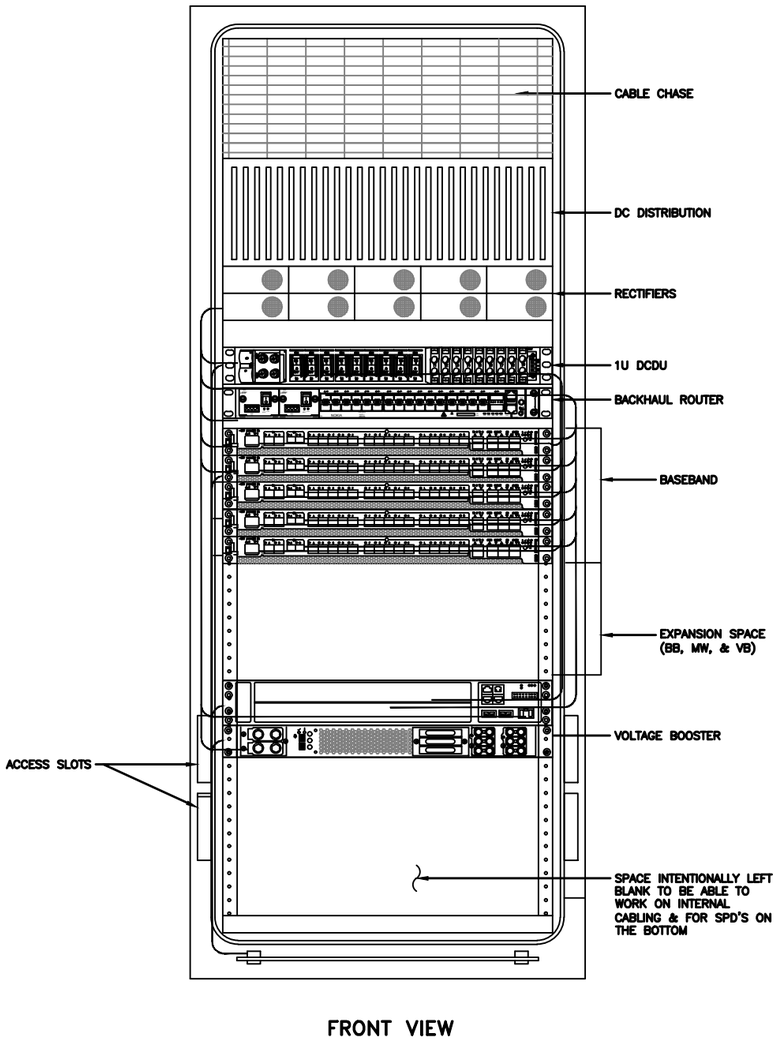
SUPPLEMENTAL

| SHEET NUMBER: | REVISION: |
|---|---|
| R-603 | - |




INTERNAL ROUTING
(DOOR OPEN)

| RACK ASSIGNMENTS | |
|---|---|
| RU SLOTS | DESCRIPTION |
| 1 | DC DISTRIBUTION |
| 2 | |
| 3 | |
| 4 | |
| 5 | RECTIFIER SHELF |
| 6 | |
| 7 | FIBER BOX |
| 8 | DCDU |
| 9 | BACKHAUL ROUTER |
| 10 | |
| 11 | 1ST BASEBAND |
| 12 | 2ND BASEBAND |
| 13 | 3RD BASEBAND |
| 14 | 4TH BASEBAND |
| 15 | 5TH BASEBAND |
| 16 | EXPANSION |
| 17 | |
| 18 | |
| 19 | |
| 20 | EXPANSION / LEGACY BASEBAND / VOLTAGE BOOSTER |
| 21 | |
| 22 | VOLTAGE BOOSTER |
| 23 | OPEN SPACE FOR SPD ACCESS |
| 24 | |
| 25 | |




FRONT VIEW
(DOOR OPEN)

1 ERICSSON 6160 CABINET DETAILS

SCALE: N.T.S.

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

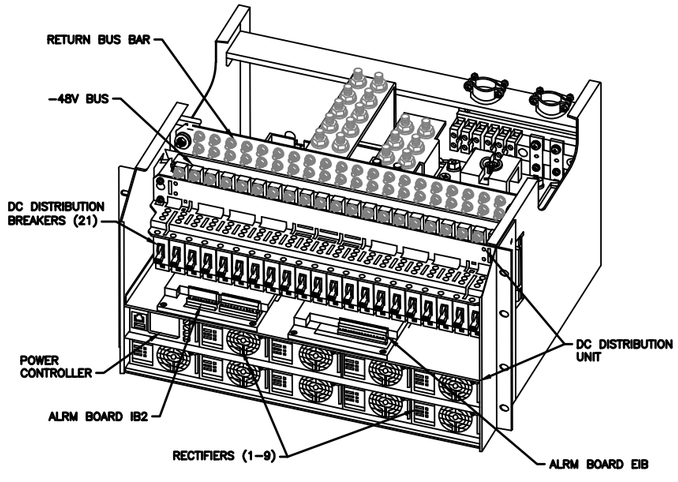
SUPPLEMENTAL

SHEET NUMBER: R-604

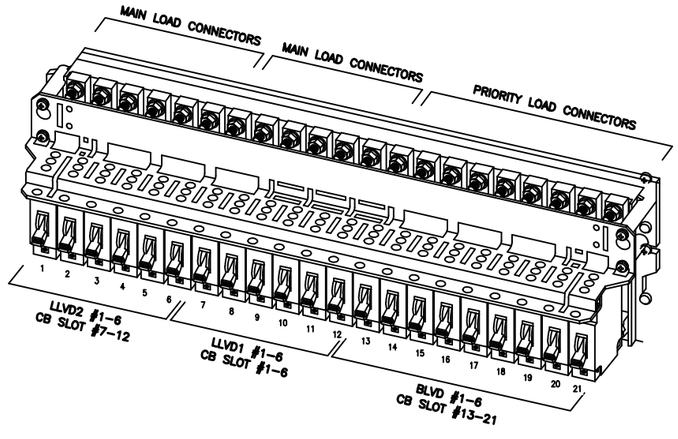
REVISION: -

**NOTE:**
**THIS IS FOR REFERENCE ONLY, CHECK FOR SPECIFIC DETAIL IN T–MOBILE CABINET SPECIFIC INSTALLATION GUIDES**

| Breaker Allocation for E6160 | | | | | |
|---|---|---|---|---|---|
| CB SLOT | Ckt # | | w/ DCDU Prior to availability of the 4460 and 4480 | w/ DCDU Later Design Post-4460 and Post-4480 | w/ DCDU 4 and 6 Sector designs |
| 1 | LVD1 47.0V | 1 | Router PS-2*/Future | | Radio 4460 B25/66 ζ-1 |
| 2 | | 2 | Future | | Radio 4460 B25/66 ζ-2 |
| 3 | | 3 | PSU 4813 feeding B25/66 α, β and γ (AIR 1641s) | | PSU 4813 feeding B41-δ & B71/12-δ (Air 6449s and Radio 4480s) |
| 4 | | 4 | | | |
| 5 | | 5 | PSU 4813 feeding B41 α, β and γ (Air 6449s) | | |
| 6 | | 6 | | | |
| 7 | LVD2 45.1V | 1 | PSU 4813 feeding B71/12 α, β and γ (Radio 4449s) | PSU 4813 feeding B71/12 α, β and γ (Radio 4480s) | |
| 8 | | 2 | | | |
| 9 | | 3 | Future | | Radio 4460 B25/66 δ-1 |
| 10 | | 4 | Future | | Radio 4460 B25/66 δ-2 |
| 11 | | 5 | Future | | Radio 4460 B25/66 ε-1 |
| 12 | | 6 | Future | | Radio 4460 B25/66 ε-2 |
| 13 | BLVD 43.2V | 1 | Router PS-1 | | |
| 14 | | 2 | Radio 4415 B25/66 α | Radio 4460 B25/66 α-1 | |
| 15 | | 3 | Radio 4415 B25/66 β | Radio 4460 B25/66 α-2 | |
| 16 | | 4 | Radio 4415 B25/66 γ | Radio 4460 B25/66 β-1 | |
| 17 | | 5 | PSU 4813 feeding B2/25 α, β and γ (Radio 4424s) | Radio 4460 B25/66 β-2 | |
| 18 | | 6 | | Radio 4460 B25/66 γ-1 | |
| 19 | | 7 | Future | Radio 4460 B25/66 γ-2 | |
| 20 | | 8 | DCDU | | |
| 21 | | 9 | AAV | | |
| Sector Identification<br>α = Alpha, β = Beta, γ = Gamma, δ = Delta, ε = Epsilon, ζ = Zeta | | | | | |




POWER SUBRACK




DC DISTRIBUTION

1 ERICSSON 6160 ELECTRICAL DETAILS

SCALE: N.T.S.

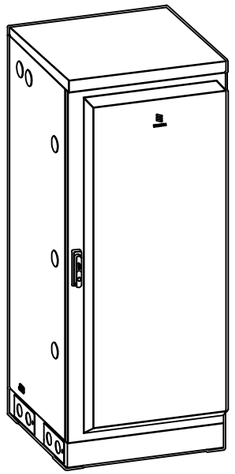
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

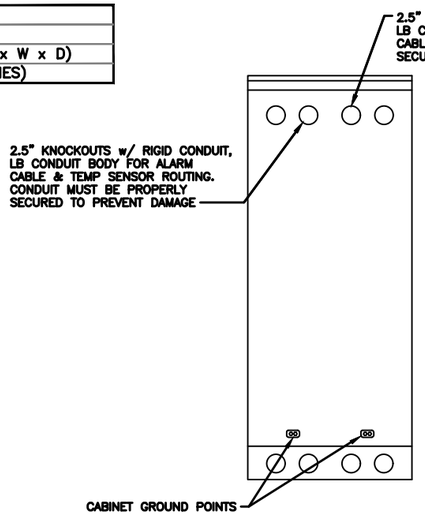
SUPPLEMENTAL

SHEET NUMBER: R-605

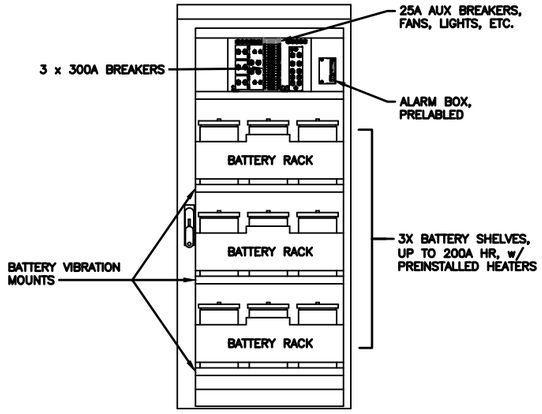
REVISION: -

| | |
|---|---|
| MANUFACTURER: | ERICSSON |
| MODEL: | B160 BATTERY CABINET |
| DIMENSIONS: | 63" x 25.6" x 29.5" (H x W x D) |
| WEIGHT: | 295 LBS (WITHOUT BATTERIES) |



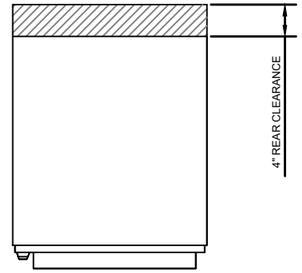



REAR VIEW



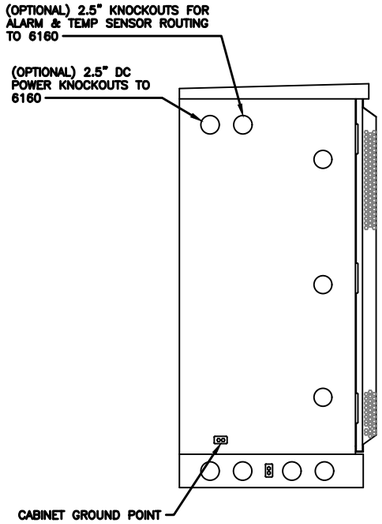

FRONT VIEW
(DOOR OPEN)

NOTE:
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING

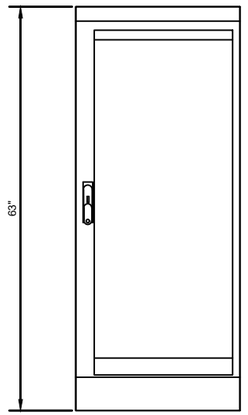



GROUNDING NOTE:

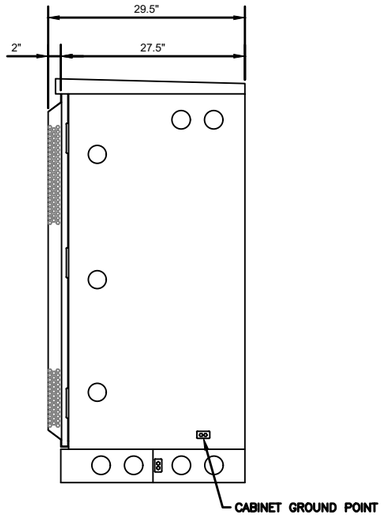
"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."



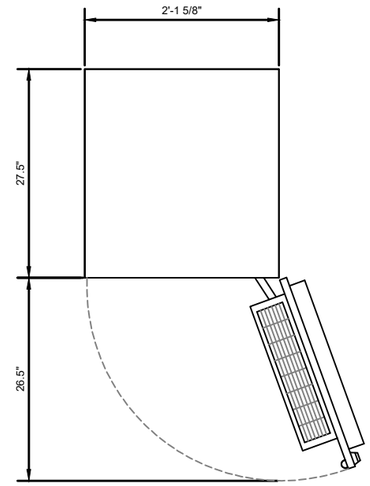

LEFT VIEW




FRONT VIEW




RIGHT VIEW




PLAN VIEW

B160 ERICSSON SITE SUPPORT BATTERY CABINET

1 ERICSSON B160 BATTERY CABINET SPECIFICATIONS

SCALE: N.T.S.

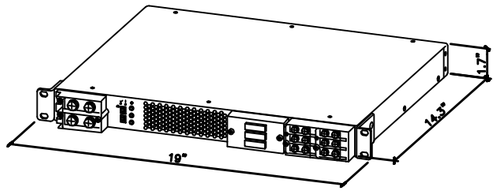
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

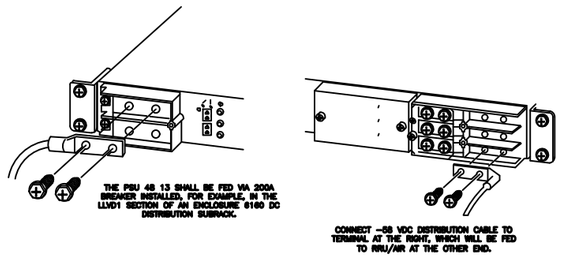
SUPPLEMENTAL

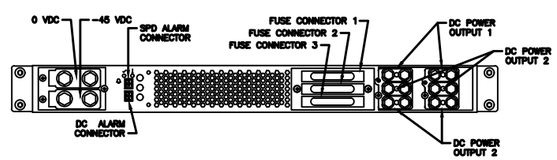
| SHEET NUMBER: | REVISION: |
|---|---|
| R-606 | - |

| | |
|---|---|
| MANUFACTURER: | ERICSSON |
| MODEL: | PSU 48 13 |
| WEIGHT: | 17.1 LBS |
| DIMENSIONS: | 19"x 1.7"x 14.3" |

| NEEDED INSTALL KIT (PICK 1) | |
|---|---|
| 34133 | PSU4813 INSTALL KIT FOR RBS61XX |
| 34134 | PSU4813 INSTALL KIT FOR PBC6200 |
| 34135 | PSU4813 INSTALL KIT FOR 6X60/RBS6230 |




1 SKU# 34132 - PSU 48 13

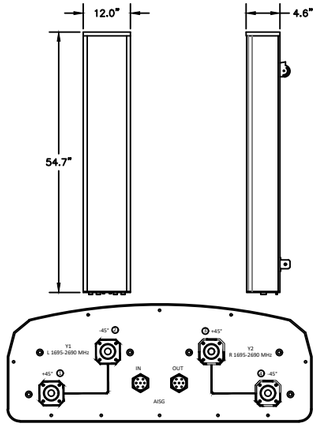
SCALE: N.T.S.

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

| SHEET NUMBER: | REVISION: |
|---|---|
| R-607 | - |

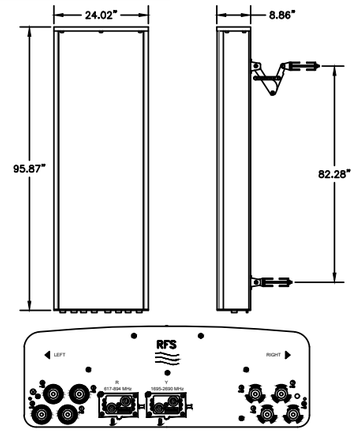
| | |
|---|---|
| MANUFACTURER: | COMMSCOPE |
| MODEL: | VV-65A-R1 |
| DIMENSIONS: | 54.7" x 12.1" x 4.6" (H x W x D) |
| WEIGHT: | 24.7 LB |
| INTERFACE: | 4-PORT 4.3-10 FEMALE |
| MOUNTING KIT: | 600899A-2 (INCLUDED) WEIGHT: 8.6 LB |




1 34401 - COMMSCOPE VV-65A-R1

SCALE: N.T.S.

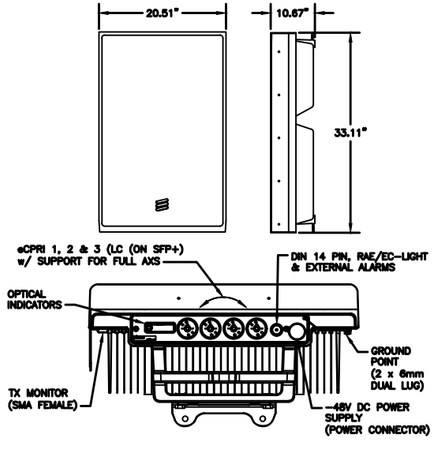
| | |
|---|---|
| MANUFACTURER: | RFS |
| MODEL: | APXVAALL24_43-U-NA20 |
| DIMENSIONS: | 95.87" x 24.02" x 8.86" |
| WEIGHT: | 119 LB |
| BAND: | QUAD BAND (8 PORT) |
| MOUNTING KIT & WEIGHT: | APM40-10E BEAM TILT KIT (INCLUDED) (16.53 LBS) |

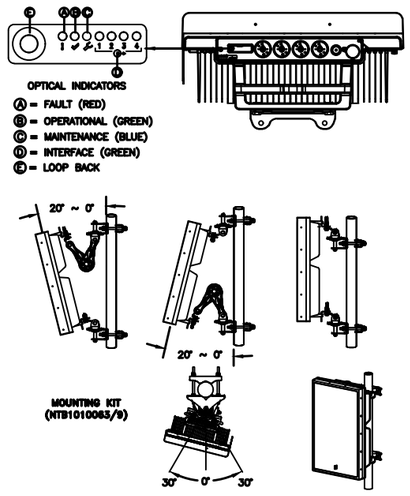



2 34087 - RFS APXVAALL24_43-U-NA20

SCALE: N.T.S.

| | |
|---|---|
| MANUFACTURER: | ERICSSON |
| MODEL: | AIR 6449 BAND 41 |
| DIMENSIONS: | 33.11" x 20.51" x 10.67" (H x W x D) |
| WEIGHT: | 106.92 LBS (EXCLUDING MOUNTING KIT) |
| MOUNT WEIGHT: | 13.01 LBS (NTB1010063/9) |

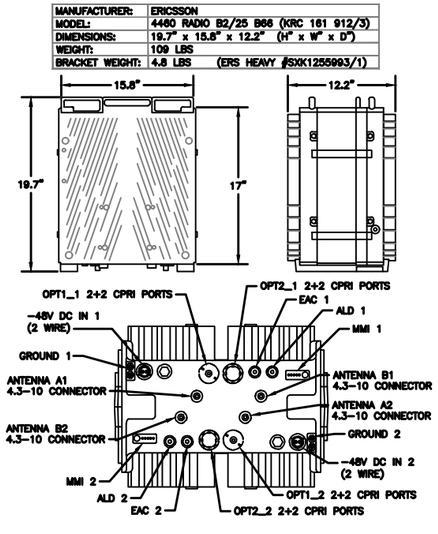



3 34105 - ERICSSON AIR 6449 MIMO

SCALE: N.T.S.

| | |
|---|---|
| MANUFACTURER: | ERICSSON |
| MODEL: | 4460 RADIO B2/25 B66 (KRC 161 912/3) |
| DIMENSIONS: | 19.7" x 15.8" x 12.2" (H" x W" x D") |
| WEIGHT: | 109 LBS |
| BRACKET WEIGHT: | 4.8 LBS (ERS HEAVY #SXK1255993/1) |




4 34373 - ERICSSON 4460 RADIO B2/25 B66

SCALE: N.T.S.

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER: R-608

REVISION: -

AMERICAN TOWER®
CORPORATION

# Mount Analysis Report

| | | |
|---|---|---|
| **ATC Site Name** | : | **WSPT - South, CT** |
| **ATC Site Number** | : | **302511** |
| **Engineering Number** | : | **13769201_C8_04** |
| **Mount Elevation** | : | **120 ft** |
| **Carrier** | : | **T-Mobile** |
| **Carrier Site Name** | : | **Westport/ I-95/ X18/ Sher** |
| **Carrier Site Number** | : | **CT11012B** |
| **Site Location** | : | **20 Post Office Lane**<br>**Westport, CT 06880-6226**<br>**41.12346728 , -73.31308307** |
| **County** | : | **Fairfield** |
| **Date** | : | **April 19, 2022** |
| **Max Usage** | : | **59%** |
| **Result** | : | **Pass** |


Prepared By:
Garrett Williams
Structural Engineer I

Garrett Williams

Reviewed By:

Authorized by "EOR"
20 Apr 2022 04:43:43 cosign

**COA: PEC.0001553**

AMERICAN TOWER®
CORPORATION

**Table of Contents**

## Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 120 ft.

## Supporting Documents

| | |
|---|---|
| **Specifications Sheet** | Site Pro 1 F4P-12W, dated August 30, 2017 |
| **Radio Frequency Data Sheet** | RFDS ID #CT11012B, dated March 22, 2022 |

## Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

| | |
|---|---|
| **Basic Wind Speed:** | 118 mph (3-Second Gust) |
| **Basic Wind Speed w/ Ice:** | 50 mph (3-Second Gust) w/ 1.00'' radial ice concurrent |
| **Codes:** | ANSI/TIA-222-H |
| **Exposure Category:** | C |
| **Risk Category:** | II |
| **Topographic Factor Procedure:** | Method 2 |
| **Feature:** | Flat |
| **Crest Height (H):** | 0 ft |
| **Crest Length (L):** | 0 ft |
| **Spectral Response:** | Ss = 0.226, S1 = 0.055 |
| **Site Class:** | D - Stiff Soil |
| **Live Loads:** | Lm = 500 lbs |

*** Based on experience, it has been determined that the Lv load cases will not control over Lm load cases in platform mount analyses. Therefore, these load cases have been excluded from this analysis.**

## Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

- Analysis is based on new Site Pro 1 F4P-12W platform (or approved equivalent) platform mount.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

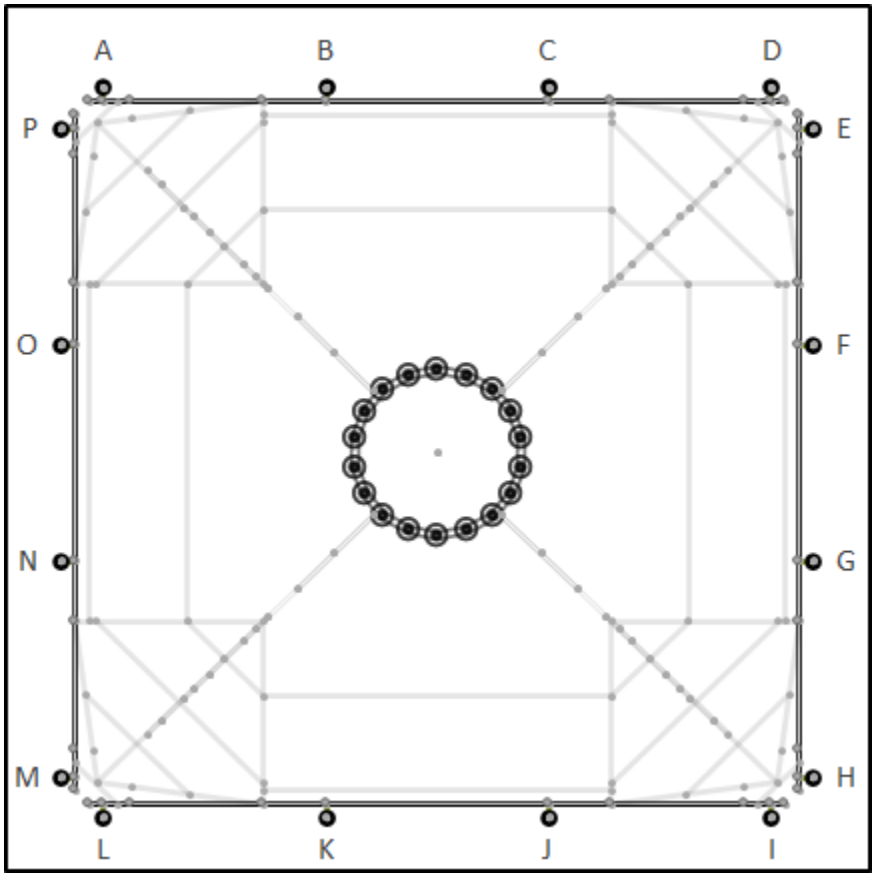
## Application Loading

| Mount Centerline (ft) | Equipment Centerline (ft) | Qty | Equipment Manufacturer & Model |
|---|---|---|---|
| 120.0 | 120.0 | 3 | Ericsson AIR 6419 B41 |
| | | 3 | Commscope VV-65A-R1 |
| | | 3 | RFS APXVAALL24 43-U-NA20 |
| | | 3 | Ericsson 4480 BAND 71 |
| | | 3 | Ericsson 4460 BAND 2/25 |

## Structure Usages

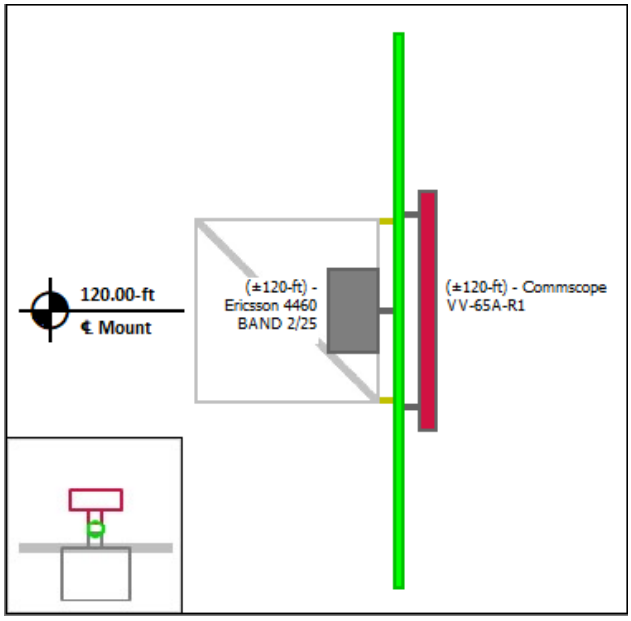
| Structural Component | Controlling Usage | Pass/Fail |
|---|---|---|
| Horizontals | 59% | Pass |
| Verticals | 30% | Pass |
| Diagonals | 27% | Pass |
| Mount Pipes | 54% | Pass |

## Mount Layout

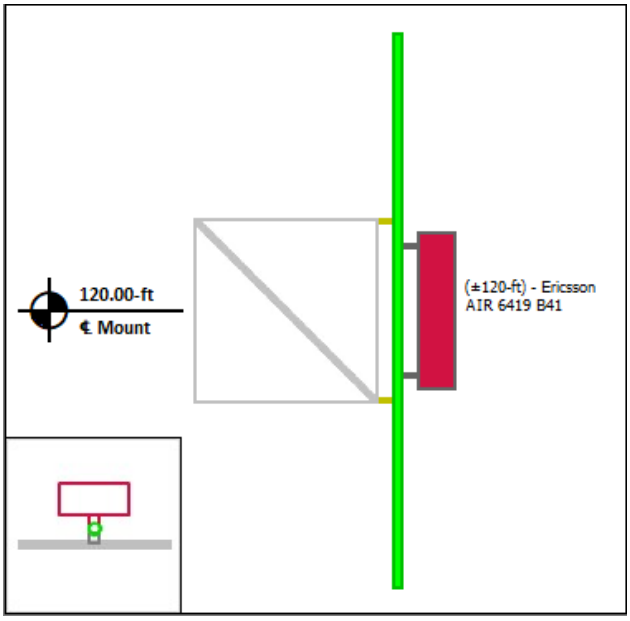


## Equipment Layout

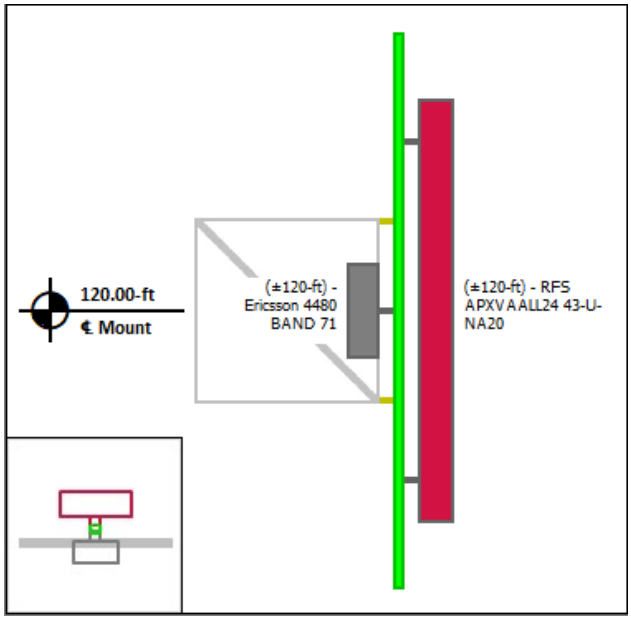
**Mount Pipe A**



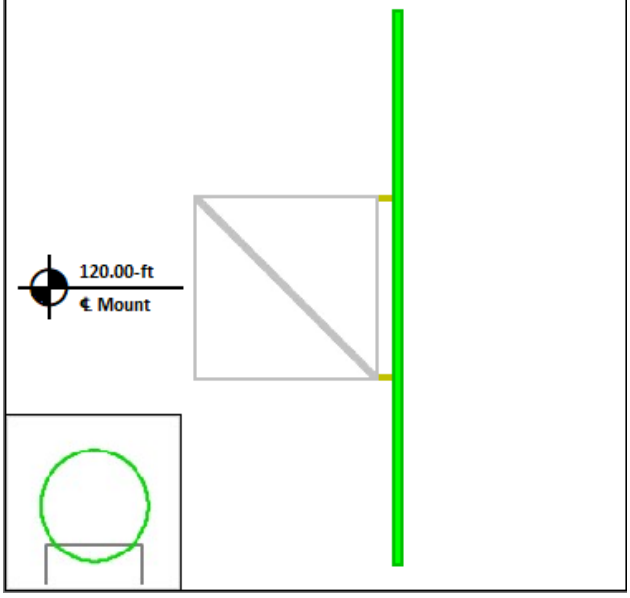

**Mount Pipe B**




**Mount Pipe C**

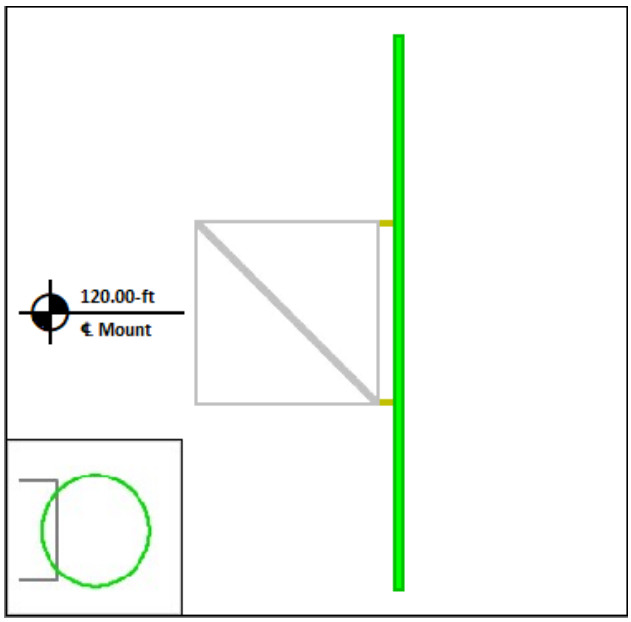



**Mount Pipe D**

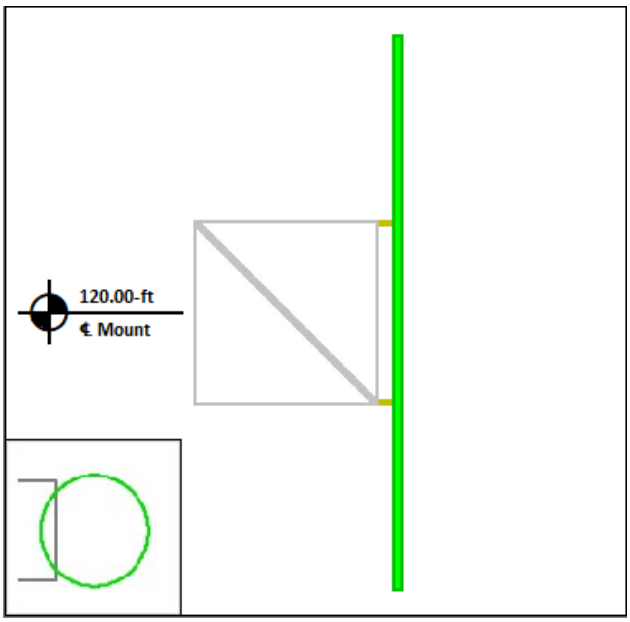


## Equipment Layout Cont'd.

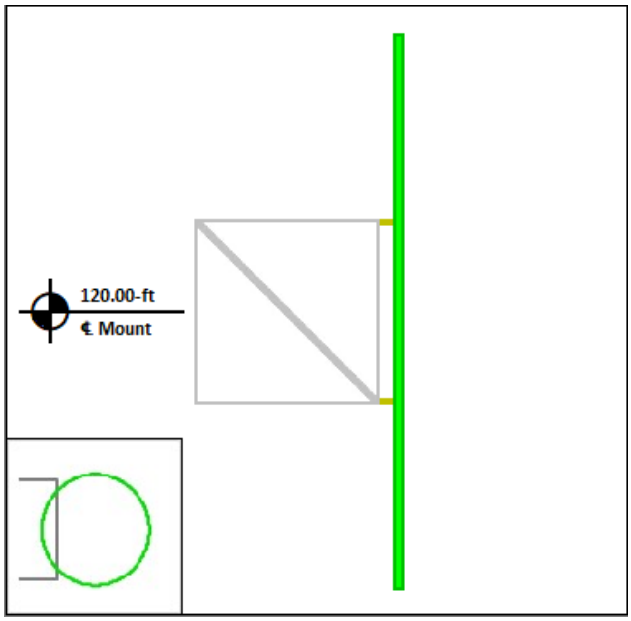
**Mount Pipe E**



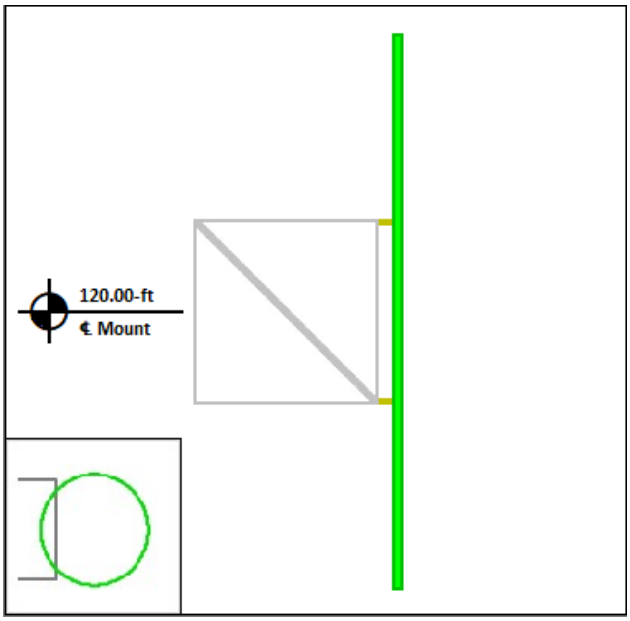

**Mount Pipe F**




**Mount Pipe G**

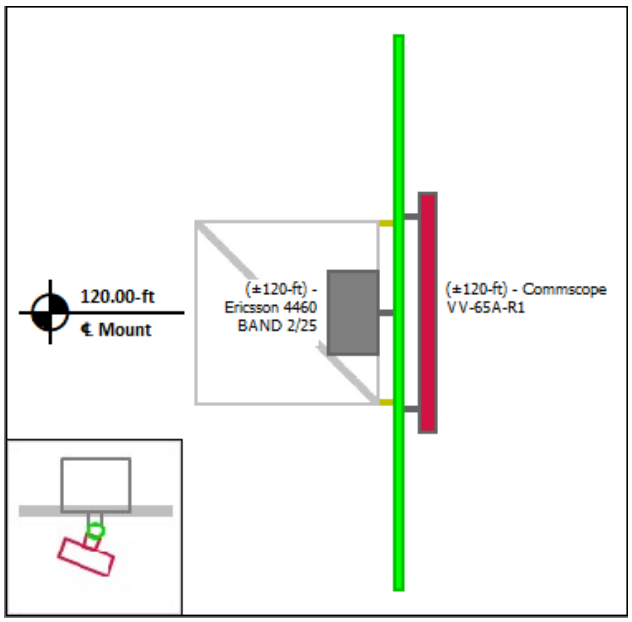



**Mount Pipe H**

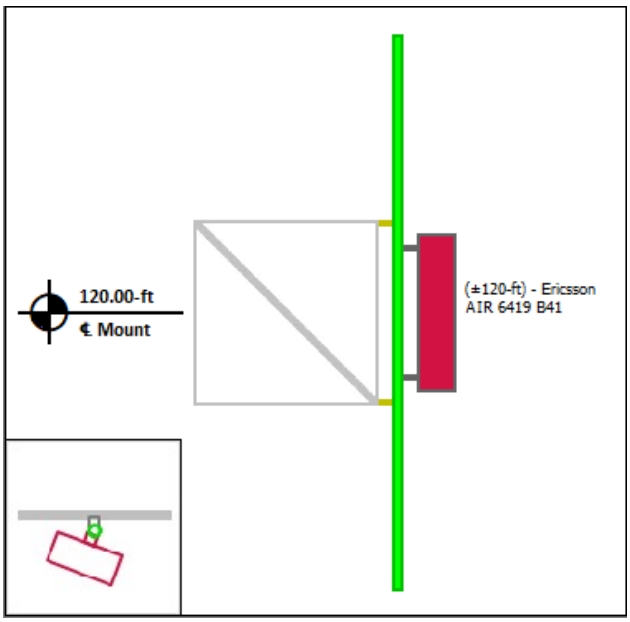


## Equipment Layout Cont'd.

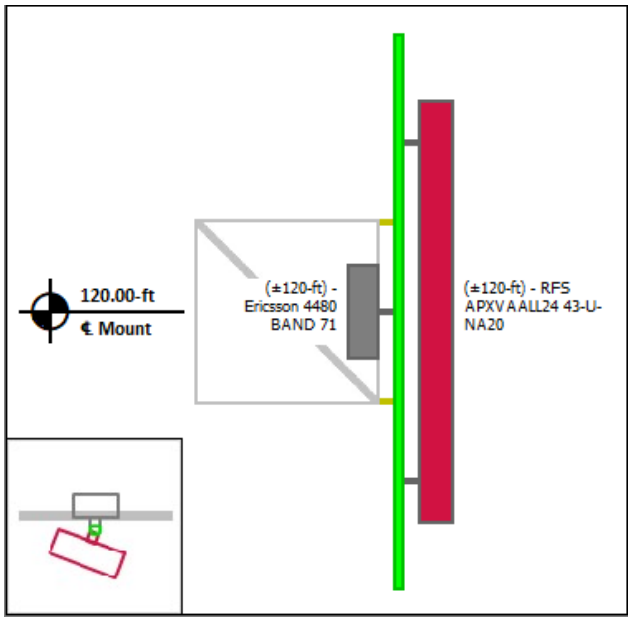
**Mount Pipe I**



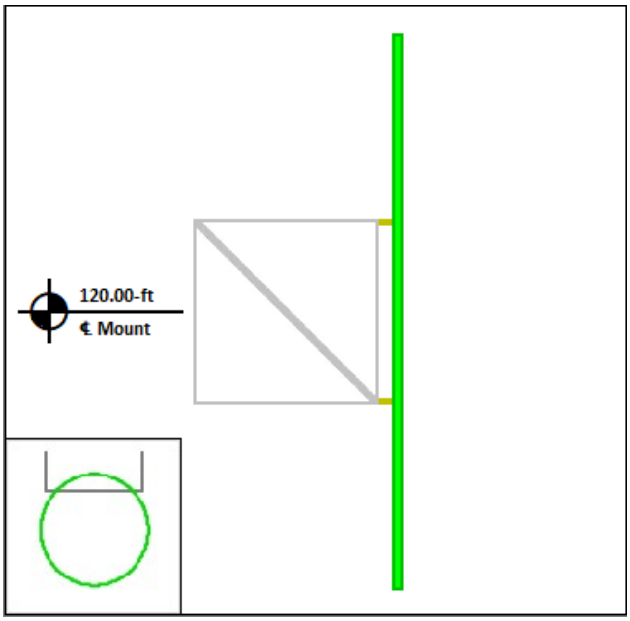

**Mount Pipe J**




**Mount Pipe K**

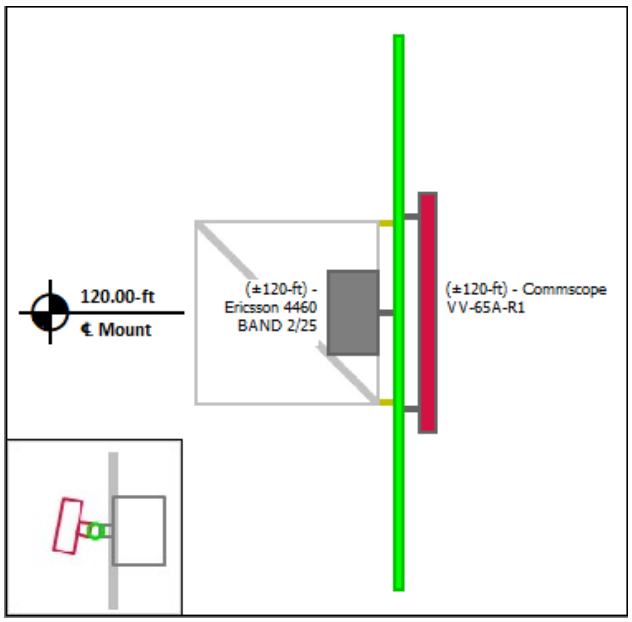



**Mount Pipe L**

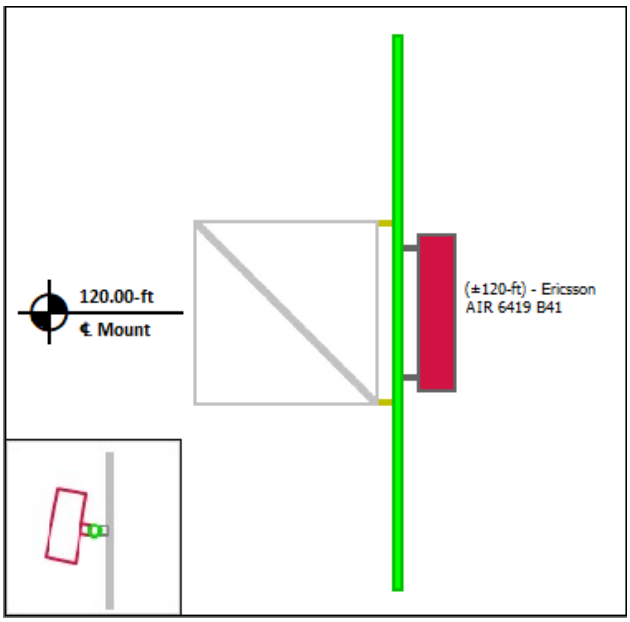


## Equipment Layout Cont'd.

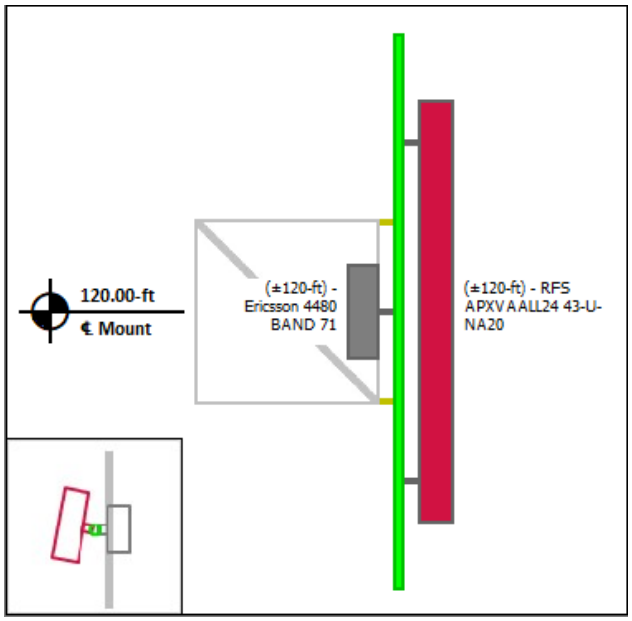
### Mount Pipe M



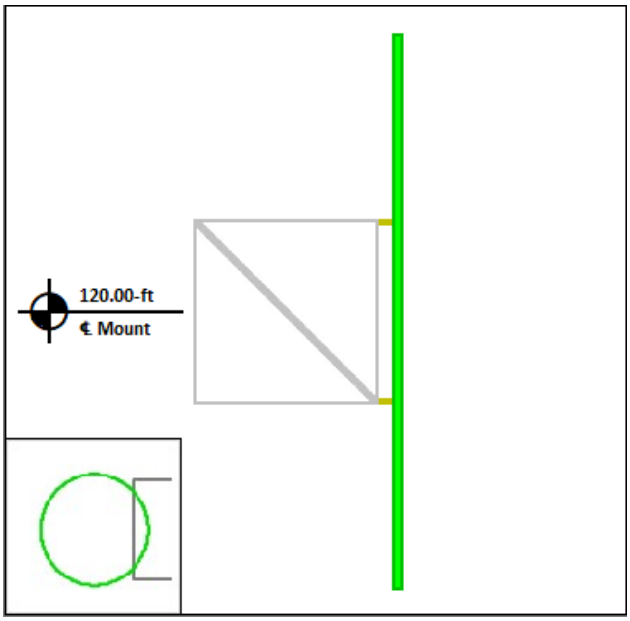

### Mount Pipe N




### Mount Pipe O




### Mount Pipe P



**Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding equipment, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

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| | |
|---|---|
| **Site Number:** | *302511* |
| **Project Number:** | *13769201_C8_04* |
| **Carrier:** | *T-Mobile* |
| **Mount Elevation:** | *120 ft* |
| **Date:** | 4/19/2022 |

# Mount Analysis Force Calculations

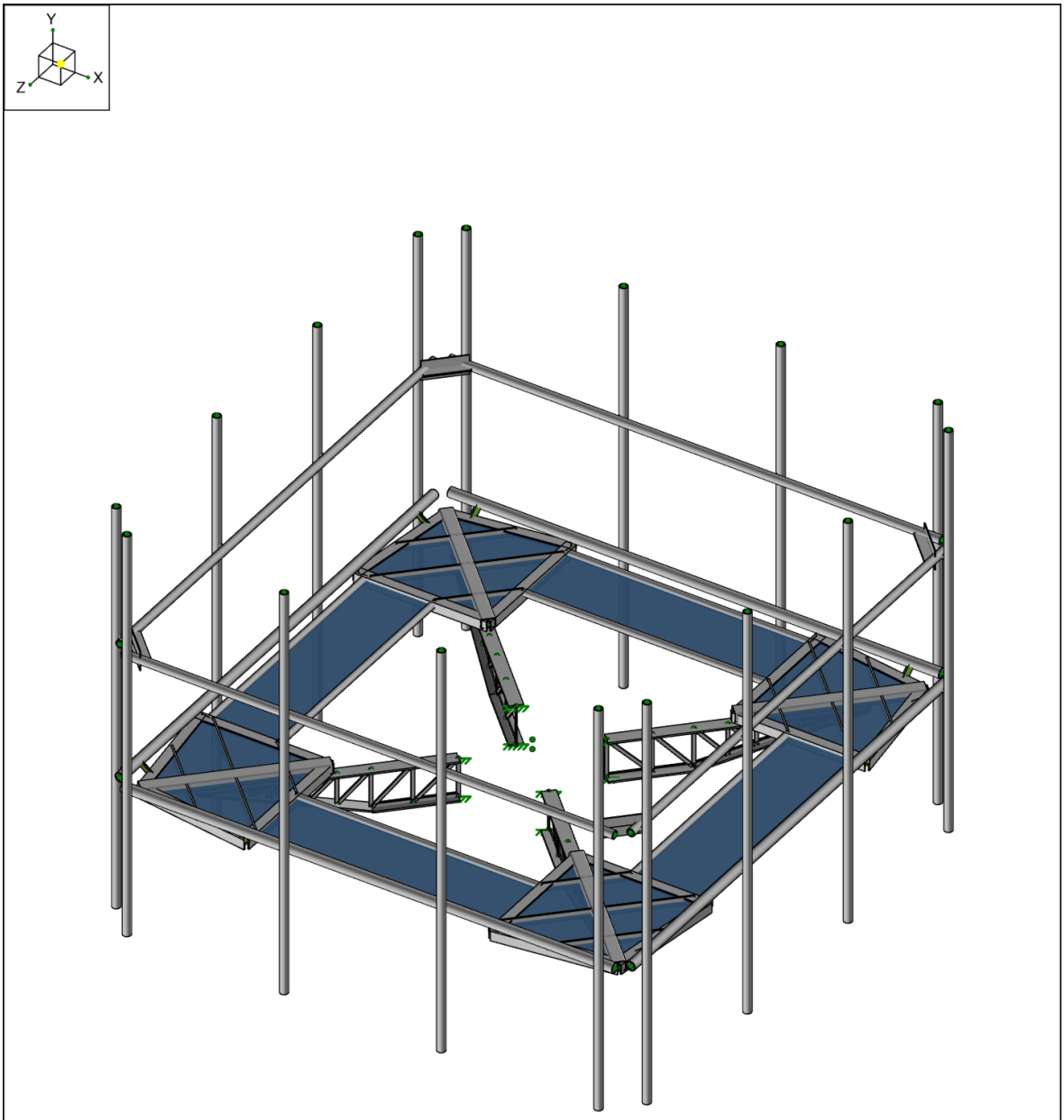
| Wind & Ice Load Calculations | | | |
|---|---|---|---|
| Velocity Pressure Coefficient | $K_z$ | 1.32 | |
| Topographic Factor | $K_{zt}$ | 1.00 | |
| Rooftop Wind Speed-up Factor | $K_s$ | 1.00 | |
| Shielding Factor | $K_a$ | 0.90 | |
| Ground Elevation Factor | $K_e$ | 1.00 | |
| Wind Direction Probability Factor | $K_d$ | 0.95 | |
| Basic Wind Speed | V | 118 | mph |
| Velocity Pressure | $q_z$ | 44.5 | psf |
| Height Escalation Factor | $K_{iz}$ | 1.14 | |
| Thickness of Radial Glaze Ice | $T_{iz}$ | 1.14 | in |

| Seismic Load Calculations | | | |
|---|---|---|---|
| Short Period DSRAP | $S_{DS}$ | 0.241 | |
| 1 Second DSRAP | $S_{D1}$ | 0.088 | |
| Importance Factor | I | 1.0 | |
| Response Modification Coefficient | R | 2.0 | |
| Seismic Response Coefficient | $C_S$ | 0.121 | |
| Amplification Factor | A | 1.0 | |
| Total Weight | W | 4148.3 | lbs |
| Total Shear Force | $V_S$ | 500.0 | lbs |
| Horizontal Seismic Load | Eh | 500.0 | lbs |
| Vertical Seismic Load | Ev | 200.0 | lbs |

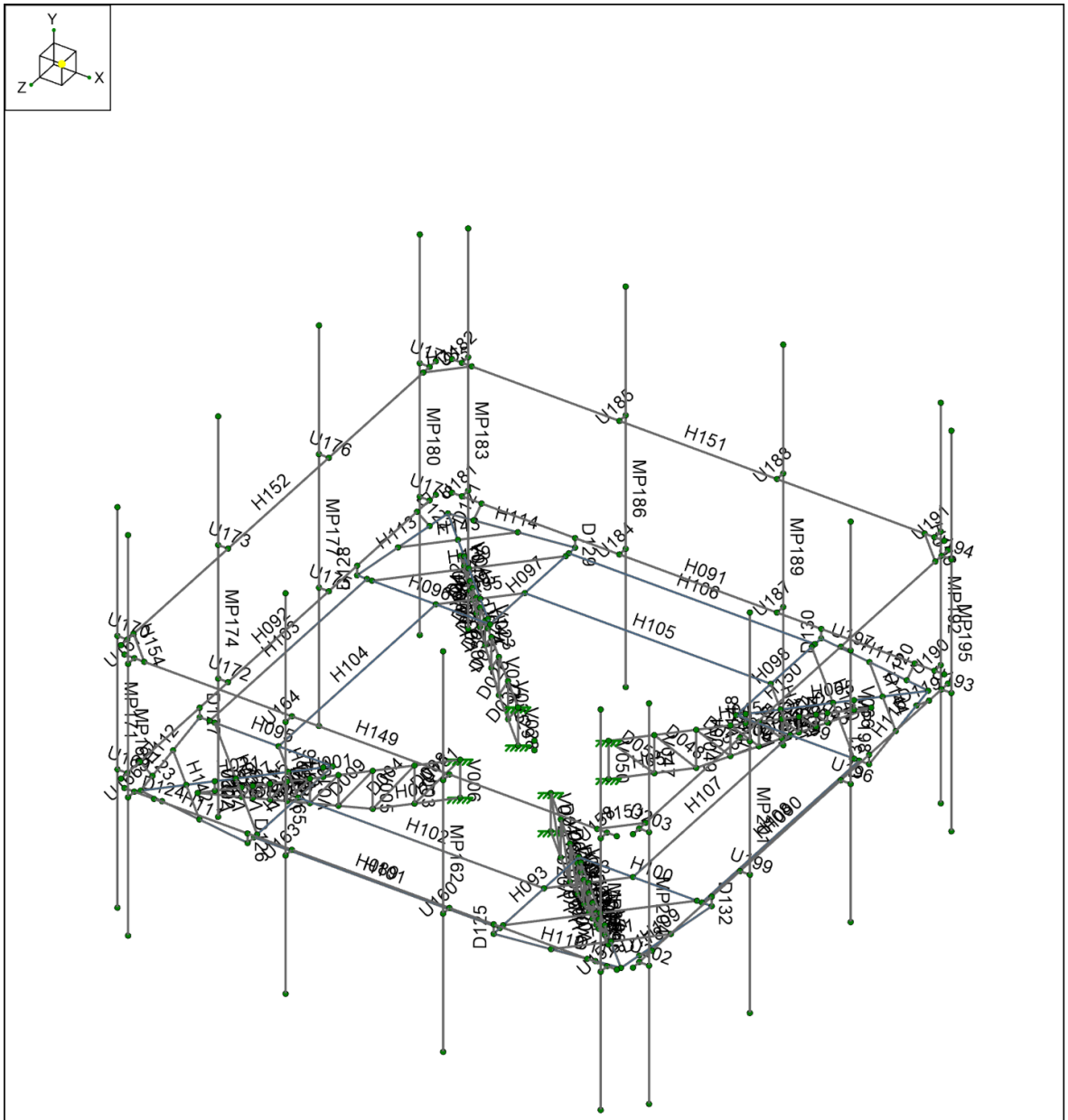
**Antenna Calculations (Elevations per Application/RFDS)***

| Equipment | Height | Width | Depth | Weight | $EPA_N$ | $EPA_T$ | $EPA_{Ni}$ | $EPA_{Ti}$ |
|---|---|---|---|---|---|---|---|---|
| Model # | in | in | in | lbs | sqft | sqft | sqft | sqft |
| Ericsson AIR 6419 B41 | 36.3 | 20.9 | 9.0 | 83.3 | 6.32 | 1.82 | 7.45 | 2.42 |
| Commscope VV-65A-R1 | 54.7 | 12.1 | 4.6 | 23.8 | 5.93 | 1.33 | 7.34 | 2.08 |
| RFS APXVAALL24 43-U-NA20 | 95.9 | 24.0 | 8.5 | 122.8 | 20.24 | 3.40 | 22.69 | 4.41 |
| Ericsson 4480 BAND 71 | 22.0 | 15.7 | 7.5 | 81.0 | 2.88 | 0.84 | 3.64 | 1.20 |
| Ericsson 4460 BAND 2/25 | 19.6 | 15.7 | 12.1 | 109.0 | 2.56 | 0.82 | 3.28 | 1.09 |

**** Equipment with EPA values N/A were not considered in the mount analysis***




| | | |
|---|---|---|
| American Tower Corp. | 302511, WSPT - South | SK-1 |
| Garrett.Williams | | Apr 19, 2022 |
| 13769201_C8_04 | | R3D. T-MOBILE @ 302511, WS… |




| | | |
|---|---|---|
| American Tower Corp. | 302511, WSPT - South | SK-2 |
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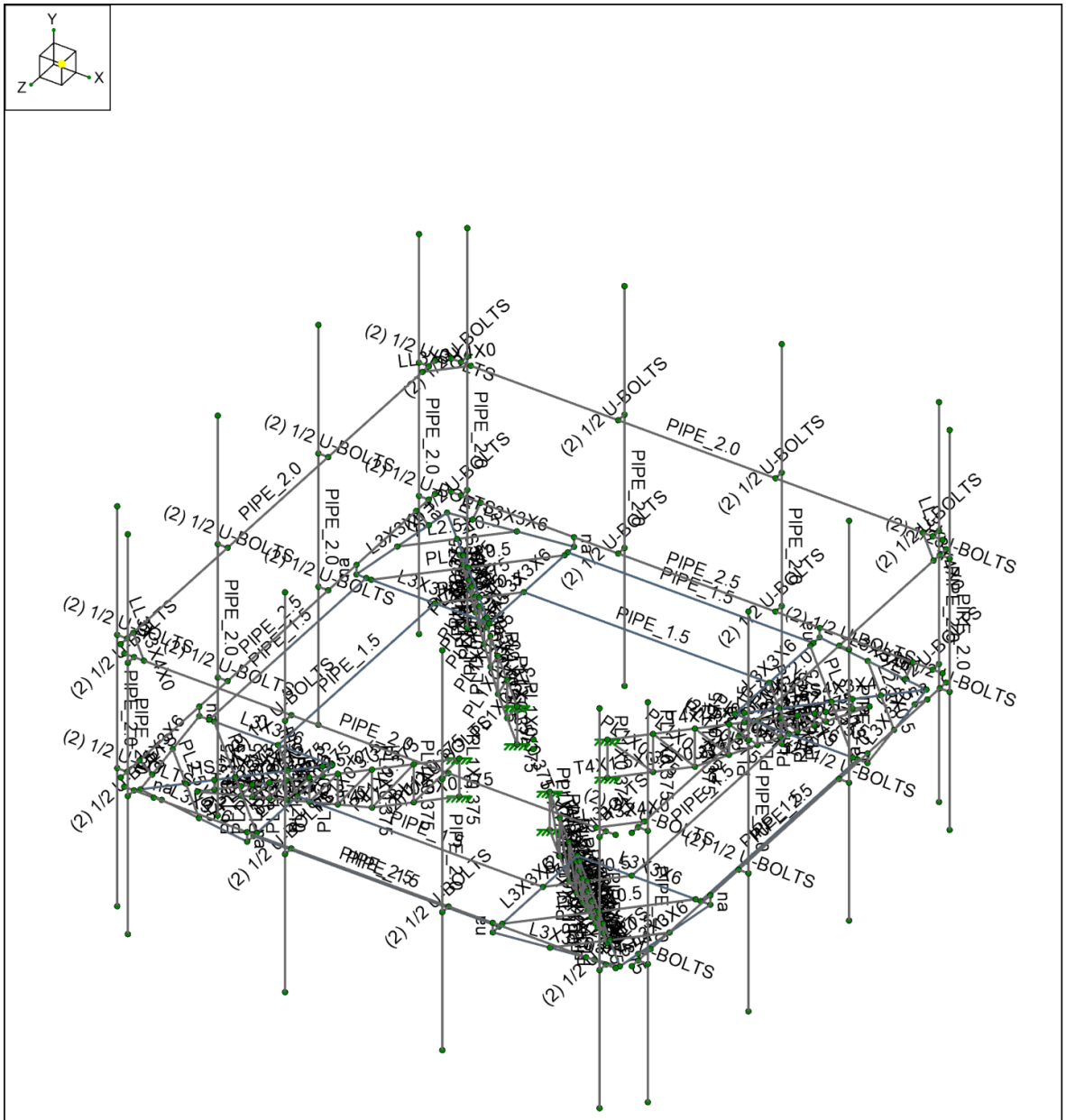
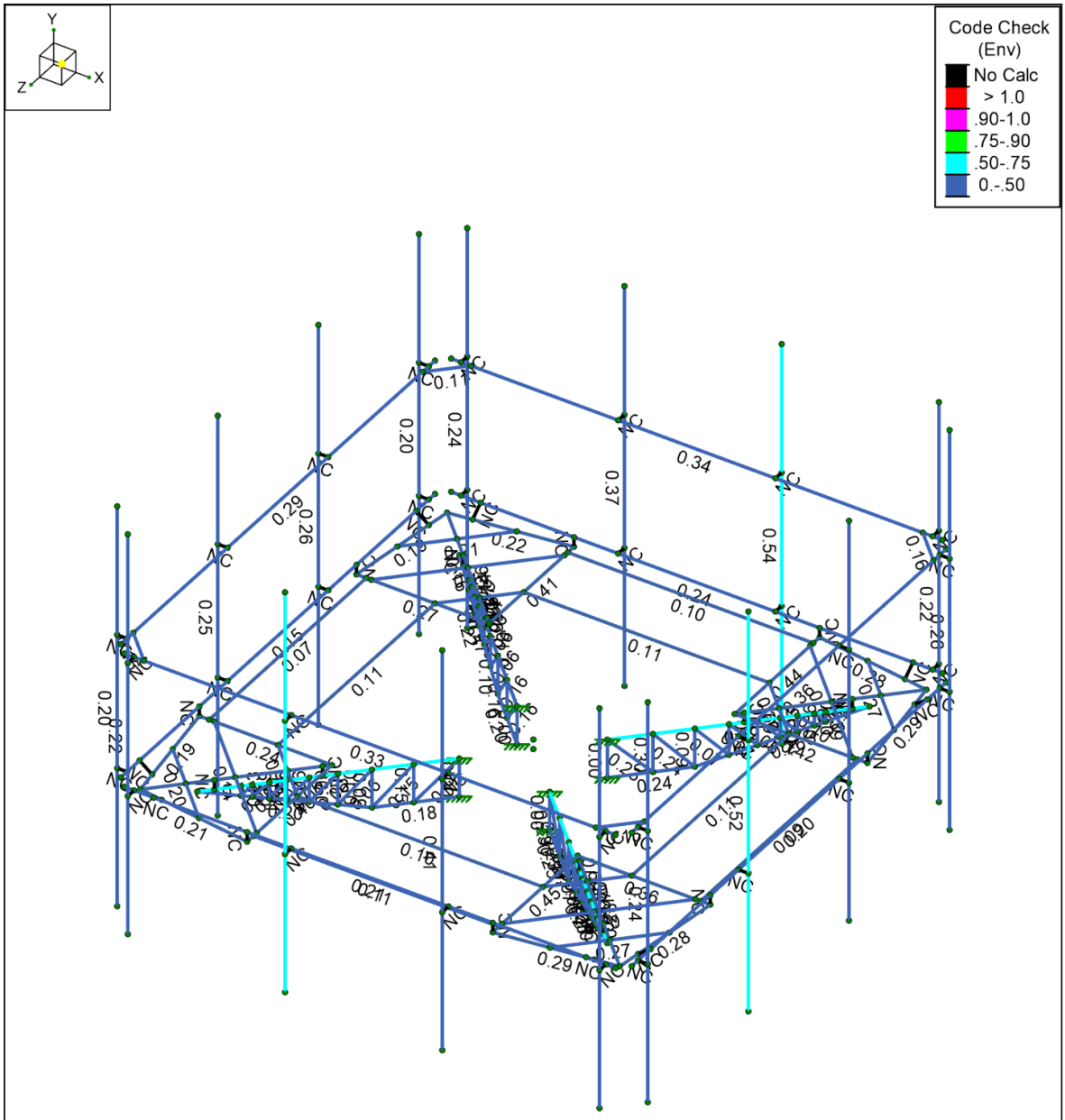
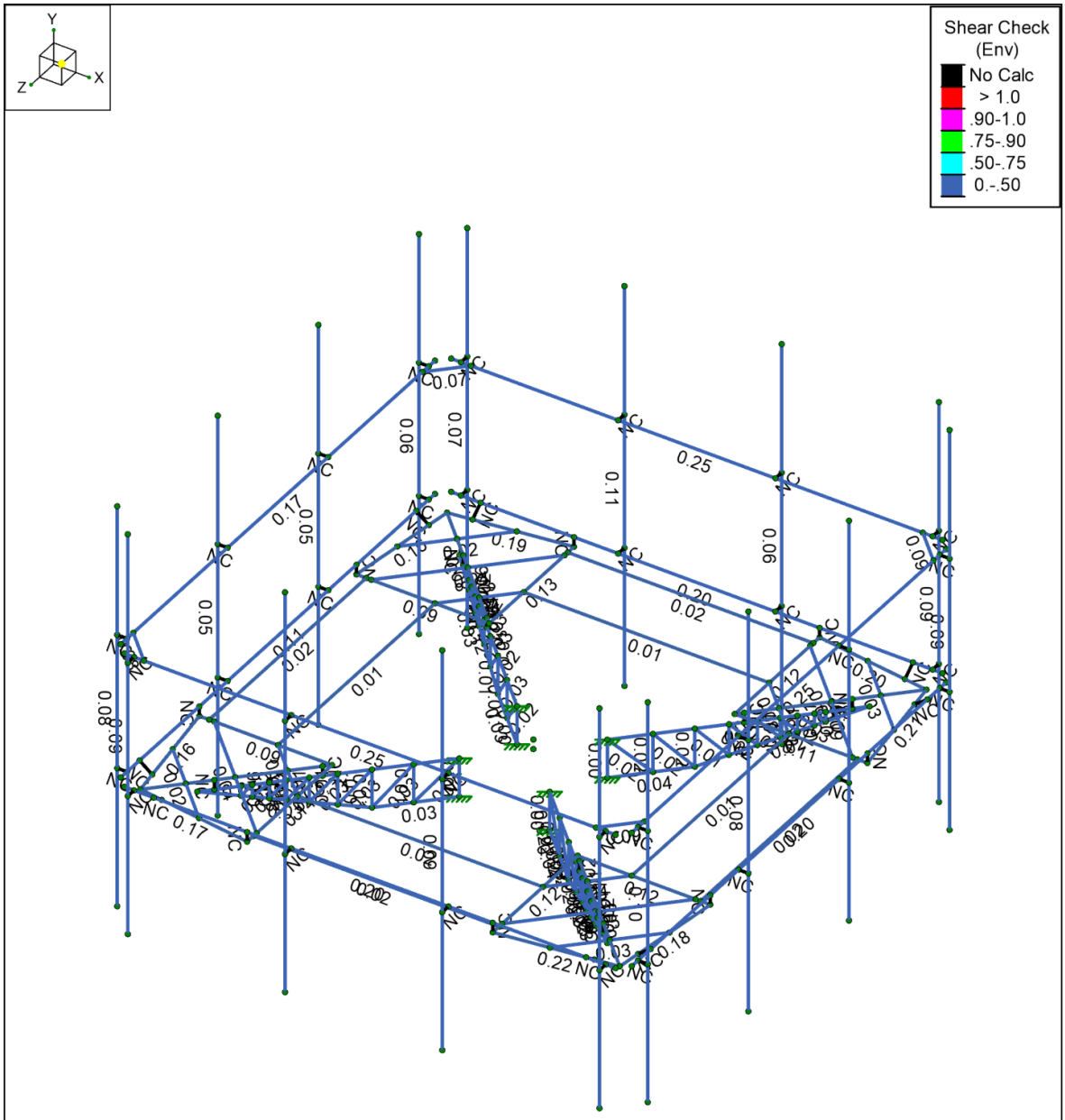



| | | |
|---|---|---|
| American Tower Corp. | 302511, WSPT - South | SK-3 |
| Garrett.Williams | | Apr 19, 2022 |
| 13769201_C8_04 | | R3D. T-MOBILE @ 302511, WS… |




Member Code Checks Displayed (Enveloped)

| | | |
|---|---|---|
| American Tower Corp. | 302511, WSPT - South | SK-4 |
| Garrett.Williams | | Apr 19, 2022 |
| 13769201_C8_04 | | R3D. T-MOBILE @ 302511, WS… |




Member Shear Checks Displayed (Enveloped)

| | | |
|---|---|---|
| American Tower Corp. | 302511, WSPT - South | SK-5 |
| Garrett.Williams | | Apr 19, 2022 |
| 13769201_C8_04 | | R3D. T-MOBILE @ 302511, WS… |

***Basic Load Cases***

| | BLC Description | Category | Y Gravity | Nodal | Point | Distributed | Surface(Plate/Wall) |
|---|---|---|---|---|---|---|---|
| 1 | D | DL | -1 | | 24 | | |
| 2 | Di | IL | | | 24 | 148 | 12 |
| 3 | W 0 | WL | | | 24 | 180 | |
| 4 | W 30 | WL | | | 48 | 360 | |
| 5 | W 60 | WL | | | 48 | 360 | |
| 6 | W 90 | WL | | | 24 | 187 | |
| 7 | W 120 | WL | | | 48 | 360 | |
| 8 | W 150 | WL | | | 48 | 360 | |
| 9 | W 180 | WL | | | 24 | 180 | |
| 10 | W 210 | WL | | | 48 | 360 | |
| 11 | W 240 | WL | | | 48 | 360 | |
| 12 | W 270 | WL | | | 24 | 187 | |
| 13 | W 300 | WL | | | 48 | 360 | |
| 14 | W 330 | WL | | | 48 | 360 | |
| 15 | Wi 0 | WL | | | 24 | 180 | |
| 16 | Wi 30 | WL | | | 48 | 360 | |
| 17 | Wi 60 | WL | | | 48 | 360 | |
| 18 | Wi 90 | WL | | | 24 | 187 | |
| 19 | Wi 120 | WL | | | 48 | 360 | |
| 20 | Wi 150 | WL | | | 48 | 360 | |
| 21 | Wi 180 | WL | | | 24 | 180 | |
| 22 | Wi 210 | WL | | | 48 | 360 | |
| 23 | Wi 240 | WL | | | 48 | 360 | |
| 24 | Wi 270 | WL | | | 24 | 187 | |
| 25 | Wi 300 | WL | | | 48 | 360 | |
| 26 | Wi 330 | WL | | | 48 | 360 | |
| 27 | Ws 0 | WL | | | 24 | 180 | |
| 28 | Ws 30 | WL | | | 48 | 360 | |
| 29 | Ws 60 | WL | | | 48 | 360 | |
| 30 | Ws 90 | WL | | | 24 | 187 | |
| 31 | Ws 120 | WL | | | 48 | 360 | |
| 32 | Ws 150 | WL | | | 48 | 360 | |
| 33 | Ws 180 | WL | | | 24 | 180 | |
| 34 | Ws 210 | WL | | | 48 | 360 | |
| 35 | Ws 240 | WL | | | 48 | 360 | |
| 36 | Ws 270 | WL | | | 24 | 187 | |
| 37 | Ws 300 | WL | | | 48 | 360 | |
| 38 | Ws 330 | WL | | | 48 | 360 | |
| 39 | Ev -Y | ELY | | | | 148 | |
| 40 | Eh -Z | ELZ | | | | 148 | |
| 41 | Eh -X | ELX | | | | 148 | |
| 42 | Lm (1) | LL | | 1 | | | |
| 43 | Lm (2) | LL | | 1 | | | |
| 44 | Lm (3) | LL | | 1 | | | |
| 45 | Lm (4) | LL | | 1 | | | |
| 46 | Lm (5) | LL | | 1 | | | |
| 47 | Lm (6) | LL | | 1 | | | |
| 48 | Lm (7) | LL | | 1 | | | |
| 49 | Lm (8) | LL | | 1 | | | |
| 50 | Lm (9) | LL | | 1 | | | |
| 51 | Lm (10) | LL | | 1 | | | |
| 52 | Lm (11) | LL | | 1 | | | |
| 53 | Lm (12) | LL | | 1 | | | |
| 54 | Lm (13) | LL | | 1 | | | |
| 55 | Lm (14) | LL | | 1 | | | |

### Basic Load Cases (Continued)

| | BLC Description | Category | Y Gravity | Nodal | Point | Distributed | Surface(Plate/Wall) |
|---|---|---|---|---|---|---|---|
| 56 | Lm (15) | LL | | 1 | | | |
| 57 | Lm (16) | LL | | 1 | | | |

### Node Boundary Conditions

| | Node Label | X [lb/in] | Y [lb/in] | Z [lb/in] | X Rot [k-in/rad] | Y Rot [k-in/rad] | Z Rot [k-in/rad] |
|---|---|---|---|---|---|---|---|
| 1 | N002 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 2 | N005 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 3 | N025 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 4 | N028 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 5 | N048 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 6 | N051 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 7 | N071 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 8 | N074 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |

### Member Primary Data

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|---|---|---|---|---|---|---|---|---|
| 1 | H001 | N002 | N004 | | T4x1.5x0.5x0.375 | Beam | None | A992 | Typical |
| 2 | D002 | N006 | N004 | | T4X1.5X0.5X0.375 | Column | None | A992 | Typical |
| 3 | V003 | N007 | N008 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 4 | D004 | N007 | N006 | | PL1X0.375 | Column | None | A992 | Typical |
| 5 | V005 | N003 | N006 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 6 | V006 | N002 | N005 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 7 | H007 | N005 | N006 | 180 | T4X1.5X0.5X0.375 | Beam | None | A992 | Typical |
| 8 | D008 | N002 | N008 | | PL1X0.375 | Column | None | A992 | Typical |
| 9 | D009 | N003 | N010 | | PL1X0.375 | Column | None | A992 | Typical |
| 10 | V010 | N010 | N009 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 11 | D011 | N009 | N012 | | PL1X0.375 | Column | None | A992 | Typical |
| 12 | V012 | N012 | N011 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 13 | D013 | N011 | N014 | | PL1X0.375 | Column | None | A992 | Typical |
| 14 | V014 | N014 | N013 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 15 | D015 | N013 | N016 | | PL1X0.375 | Column | None | A992 | Typical |
| 16 | V016 | N016 | N015 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 17 | D017 | N015 | N018 | | PL1X0.375 | Column | None | A992 | Typical |
| 18 | V018 | N018 | N017 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 19 | D019 | N017 | N020 | | PL1X0.375 | Column | None | A992 | Typical |
| 20 | V020 | N020 | N019 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 21 | H021 | N022 | N021 | 90 | HSS4X3X4 | Beam | None | A36 | Typical |
| 22 | V022 | N023 | N024 | | RIGID | None | None | RIGID | Typical |
| 23 | H023 | N025 | N027 | | T4x1.5x0.5x0.375 | Beam | None | A992 | Typical |
| 24 | D024 | N029 | N027 | 180 | T4X1.5X0.5X0.375 | Column | None | A992 | Typical |
| 25 | V025 | N030 | N031 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 26 | D026 | N030 | N029 | | PL1X0.375 | Column | None | A992 | Typical |
| 27 | V027 | N026 | N029 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 28 | V028 | N025 | N028 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 29 | H029 | N028 | N029 | 180 | T4X1.5X0.5X0.375 | Beam | None | A992 | Typical |
| 30 | D030 | N025 | N031 | | PL1X0.375 | Column | None | A992 | Typical |
| 31 | D031 | N026 | N033 | | PL1X0.375 | Column | None | A992 | Typical |
| 32 | V032 | N033 | N032 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 33 | D033 | N032 | N035 | | PL1X0.375 | Column | None | A992 | Typical |
| 34 | V034 | N035 | N034 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 35 | D035 | N034 | N037 | | PL1X0.375 | Column | None | A992 | Typical |
| 36 | V036 | N037 | N036 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 37 | D037 | N036 | N039 | | PL1X0.375 | Column | None | A992 | Typical |

***Member Primary Data (Continued)***

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|---|---|---|---|---|---|---|---|---|
| 38 | V038 | N039 | N038 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 39 | D039 | N038 | N041 | | PL1X0.375 | Column | None | A992 | Typical |
| 40 | V040 | N041 | N040 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 41 | D041 | N040 | N043 | | PL1X0.375 | Column | None | A992 | Typical |
| 42 | V042 | N043 | N042 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 43 | H043 | N045 | N044 | 90 | HSS4X3X4 | Beam | None | A36 | Typical |
| 44 | V044 | N046 | N047 | | RIGID | None | None | RIGID | Typical |
| 45 | H045 | N048 | N050 | | T4x1.5x0.5x0.375 | Beam | None | A992 | Typical |
| 46 | D046 | N052 | N050 | 180 | T4X1.5X0.5X0.375 | Column | None | A572-50 | Typical |
| 47 | V047 | N053 | N054 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 48 | D048 | N053 | N052 | | PL1X0.375 | Column | None | A992 | Typical |
| 49 | V049 | N049 | N052 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 50 | V050 | N048 | N051 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 51 | H051 | N051 | N052 | 180 | T4X1.5X0.5X0.375 | Beam | None | A572-50 | Typical |
| 52 | D052 | N048 | N054 | | PL1X0.375 | Column | None | A992 | Typical |
| 53 | D053 | N049 | N056 | | PL1X0.375 | Column | None | A992 | Typical |
| 54 | V054 | N056 | N055 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 55 | D055 | N055 | N058 | | PL1X0.375 | Column | None | A992 | Typical |
| 56 | V056 | N058 | N057 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 57 | D057 | N057 | N060 | | PL1X0.375 | Column | None | A992 | Typical |
| 58 | V058 | N060 | N059 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 59 | D059 | N059 | N062 | | PL1X0.375 | Column | None | A992 | Typical |
| 60 | V060 | N062 | N061 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 61 | D061 | N061 | N064 | | PL1X0.375 | Column | None | A992 | Typical |
| 62 | V062 | N064 | N063 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 63 | D063 | N063 | N066 | | PL1X0.375 | Column | None | A992 | Typical |
| 64 | V064 | N066 | N065 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 65 | H065 | N068 | N067 | 90 | HSS4X3X4 | Beam | None | A36 | Typical |
| 66 | V066 | N069 | N070 | | RIGID | None | None | RIGID | Typical |
| 67 | H067 | N071 | N073 | | T4x1.5x0.5x0.375 | Beam | None | A992 | Typical |
| 68 | D068 | N075 | N073 | 180 | T4X1.5X0.5X0.375 | Column | None | A992 | Typical |
| 69 | V069 | N076 | N077 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 70 | D070 | N076 | N075 | | PL1X0.375 | Column | None | A992 | Typical |
| 71 | V071 | N072 | N075 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 72 | V072 | N071 | N074 | 45 | PL1X0.375 | Column | None | A992 | Typical |
| 73 | H073 | N074 | N075 | 180 | T4X1.5X0.5X0.375 | Beam | None | A992 | Typical |
| 74 | D074 | N071 | N077 | | PL1X0.375 | Column | None | A992 | Typical |
| 75 | D075 | N072 | N079 | | PL1X0.375 | Column | None | A992 | Typical |
| 76 | V076 | N079 | N078 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 77 | D077 | N078 | N081 | | PL1X0.375 | Column | None | A992 | Typical |
| 78 | V078 | N081 | N080 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 79 | D079 | N080 | N083 | | PL1X0.375 | Column | None | A992 | Typical |
| 80 | V080 | N083 | N082 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 81 | D081 | N082 | N085 | | PL1X0.375 | Column | None | A992 | Typical |
| 82 | V082 | N085 | N084 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 83 | D083 | N084 | N087 | | PL1X0.375 | Column | None | A992 | Typical |
| 84 | V084 | N087 | N086 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 85 | D085 | N086 | N089 | | PL1X0.375 | Column | None | A992 | Typical |
| 86 | V086 | N089 | N088 | 135 | PL1X0.375 | Column | None | A992 | Typical |
| 87 | H087 | N091 | N090 | 90 | HSS4X3X4 | Beam | None | A36 | Typical |
| 88 | V088 | N092 | N093 | | RIGID | None | None | RIGID | Typical |
| 89 | H089 | N094 | N095 | | PIPE_2.5 | Beam | None | A36 | Typical |
| 90 | H090 | N097 | N098 | | PIPE_2.5 | Beam | None | A36 | Typical |
| 91 | H091 | N099 | N100 | | PIPE_2.5 | Beam | None | A36 | Typical |
| 92 | H092 | N101 | N102 | | PIPE_2.5 | Beam | None | A36 | Typical |

***Member Primary Data (Continued)***

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|---|---|---|---|---|---|---|---|---|
| 93 | H093 | N091 | N096 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 94 | H094 | N022 | N103 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 95 | H095 | N022 | N104 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 96 | H096 | N045 | N105 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 97 | H097 | N045 | N106 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 98 | H098 | N068 | N107 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 99 | H099 | N068 | N108 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 100 | H100 | N091 | N109 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 101 | H101 | N110 | N111 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 102 | H102 | N114 | N115 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 103 | H103 | N123 | N122 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 104 | H104 | N124 | N125 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 105 | H105 | N121 | N120 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 106 | H106 | N113 | N112 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 107 | H107 | N118 | N117 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 108 | H108 | N119 | N116 | | PIPE_1.5 | Beam | None | A53 Gr. B | Typical |
| 109 | H109 | N109 | N090 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 110 | H110 | N096 | N090 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 111 | H111 | N103 | N021 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 112 | H112 | N104 | N021 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 113 | H113 | N105 | N044 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 114 | H114 | N106 | N044 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 115 | H115 | N107 | N067 | 90 | L3X3X6 | Beam | None | A36 | Typical |
| 116 | H116 | N108 | N067 | 180 | L3X3X6 | Beam | None | A36 | Typical |
| 117 | D117 | N126 | N141 | | RIGID | None | None | RIGID | Typical |
| 118 | D118 | N131 | N127 | | RIGID | None | None | RIGID | Typical |
| 119 | D119 | N130 | N128 | | RIGID | None | None | RIGID | Typical |
| 120 | D120 | N132 | N129 | | RIGID | None | None | RIGID | Typical |
| 121 | D121 | N139 | N133 | | RIGID | None | None | RIGID | Typical |
| 122 | D122 | N140 | N134 | | RIGID | None | None | RIGID | Typical |
| 123 | D123 | N138 | N135 | | RIGID | None | None | RIGID | Typical |
| 124 | D124 | N137 | N136 | | RIGID | None | None | RIGID | Typical |
| 125 | D125 | N142 | N096 | | RIGID | None | None | RIGID | Typical |
| 126 | D126 | N103 | N143 | | RIGID | None | None | RIGID | Typical |
| 127 | D127 | N144 | N104 | | RIGID | None | None | RIGID | Typical |
| 128 | D128 | N105 | N145 | | RIGID | None | None | RIGID | Typical |
| 129 | D129 | N146 | N106 | | RIGID | None | None | RIGID | Typical |
| 130 | D130 | N107 | N147 | | RIGID | None | None | RIGID | Typical |
| 131 | D131 | N148 | N108 | | RIGID | None | None | RIGID | Typical |
| 132 | D132 | N109 | N149 | | RIGID | None | None | RIGID | Typical |
| 133 | H133 | N117 | N114 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 134 | H134 | N115 | N124 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 135 | H135 | N121 | N125 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 136 | H136 | N120 | N118 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 137 | H137 | N150 | N157 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 138 | H138 | N156 | N155 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 139 | H139 | N154 | N153 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 140 | H140 | N152 | N151 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 141 | H141 | N162 | N163 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 142 | H142 | N160 | N161 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 143 | H143 | N159 | N158 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 144 | H144 | N165 | N164 | | PL2.5X0.5 | Beam | None | A36 | Typical |
| 145 | V145 | N170 | N166 | | RIGID | None | None | RIGID | Typical |
| 146 | V146 | N167 | N171 | | RIGID | None | None | RIGID | Typical |
| 147 | V147 | N172 | N168 | | RIGID | None | None | RIGID | Typical |

***Member Primary Data (Continued)***

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|---|---|---|---|---|---|---|---|---|
| 148 | V148 | N169 | N173 | | RIGID | None | None | RIGID | Typical |
| 149 | H149 | N174 | N175 | | PIPE_2.0 | Beam | None | A53 Gr. B | Typical |
| 150 | H150 | N176 | N177 | | PIPE_2.0 | Beam | None | A53 Gr. B | Typical |
| 151 | H151 | N178 | N179 | | PIPE_2.0 | Beam | None | A53 Gr. B | Typical |
| 152 | H152 | N180 | N181 | | PIPE_2.0 | Beam | None | A53 Gr. B | Typical |
| 153 | H153 | N183 | N182 | 270 | LL3X3X4X0 | Beam | None | A36 | Typical |
| 154 | H154 | N184 | N185 | 270 | LL3X3X4X0 | Beam | None | A36 | Typical |
| 155 | H155 | N186 | N187 | 270 | LL3X3X4X0 | Beam | None | A36 | Typical |
| 156 | H156 | N188 | N189 | 270 | LL3X3X4X0 | Beam | None | A36 | Typical |
| 157 | U157 | N190 | N194 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 158 | U158 | N195 | N196 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 159 | MP159 | N197 | N198 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 160 | U160 | N191 | N212 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 161 | U161 | N213 | N214 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 162 | MP162 | N215 | N216 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 163 | U163 | N192 | N217 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 164 | U164 | N218 | N219 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 165 | MP165 | N220 | N221 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 166 | U166 | N193 | N222 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 167 | U167 | N223 | N224 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 168 | MP168 | N225 | N226 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 169 | U169 | N200 | N227 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 170 | U170 | N228 | N229 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 171 | MP171 | N230 | N231 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 172 | U172 | N201 | N232 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 173 | U173 | N233 | N234 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 174 | MP174 | N235 | N236 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 175 | U175 | N202 | N237 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 176 | U176 | N238 | N239 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 177 | MP177 | N240 | N241 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 178 | U178 | N203 | N242 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 179 | U179 | N243 | N244 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 180 | MP180 | N245 | N246 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 181 | U181 | N204 | N247 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 182 | U182 | N248 | N249 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 183 | MP183 | N250 | N251 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 184 | U184 | N205 | N252 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 185 | U185 | N253 | N254 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 186 | MP186 | N255 | N256 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 187 | U187 | N206 | N257 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 188 | U188 | N258 | N259 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 189 | MP189 | N260 | N261 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 190 | U190 | N207 | N262 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 191 | U191 | N263 | N264 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 192 | MP192 | N265 | N266 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 193 | U193 | N208 | N267 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 194 | U194 | N268 | N269 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 195 | MP195 | N270 | N271 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 196 | U196 | N209 | N272 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 197 | U197 | N273 | N274 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 198 | MP198 | N275 | N276 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 199 | U199 | N210 | N277 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 200 | U200 | N278 | N279 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 201 | MP201 | N280 | N281 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |
| 202 | U202 | N211 | N282 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |

### *Member Primary Data (Continued)*

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|---|---|---|---|---|---|---|---|---|
| 203 | U203 | N283 | N284 | | (2) 1/2 U-BOLTS | Beam | None | A36 | Typical |
| 204 | MP204 | N285 | N286 | | PIPE_2.0 | Column | None | A53 Gr. B | Typical |

### *Member Advanced Data*

| | Label | Physical | Deflection Ratio Options | Activation | Seismic DR |
|---|---|---|---|---|---|
| 1 | H001 | Yes | Default | | None |
| 2 | D002 | Yes | ** NA ** | | None |
| 3 | V003 | Yes | ** NA ** | | None |
| 4 | D004 | Yes | ** NA ** | | None |
| 5 | V005 | Yes | ** NA ** | | None |
| 6 | V006 | Yes | ** NA ** | | None |
| 7 | H007 | Yes | N/A | | None |
| 8 | D008 | Yes | ** NA ** | | None |
| 9 | D009 | Yes | ** NA ** | | None |
| 10 | V010 | Yes | ** NA ** | | None |
| 11 | D011 | Yes | ** NA ** | | None |
| 12 | V012 | Yes | ** NA ** | | None |
| 13 | D013 | Yes | ** NA ** | | None |
| 14 | V014 | Yes | ** NA ** | | None |
| 15 | D015 | Yes | ** NA ** | | None |
| 16 | V016 | Yes | ** NA ** | | None |
| 17 | D017 | Yes | ** NA ** | | None |
| 18 | V018 | Yes | ** NA ** | | None |
| 19 | D019 | Yes | ** NA ** | | None |
| 20 | V020 | Yes | ** NA ** | | None |
| 21 | H021 | Yes | N/A | | None |
| 22 | V022 | Yes | ** NA ** | | None |
| 23 | H023 | Yes | Default | | None |
| 24 | D024 | Yes | ** NA ** | | None |
| 25 | V025 | Yes | ** NA ** | | None |
| 26 | D026 | Yes | ** NA ** | | None |
| 27 | V027 | Yes | ** NA ** | | None |
| 28 | V028 | Yes | ** NA ** | | None |
| 29 | H029 | Yes | N/A | | None |
| 30 | D030 | Yes | ** NA ** | | None |
| 31 | D031 | Yes | ** NA ** | | None |
| 32 | V032 | Yes | ** NA ** | | None |
| 33 | D033 | Yes | ** NA ** | | None |
| 34 | V034 | Yes | ** NA ** | | None |
| 35 | D035 | Yes | ** NA ** | | None |
| 36 | V036 | Yes | ** NA ** | | None |
| 37 | D037 | Yes | ** NA ** | | None |
| 38 | V038 | Yes | ** NA ** | | None |
| 39 | D039 | Yes | ** NA ** | | None |
| 40 | V040 | Yes | ** NA ** | | None |
| 41 | D041 | Yes | ** NA ** | | None |
| 42 | V042 | Yes | ** NA ** | | None |
| 43 | H043 | Yes | N/A | | None |
| 44 | V044 | Yes | ** NA ** | | None |
| 45 | H045 | Yes | Default | | None |
| 46 | D046 | Yes | ** NA ** | | None |
| 47 | V047 | Yes | ** NA ** | | None |
| 48 | D048 | Yes | ** NA ** | | None |
| 49 | V049 | Yes | ** NA ** | | None |
| 50 | V050 | Yes | ** NA ** | | None |

***Member Advanced Data (Continued)***

| | Label | Physical | Deflection Ratio Options | Activation | Seismic DR |
|---|---|---|---|---|---|
| 51 | H051 | Yes | N/A | | None |
| 52 | D052 | Yes | ** NA ** | | None |
| 53 | D053 | Yes | ** NA ** | | None |
| 54 | V054 | Yes | ** NA ** | | None |
| 55 | D055 | Yes | ** NA ** | | None |
| 56 | V056 | Yes | ** NA ** | | None |
| 57 | D057 | Yes | ** NA ** | | None |
| 58 | V058 | Yes | ** NA ** | | None |
| 59 | D059 | Yes | ** NA ** | | None |
| 60 | V060 | Yes | ** NA ** | | None |
| 61 | D061 | Yes | ** NA ** | | None |
| 62 | V062 | Yes | ** NA ** | | None |
| 63 | D063 | Yes | ** NA ** | | None |
| 64 | V064 | Yes | ** NA ** | | None |
| 65 | H065 | Yes | N/A | | None |
| 66 | V066 | Yes | ** NA ** | | None |
| 67 | H067 | Yes | Default | | None |
| 68 | D068 | Yes | ** NA ** | | None |
| 69 | V069 | Yes | ** NA ** | | None |
| 70 | D070 | Yes | ** NA ** | | None |
| 71 | V071 | Yes | ** NA ** | | None |
| 72 | V072 | Yes | ** NA ** | | None |
| 73 | H073 | Yes | N/A | | None |
| 74 | D074 | Yes | ** NA ** | | None |
| 75 | D075 | Yes | ** NA ** | | None |
| 76 | V076 | Yes | ** NA ** | | None |
| 77 | D077 | Yes | ** NA ** | | None |
| 78 | V078 | Yes | ** NA ** | | None |
| 79 | D079 | Yes | ** NA ** | | None |
| 80 | V080 | Yes | ** NA ** | | None |
| 81 | D081 | Yes | ** NA ** | | None |
| 82 | V082 | Yes | ** NA ** | | None |
| 83 | D083 | Yes | ** NA ** | | None |
| 84 | V084 | Yes | ** NA ** | | None |
| 85 | D085 | Yes | ** NA ** | | None |
| 86 | V086 | Yes | ** NA ** | | None |
| 87 | H087 | Yes | N/A | | None |
| 88 | V088 | Yes | ** NA ** | | None |
| 89 | H089 | Yes | N/A | | None |
| 90 | H090 | Yes | N/A | | None |
| 91 | H091 | Yes | N/A | | None |
| 92 | H092 | Yes | N/A | | None |
| 93 | H093 | Yes | N/A | | None |
| 94 | H094 | Yes | N/A | | None |
| 95 | H095 | Yes | N/A | | None |
| 96 | H096 | Yes | N/A | | None |
| 97 | H097 | Yes | N/A | | None |
| 98 | H098 | Yes | N/A | | None |
| 99 | H099 | Yes | N/A | | None |
| 100 | H100 | Yes | N/A | | None |
| 101 | H101 | Yes | N/A | | None |
| 102 | H102 | Yes | N/A | | None |
| 103 | H103 | Yes | N/A | | None |
| 104 | H104 | Yes | N/A | | None |
| 105 | H105 | Yes | N/A | | None |

***Member Advanced Data (Continued)***

| | Label | Physical | Deflection Ratio Options | Activation | Seismic DR |
|---|---|---|---|---|---|
| 106 | H106 | Yes | N/A | | None |
| 107 | H107 | Yes | N/A | | None |
| 108 | H108 | Yes | N/A | | None |
| 109 | H109 | Yes | N/A | | None |
| 110 | H110 | Yes | N/A | | None |
| 111 | H111 | Yes | N/A | | None |
| 112 | H112 | Yes | N/A | | None |
| 113 | H113 | Yes | N/A | | None |
| 114 | H114 | Yes | N/A | | None |
| 115 | H115 | Yes | N/A | | None |
| 116 | H116 | Yes | N/A | | None |
| 117 | D117 | Yes | ** NA ** | | None |
| 118 | D118 | Yes | ** NA ** | | None |
| 119 | D119 | Yes | ** NA ** | | None |
| 120 | D120 | Yes | ** NA ** | | None |
| 121 | D121 | Yes | ** NA ** | | None |
| 122 | D122 | Yes | ** NA ** | | None |
| 123 | D123 | Yes | ** NA ** | | None |
| 124 | D124 | Yes | ** NA ** | | None |
| 125 | D125 | Yes | ** NA ** | | None |
| 126 | D126 | Yes | ** NA ** | | None |
| 127 | D127 | Yes | ** NA ** | | None |
| 128 | D128 | Yes | ** NA ** | | None |
| 129 | D129 | Yes | ** NA ** | | None |
| 130 | D130 | Yes | ** NA ** | | None |
| 131 | D131 | Yes | ** NA ** | | None |
| 132 | D132 | Yes | ** NA ** | | None |
| 133 | H133 | Yes | N/A | | None |
| 134 | H134 | Yes | N/A | | None |
| 135 | H135 | Yes | N/A | | None |
| 136 | H136 | Yes | N/A | | None |
| 137 | H137 | Yes | N/A | | None |
| 138 | H138 | Yes | N/A | | None |
| 139 | H139 | Yes | N/A | | None |
| 140 | H140 | Yes | N/A | | None |
| 141 | H141 | Yes | N/A | | None |
| 142 | H142 | Yes | N/A | | None |
| 143 | H143 | Yes | N/A | | None |
| 144 | H144 | Yes | N/A | | None |
| 145 | V145 | Yes | ** NA ** | | None |
| 146 | V146 | Yes | ** NA ** | | None |
| 147 | V147 | Yes | ** NA ** | | None |
| 148 | V148 | Yes | ** NA ** | | None |
| 149 | H149 | Yes | N/A | | None |
| 150 | H150 | Yes | N/A | | None |
| 151 | H151 | Yes | N/A | | None |
| 152 | H152 | Yes | N/A | | None |
| 153 | H153 | Yes | N/A | | None |
| 154 | H154 | Yes | N/A | | None |
| 155 | H155 | Yes | N/A | | None |
| 156 | H156 | Yes | N/A | | None |
| 157 | U157 | Yes | N/A | Exclude | None |
| 158 | U158 | Yes | N/A | Exclude | None |
| 159 | MP159 | Yes | ** NA ** | | None |
| 160 | U160 | Yes | N/A | Exclude | None |

***Member Advanced Data (Continued)***

| | Label | Physical | Deflection Ratio Options | Activation | Seismic DR |
|---|---|---|---|---|---|
| 161 | U161 | Yes | N/A | Exclude | None |
| 162 | MP162 | Yes | ** NA ** | | None |
| 163 | U163 | Yes | N/A | Exclude | None |
| 164 | U164 | Yes | N/A | Exclude | None |
| 165 | MP165 | Yes | ** NA ** | | None |
| 166 | U166 | Yes | N/A | Exclude | None |
| 167 | U167 | Yes | N/A | Exclude | None |
| 168 | MP168 | Yes | ** NA ** | | None |
| 169 | U169 | Yes | N/A | Exclude | None |
| 170 | U170 | Yes | N/A | Exclude | None |
| 171 | MP171 | Yes | ** NA ** | | None |
| 172 | U172 | Yes | N/A | Exclude | None |
| 173 | U173 | Yes | N/A | Exclude | None |
| 174 | MP174 | Yes | ** NA ** | | None |
| 175 | U175 | Yes | N/A | Exclude | None |
| 176 | U176 | Yes | N/A | Exclude | None |
| 177 | MP177 | Yes | ** NA ** | | None |
| 178 | U178 | Yes | N/A | Exclude | None |
| 179 | U179 | Yes | N/A | Exclude | None |
| 180 | MP180 | Yes | ** NA ** | | None |
| 181 | U181 | Yes | N/A | Exclude | None |
| 182 | U182 | Yes | N/A | Exclude | None |
| 183 | MP183 | Yes | ** NA ** | | None |
| 184 | U184 | Yes | N/A | Exclude | None |
| 185 | U185 | Yes | N/A | Exclude | None |
| 186 | MP186 | Yes | ** NA ** | | None |
| 187 | U187 | Yes | N/A | Exclude | None |
| 188 | U188 | Yes | N/A | Exclude | None |
| 189 | MP189 | Yes | ** NA ** | | None |
| 190 | U190 | Yes | N/A | Exclude | None |
| 191 | U191 | Yes | N/A | Exclude | None |
| 192 | MP192 | Yes | ** NA ** | | None |
| 193 | U193 | Yes | N/A | Exclude | None |
| 194 | U194 | Yes | N/A | Exclude | None |
| 195 | MP195 | Yes | ** NA ** | | None |
| 196 | U196 | Yes | N/A | Exclude | None |
| 197 | U197 | Yes | N/A | Exclude | None |
| 198 | MP198 | Yes | ** NA ** | | None |
| 199 | U199 | Yes | N/A | Exclude | None |
| 200 | U200 | Yes | N/A | Exclude | None |
| 201 | MP201 | Yes | ** NA ** | | None |
| 202 | U202 | Yes | N/A | Exclude | None |
| 203 | U203 | Yes | N/A | Exclude | None |
| 204 | MP204 | Yes | ** NA ** | | None |

***Hot Rolled Steel Design Parameters***

| | Label | Shape | Length [in] | Lb y-y [in] | Lb z-z [in] | Lcomp top [in] | L-Torque [in] | K y-y | K z-z | Function |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | H001 | T4x1.5x0.5x0.375 | 69 | | Segment | Lbyy | | 1 | 1 | Lateral |
| 2 | D002 | T4X1.5X0.5X0.375 | 47.539 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 3 | V003 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 4 | D004 | PL1X0.375 | 16.279 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 5 | V005 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 6 | V006 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 7 | H007 | T4X1.5X0.5X0.375 | 23 | | | Lbyy | | 1 | 1 | Lateral |
| 8 | D008 | PL1X0.375 | 16.971 | | | Lbyy | | 0.65 | 0.65 | Lateral |

***Hot Rolled Steel Design Parameters (Continued)***

| | Label | Shape | Length [in] | Lb y-y [in] | Lb z-z [in] | Lcomp top [in] | L-Torque [in] | K y-y | K z-z | Function |
|---|---|---|---|---|---|---|---|---|---|---|
| 9 | D009 | PL1X0.375 | 13.197 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 10 | V010 | PL1X0.375 | 9.652 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 11 | D011 | PL1X0.375 | 10.746 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 12 | V012 | PL1X0.375 | 7.696 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 13 | D013 | PL1X0.375 | 8.578 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 14 | V014 | PL1X0.375 | 6.13 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 15 | D015 | PL1X0.375 | 6.695 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 16 | V016 | PL1X0.375 | 4.957 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 17 | D017 | PL1X0.375 | 5.879 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 18 | V018 | PL1X0.375 | 3.783 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 19 | D019 | PL1X0.375 | 4.243 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 20 | V020 | PL1X0.375 | 3 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 21 | H021 | HSS4X3X4 | 50.5 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 22 | H023 | T4x1.5x0.5x0.375 | 69 | | Segment | Lbyy | | 1 | 1 | Lateral |
| 23 | D024 | T4X1.5X0.5X0.375 | 47.539 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 24 | V025 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 25 | D026 | PL1X0.375 | 16.279 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 26 | V027 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 27 | V028 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 28 | H029 | T4X1.5X0.5X0.375 | 23 | | | Lbyy | | 1 | 1 | Lateral |
| 29 | D030 | PL1X0.375 | 16.971 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 30 | D031 | PL1X0.375 | 13.197 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 31 | V032 | PL1X0.375 | 9.652 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 32 | D033 | PL1X0.375 | 10.746 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 33 | V034 | PL1X0.375 | 7.696 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 34 | D035 | PL1X0.375 | 8.578 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 35 | V036 | PL1X0.375 | 6.13 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 36 | D037 | PL1X0.375 | 6.695 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 37 | V038 | PL1X0.375 | 4.957 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 38 | D039 | PL1X0.375 | 5.879 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 39 | V040 | PL1X0.375 | 3.783 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 40 | D041 | PL1X0.375 | 4.243 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 41 | V042 | PL1X0.375 | 3 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 42 | H043 | HSS4X3X4 | 50.5 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 43 | H045 | T4x1.5x0.5x0.375 | 69 | | Segment | Lbyy | | 1 | 1 | Lateral |
| 44 | D046 | T4X1.5X0.5X0.375 | 47.539 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 45 | V047 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 46 | D048 | PL1X0.375 | 16.279 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 47 | V049 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 48 | V050 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 49 | H051 | T4X1.5X0.5X0.375 | 23 | | | Lbyy | | 1 | 1 | Lateral |
| 50 | D052 | PL1X0.375 | 16.971 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 51 | D053 | PL1X0.375 | 13.197 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 52 | V054 | PL1X0.375 | 9.652 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 53 | D055 | PL1X0.375 | 10.746 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 54 | V056 | PL1X0.375 | 7.696 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 55 | D057 | PL1X0.375 | 8.578 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 56 | V058 | PL1X0.375 | 6.13 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 57 | D059 | PL1X0.375 | 6.695 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 58 | V060 | PL1X0.375 | 4.957 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 59 | D061 | PL1X0.375 | 5.879 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 60 | V062 | PL1X0.375 | 3.783 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 61 | D063 | PL1X0.375 | 4.243 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 62 | V064 | PL1X0.375 | 3 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 63 | H065 | HSS4X3X4 | 50.5 | | | Lbyy | | 0.65 | 0.65 | Lateral |

***Hot Rolled Steel Design Parameters (Continued)***

| | Label | Shape | Length [in] | Lb y-y [in] | Lb z-z [in] | Lcomp top [in] | L-Torque [in] | K y-y | K z-z | Function |
|---|---|---|---|---|---|---|---|---|---|---|
| 64 | H067 | T4x1.5x0.5x0.375 | 69 | | Segment | Lbyy | | 1 | 1 | Lateral |
| 65 | D068 | T4X1.5X0.5X0.375 | 47.539 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 66 | V069 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 67 | D070 | PL1X0.375 | 16.279 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 68 | V071 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 69 | V072 | PL1X0.375 | 12 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 70 | H073 | T4X1.5X0.5X0.375 | 23 | | | Lbyy | | 1 | 1 | Lateral |
| 71 | D074 | PL1X0.375 | 16.971 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 72 | D075 | PL1X0.375 | 13.197 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 73 | V076 | PL1X0.375 | 9.652 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 74 | D077 | PL1X0.375 | 10.746 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 75 | V078 | PL1X0.375 | 7.696 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 76 | D079 | PL1X0.375 | 8.578 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 77 | V080 | PL1X0.375 | 6.13 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 78 | D081 | PL1X0.375 | 6.695 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 79 | V082 | PL1X0.375 | 4.957 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 80 | D083 | PL1X0.375 | 5.879 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 81 | V084 | PL1X0.375 | 3.783 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 82 | D085 | PL1X0.375 | 4.243 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 83 | V086 | PL1X0.375 | 3 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 84 | H087 | HSS4X3X4 | 50.5 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 85 | H089 | PIPE_2.5 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 86 | H090 | PIPE_2.5 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 87 | H091 | PIPE_2.5 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 88 | H092 | PIPE_2.5 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 89 | H093 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 90 | H094 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 91 | H095 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 92 | H096 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 93 | H097 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 94 | H098 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 95 | H099 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 96 | H100 | L3X3X6 | 40.523 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 97 | H101 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 98 | H102 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 99 | H103 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 100 | H104 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 101 | H105 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 102 | H106 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 103 | H107 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 104 | H108 | PIPE_1.5 | 74.953 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 105 | H109 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 106 | H110 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 107 | H111 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 108 | H112 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 109 | H113 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 110 | H114 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 111 | H115 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 112 | H116 | L3X3X6 | 36.032 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 113 | H133 | PL2.5X0.5 | 23.368 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 114 | H134 | PL2.5X0.5 | 23.368 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 115 | H135 | PL2.5X0.5 | 23.368 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 116 | H136 | PL2.5X0.5 | 23.368 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 117 | H137 | PL2.5X0.5 | 50.945 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 118 | H138 | PL2.5X0.5 | 50.945 | | | Lbyy | | 0.65 | 0.65 | Lateral |

***Hot Rolled Steel Design Parameters (Continued)***

| | Label | Shape | Length [in] | Lb y-y [in] | Lb z-z [in] | Lcomp top [in] | L-Torque [in] | K y-y | K z-z | Function |
|---|---|---|---|---|---|---|---|---|---|---|
| 119 | H139 | PL2.5X0.5 | 50.945 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 120 | H140 | PL2.5X0.5 | 50.945 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 121 | H141 | PL2.5X0.5 | 31.48 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 122 | H142 | PL2.5X0.5 | 31.48 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 123 | H143 | PL2.5X0.5 | 31.48 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 124 | H144 | PL2.5X0.5 | 31.48 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 125 | H149 | PIPE_2.0 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 126 | H150 | PIPE_2.0 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 127 | H151 | PIPE_2.0 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 128 | H152 | PIPE_2.0 | 150 | | | Lbyy | | 1 | 1 | Lateral |
| 129 | H153 | LL3X3X4X0 | 12.728 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 130 | H154 | LL3X3X4X0 | 12.728 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 131 | H155 | LL3X3X4X0 | 12.728 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 132 | H156 | LL3X3X4X0 | 12.728 | | | Lbyy | | 0.65 | 0.65 | Lateral |
| 133 | U157 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 134 | U158 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 135 | MP159 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 136 | U160 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 137 | U161 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 138 | MP162 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 139 | U163 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 140 | U164 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 141 | MP165 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 142 | U166 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 143 | U167 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 144 | MP168 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 145 | U169 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 146 | U170 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 147 | MP171 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 148 | U172 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 149 | U173 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 150 | MP174 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 151 | U175 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 152 | U176 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 153 | MP177 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 154 | U178 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 155 | U179 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 156 | MP180 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 157 | U181 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 158 | U182 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 159 | MP183 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 160 | U184 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 161 | U185 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 162 | MP186 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 163 | U187 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 164 | U188 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 165 | MP189 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 166 | U190 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 167 | U191 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 168 | MP192 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 169 | U193 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 170 | U194 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 171 | MP195 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 172 | U196 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 173 | U197 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |

### Hot Rolled Steel Design Parameters (Continued)

| | Label | Shape | Length [in] | Lb y-y [in] | Lb z-z [in] | Lcomp top [in] | L-Torque [in] | K y-y | K z-z | Function |
|---|---|---|---|---|---|---|---|---|---|---|
| 174 | MP198 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 175 | U199 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 176 | U200 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 177 | MP201 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |
| 178 | U202 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 179 | U203 | (2) 1/2 U-BOLTS | 3 | | | Lbyy | | 0.5 | 0.5 | Lateral |
| 180 | MP204 | PIPE_2.0 | 126 | Segment | Segment | Lbyy | Segment | 2.1 | 2.1 | Lateral |

### Hot Rolled Steel Properties

| | Label | E [psi] | G [psi] | Nu | Therm. Coeff. [1e⁵°F⁻¹] | Density [lb/ft³] | Yield [psi] | Ry | Fu [psi] | Rt |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A992 | 2.9e+07 | 1.115e+07 | 0.3 | 0.65 | 490 | 50000 | 1.1 | 65000 | 1.1 |
| 2 | A36 | 2.9e+07 | 1.115e+07 | 0.3 | 0.65 | 490 | 36000 | 1.5 | 58000 | 1.2 |
| 3 | A572-50 | 2.9e+07 | 1.115e+07 | 0.3 | 0.65 | 490 | 50000 | 1.1 | 65000 | 1.1 |
| 4 | A53 Gr. B | 2.9e+07 | 1.115e+07 | 0.3 | 0.65 | 490 | 35000 | 1.6 | 60000 | 1.2 |

### Envelope Node Reactions

| | Node Label | | X [lb] | LC | Y [lb] | LC | Z [lb] | LC | MX [lb-ft] | LC | MY [lb-ft] | LC | MZ [lb-ft] | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N002 | max | 7736.026 | 7 | 1914.841 | 31 | 5249.965 | 25 | -1.505 | 25 | 281.767 | 9 | -1.697 | 24 |
| 2 | | min | -5221.67 | 25 | 87.548 | 25 | -7751.582 | 7 | -95.089 | 31 | -286.96 | 3 | -83.961 | 30 |
| 3 | N005 | max | 1740.6 | 25 | 86.28 | 31 | 6583.522 | 7 | -3.345 | 23 | 390.594 | 9 | 5.983 | 25 |
| 4 | | min | -6509.697 | 115 | 20.368 | 25 | -1787.55 | 25 | -60.501 | 29 | -314.462 | 15 | -61.667 | 31 |
| 5 | N025 | max | 8260.644 | 3 | 2058.432 | 27 | 8021.029 | 3 | 101.351 | 27 | 640.376 | 23 | -6.701 | 21 |
| 6 | | min | -4823.454 | 21 | 177.016 | 21 | -4620.261 | 21 | 7.103 | 21 | -657.575 | 5 | -91.572 | 27 |
| 7 | N028 | max | 1268.172 | 21 | 89.617 | 27 | 1356.986 | 21 | 62.638 | 26 | 343.745 | 21 | 9.311 | 21 |
| 8 | | min | -7240.986 | 27 | 23.618 | 21 | -7324.326 | 27 | 15.793 | 24 | -407.581 | 3 | -68.376 | 27 |
| 9 | N048 | max | 4731.585 | 18 | 2692.408 | 37 | 10264.883 | 13 | 128.041 | 37 | 1259.102 | 9 | 124.511 | 36 |
| 10 | | min | -9958.535 | 12 | 296.537 | 19 | -5022.07 | 19 | 9.157 | 19 | -1248.021 | 15 | 11.058 | 18 |
| 11 | N051 | max | 9726.434 | 37 | 107.828 | 37 | 1067.713 | 18 | 87.614 | 37 | 380.276 | 9 | 85.321 | 35 |
| 12 | | min | -1146.668 | 19 | 29.531 | 19 | -9742.994 | 36 | -3.503 | 19 | -351.952 | 15 | 5.554 | 17 |
| 13 | N071 | max | 4715.321 | 15 | 2677.468 | 33 | 5205.131 | 15 | -8.732 | 15 | 934.683 | 19 | 125.774 | 34 |
| 14 | | min | -9904.388 | 9 | 277.306 | 15 | -10422.778 | 9 | -125.028 | 33 | -964.407 | 13 | 12.003 | 16 |
| 15 | N074 | max | 9727.016 | 33 | 107.239 | 33 | 9707.422 | 33 | 9.281 | 15 | 342.702 | 21 | 83.257 | 34 |
| 16 | | min | -1319.8 | 15 | 29.051 | 15 | -1207.648 | 15 | -87.296 | 33 | -370.9 | 15 | 16.282 | 18 |
| 17 | Totals: | max | 7153.559 | 6 | 9111.01 | 34 | 7862.415 | 2 | | | | | | |
| 18 | | min | -7153.558 | 24 | 3437.061 | 16 | -7862.414 | 20 | | | | | | |

### Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

| | Member | Shape | Code Check | Loc[in] | LC | Shear Check | Loc[in] | Dir | LC | phi*Pnc [lb] | phi*Pnt [lb] | phi*Mn y-y [lb-ft] | phi*Mn z-z [lb-ft] | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | H001 | T4x1.5x0.5x0.375 | 0.518 | 35.938 | 13 | 0.108 | 69 | y | 7 | 78394.251 | 106875 | 7631.836 | 830.305 | 1.348 | H1-1b |
| 2 | D002 | T4X1.5X0.5X0.375 | 0.204 | 47.539 | 7 | 0.03 | 8.914 | y | 9 | 55139.096 | 106875 | 7631.836 | 830.305 | 2.225 | H1-1b |
| 3 | V003 | PL1X0.375 | 0.153 | 0 | 31 | 0.011 | 0 | y | 32 | 11544.761 | 16875 | 131.836 | 351.562 | 2.277 | H1-1b |
| 4 | D004 | PL1X0.375 | 0.146 | 0 | 31 | 0.027 | 0 | y | 9 | 8391.851 | 16875 | 131.836 | 351.562 | 2.133 | H1-1b* |
| 5 | V005 | PL1X0.375 | 0.09 | 12 | 13 | 0.008 | 12 | y | 12 | 11544.761 | 16875 | 131.836 | 351.562 | 2.311 | H1-1b |
| 6 | V006 | PL1X0.375 | 0.004 | 12 | 8 | 0 | 12 | y | 6 | 11544.761 | 16875 | 131.836 | 351.562 | 2.381 | H1-1b |
| 7 | H007 | T4X1.5X0.5X0.375 | 0.185 | 0 | 31 | 0.027 | 12.219 | y | 9 | 74070.188 | 106875 | 7631.836 | 830.305 | 1.442 | H1-1b |
| 8 | D008 | PL1X0.375 | 0.146 | 0 | 31 | 0.013 | 0 | y | 9 | 7898.164 | 16875 | 131.836 | 351.562 | 1.463 | H1-1b* |
| 9 | D009 | PL1X0.375 | 0.061 | 13.197 | 13 | 0.028 | 0 | y | 9 | 10662.257 | 16875 | 131.836 | 351.562 | 2.085 | H1-1b* |
| 10 | V010 | PL1X0.375 | 0.098 | 0 | 13 | 0.01 | 0 | y | 13 | 13200.334 | 16875 | 131.836 | 351.562 | 2.217 | H1-1b |
| 11 | D011 | PL1X0.375 | 0.058 | 0 | 93 | 0.031 | 0 | y | 9 | 12446.572 | 16875 | 131.836 | 351.562 | 2.223 | H1-1b |
| 12 | V012 | PL1X0.375 | 0.088 | 7.696 | 91 | 0.009 | 7.696 | y | 13 | 14435.8 | 16875 | 131.836 | 351.562 | 2.225 | H1-1b |
| 13 | D013 | PL1X0.375 | 0.052 | 0 | 7 | 0.03 | 0 | y | 9 | 13899.393 | 16875 | 131.836 | 351.562 | 2.258 | H1-1b |
| 14 | V014 | PL1X0.375 | 0.059 | 6.13 | 91 | 0.009 | 6.13 | y | 89 | 15283.362 | 16875 | 131.836 | 351.562 | 2.264 | H1-1b |

***Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)***

| | Member | Shape | Code Check | Loc[in] | LC | Shear Check | Loc[in] | Dir | LC | phi*Pnc [lb] | phi*Pnt [lb] | phi*Mn y-y [lb-ft] | phi*Mn z-z [lb-ft] | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | D015 | PL1X0.375 | 0.037 | 0 | 93 | 0.026 | 0 | y | 9 | 14994.806 | 16875 | 131.836 | 351.562 | 2.218 | H1-1b |
| 16 | V016 | PL1X0.375 | 0.06 | 4.957 | 7 | 0.01 | 4.957 | y | 91 | 15816.741 | 16875 | 131.836 | 351.562 | 2.27 | H1-1b |
| 17 | D017 | PL1X0.375 | 0.038 | 5.879 | 7 | 0.026 | 5.879 | y | 9 | 15405.615 | 16875 | 131.836 | 351.562 | 2.166 | H1-1b |
| 18 | V018 | PL1X0.375 | 0.095 | 3.783 | 7 | 0.018 | 3.783 | y | 7 | 16250.333 | 16875 | 131.836 | 351.562 | 2.257 | H1-1b |
| 19 | D019 | PL1X0.375 | 0.078 | 0 | 7 | 0.033 | 0 | y | 9 | 16092.888 | 16875 | 131.836 | 351.562 | 2.214 | H1-1b |
| 20 | V020 | PL1X0.375 | 0.227 | 3 | 7 | 0.058 | 3 | y | 7 | 16479.351 | 16875 | 131.836 | 351.562 | 2.219 | H1-1b |
| 21 | H021 | HSS4X3X4 | 0.139 | 31.036 | 115 | 0.072 | 31.036 | z | 7 | 90386.543 | 94284 | 8424 | 10287 | 2.829 | H1-1b |
| 22 | H023 | T4x1.5x0.5x0.375 | 0.47 | 35.938 | 3 | 0.124 | 69 | y | 3 | 78394.251 | 106875 | 7631.836 | 830.305 | 2.23 | H1-1b |
| 23 | D024 | T4X1.5X0.5X0.375 | 0.224 | 47.539 | 3 | 0.03 | 8.914 | y | 3 | 55139.096 | 106875 | 7631.836 | 830.305 | 2.428 | H1-1b |
| 24 | V025 | PL1X0.375 | 0.162 | 0 | 27 | 0.013 | 0 | y | 5 | 11544.761 | 16875 | 131.836 | 351.562 | 2.278 | H1-1b |
| 25 | D026 | PL1X0.375 | 0.157 | 0 | 27 | 0.026 | 0 | y | 3 | 8391.851 | 16875 | 131.836 | 351.562 | 2.135 | H1-1b* |
| 26 | V027 | PL1X0.375 | 0.101 | 12 | 9 | 0.013 | 12 | y | 11 | 11544.761 | 16875 | 131.836 | 351.562 | 2.323 | H1-1b |
| 27 | V028 | PL1X0.375 | 0.004 | 12 | 2 | 0 | 12 | y | 4 | 11544.761 | 16875 | 131.836 | 351.562 | 2.381 | H1-1b |
| 28 | H029 | T4X1.5X0.5X0.375 | 0.204 | 0 | 27 | 0.035 | 12.219 | y | 3 | 74070.188 | 106875 | 7631.836 | 830.305 | 1.358 | H1-1b |
| 29 | D030 | PL1X0.375 | 0.157 | 0 | 27 | 0.016 | 0 | y | 3 | 7898.164 | 16875 | 131.836 | 351.562 | 1.456 | H1-1b* |
| 30 | D031 | PL1X0.375 | 0.059 | 13.197 | 9 | 0.023 | 0 | y | 3 | 10662.257 | 16875 | 131.836 | 351.562 | 2.086 | H1-1b* |
| 31 | V032 | PL1X0.375 | 0.099 | 0 | 9 | 0.013 | 0 | y | 9 | 13200.334 | 16875 | 131.836 | 351.562 | 2.215 | H1-1b |
| 32 | D033 | PL1X0.375 | 0.056 | 0 | 180 | 0.025 | 10.746 | y | 3 | 12446.572 | 16875 | 131.836 | 351.562 | 2.227 | H1-1b |
| 33 | V034 | PL1X0.375 | 0.092 | 7.696 | 3 | 0.009 | 7.696 | y | 9 | 14435.8 | 16875 | 131.836 | 351.562 | 2.242 | H1-1b |
| 34 | D035 | PL1X0.375 | 0.058 | 0 | 3 | 0.028 | 8.578 | y | 171 | 13899.393 | 16875 | 131.836 | 351.562 | 2.255 | H1-1b |
| 35 | V036 | PL1X0.375 | 0.062 | 6.13 | 3 | 0.009 | 6.13 | y | 170 | 15283.362 | 16875 | 131.836 | 351.562 | 2.238 | H1-1b |
| 36 | D037 | PL1X0.375 | 0.039 | 0 | 3 | 0.023 | 6.694 | y | 171 | 14994.806 | 16875 | 131.836 | 351.562 | 2.169 | H1-1b |
| 37 | V038 | PL1X0.375 | 0.069 | 4.957 | 3 | 0.01 | 4.957 | y | 171 | 15816.741 | 16875 | 131.836 | 351.562 | 2.269 | H1-1b |
| 38 | D039 | PL1X0.375 | 0.043 | 0 | 3 | 0.023 | 5.879 | y | 3 | 15405.514 | 16875 | 131.836 | 351.562 | 2.166 | H1-1b |
| 39 | V040 | PL1X0.375 | 0.108 | 3.783 | 3 | 0.019 | 3.783 | y | 3 | 16250.363 | 16875 | 131.836 | 351.562 | 2.256 | H1-1b |
| 40 | D041 | PL1X0.375 | 0.088 | 0 | 3 | 0.034 | 0 | y | 3 | 16092.978 | 16875 | 131.836 | 351.562 | 2.214 | H1-1b |
| 41 | V042 | PL1X0.375 | 0.255 | 3 | 3 | 0.062 | 3 | y | 3 | 16479.351 | 16875 | 131.836 | 351.562 | 2.22 | H1-1b |
| 42 | H043 | HSS4X3X4 | 0.162 | 31.036 | 147 | 0.081 | 31.036 | z | 3 | 90386.543 | 94284 | 8424 | 10287 | 2.67 | H1-1b |
| 43 | H045 | T4x1.5x0.5x0.375 | 0.588 | 35.937 | 13 | 0.118 | 69 | y | 12 | 78394.251 | 106875 | 7631.836 | 830.305 | 2.525 | H1-1b |
| 44 | D046 | T4X1.5X0.5X0.375 | 0.263 | 47.539 | 12 | 0.022 | 35.655 | y | 12 | 55139.096 | 106875 | 7631.836 | 830.305 | 2.227 | H1-1b |
| 45 | V047 | PL1X0.375 | 0.3 | 0 | 37 | 0.024 | 0 | y | 3 | 11544.761 | 16875 | 131.836 | 351.562 | 2.276 | H1-1a |
| 46 | D048 | PL1X0.375 | 0.236 | 0 | 37 | 0.018 | 16.279 | y | 9 | 8391.851 | 16875 | 131.836 | 351.562 | 2.158 | H1-1a |
| 47 | V049 | PL1X0.375 | 0.086 | 12 | 7 | 0.023 | 0 | y | 3 | 11544.761 | 16875 | 131.836 | 351.562 | 2.321 | H1-1b |
| 48 | V050 | PL1X0.375 | 0.004 | 12 | 2 | 0 | 12 | y | 12 | 11544.761 | 16875 | 131.836 | 351.562 | 2.381 | H1-1b |
| 49 | H051 | T4X1.5X0.5X0.375 | 0.239 | 0 | 35 | 0.042 | 12.219 | y | 3 | 74070.188 | 106875 | 7631.836 | 830.305 | 1.427 | H1-1b |
| 50 | D052 | PL1X0.375 | 0.23 | 16.971 | 37 | 0.018 | 16.971 | y | 9 | 7898.164 | 16875 | 131.836 | 351.562 | 1.44 | H1-1a |
| 51 | D053 | PL1X0.375 | 0.07 | 13.197 | 6 | 0.012 | 13.197 | y | 189 | 10662.257 | 16875 | 131.836 | 351.562 | 2.112 | H1-1b* |
| 52 | V054 | PL1X0.375 | 0.101 | 9.652 | 7 | 0.016 | 0 | y | 9 | 13200.334 | 16875 | 131.836 | 351.562 | 2.218 | H1-1b |
| 53 | D055 | PL1X0.375 | 0.069 | 0 | 37 | 0.02 | 10.746 | y | 187 | 12446.572 | 16875 | 131.836 | 351.562 | 2.293 | H1-1b* |
| 54 | V056 | PL1X0.375 | 0.089 | 7.696 | 192 | 0.009 | 7.696 | y | 3 | 14435.8 | 16875 | 131.836 | 351.562 | 2.243 | H1-1b |
| 55 | D057 | PL1X0.375 | 0.05 | 0 | 13 | 0.023 | 8.578 | y | 189 | 13899.393 | 16875 | 131.836 | 351.562 | 2.257 | H1-1b |
| 56 | V058 | PL1X0.375 | 0.058 | 6.13 | 191 | 0.009 | 6.13 | y | 183 | 15283.362 | 16875 | 131.836 | 351.562 | 2.263 | H1-1b |
| 57 | D059 | PL1X0.375 | 0.036 | 0 | 191 | 0.019 | 6.694 | y | 187 | 14994.717 | 16875 | 131.836 | 351.562 | 2.205 | H1-1b |
| 58 | V060 | PL1X0.375 | 0.059 | 4.957 | 191 | 0.01 | 4.957 | y | 193 | 15816.779 | 16875 | 131.836 | 351.562 | 2.261 | H1-1b |
| 59 | D061 | PL1X0.375 | 0.048 | 0 | 36 | 0.018 | 5.878 | y | 187 | 15405.744 | 16875 | 131.836 | 351.562 | 2.194 | H1-1b* |
| 60 | V062 | PL1X0.375 | 0.096 | 3.783 | 12 | 0.022 | 3.783 | y | 37 | 16250.333 | 16875 | 131.836 | 351.562 | 2.258 | H1-1b |
| 61 | D063 | PL1X0.375 | 0.098 | 4.243 | 12 | 0.025 | 4.243 | y | 191 | 16092.888 | 16875 | 131.836 | 351.562 | 2.214 | H1-1b |
| 62 | V064 | PL1X0.375 | 0.258 | 3 | 12 | 0.074 | 3 | y | 12 | 16479.351 | 16875 | 131.836 | 351.562 | 2.22 | H1-1b |
| 63 | H065 | HSS4X3X4 | 0.172 | 31.036 | 13 | 0.09 | 31.036 | z | 12 | 90386.543 | 94284 | 8424 | 10287 | 1.491 | H1-1b |
| 64 | H067 | T4x1.5x0.5x0.375 | 0.584 | 35.937 | 9 | 0.129 | 69 | y | 9 | 78394.251 | 106875 | 7631.836 | 830.305 | 2.933 | H1-1b |
| 65 | D068 | T4X1.5X0.5X0.375 | 0.272 | 47.539 | 9 | 0.026 | 35.655 | y | 9 | 55139.096 | 106875 | 7631.836 | 830.305 | 2.299 | H1-1b |
| 66 | V069 | PL1X0.375 | 0.297 | 12 | 33 | 0.019 | 0 | y | 7 | 11544.761 | 16875 | 131.836 | 351.562 | 2.276 | H1-1a |
| 67 | D070 | PL1X0.375 | 0.234 | 0 | 33 | 0.021 | 0 | y | 9 | 8391.851 | 16875 | 131.836 | 351.562 | 2.157 | H1-1a |
| 68 | V071 | PL1X0.375 | 0.108 | 12 | 3 | 0.018 | 12 | y | 13 | 11544.761 | 16875 | 131.836 | 351.562 | 2.321 | H1-1b |
| 69 | V072 | PL1X0.375 | 0.004 | 12 | 8 | 0 | 12 | y | 10 | 11544.761 | 16875 | 131.836 | 351.562 | 2.381 | H1-1b |

***Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)***

| | Member | Shape | Code Check | Loc[in] | LC | Shear Check | Loc[in] | Dir | LC | phi*Pnc [lb] | phi*Pnt [lb] | phi*Mn y-y [lb-ft] | phi*Mn z-z [lb-ft] | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70 | H073 | T4X1.5X0.5X0.375 | 0.245 | 0 | 33 | 0.039 | 12.219 | y | 9 | 74070.188 | 106875 | 7631.836 | 830.305 | 1.205 | H1-1b |
| 71 | D074 | PL1X0.375 | 0.228 | 16.971 | 33 | 0.016 | 0 | y | 3 | 7898.164 | 16875 | 131.836 | 351.562 | 1.44 | H1-1a |
| 72 | D075 | PL1X0.375 | 0.07 | 13.197 | 3 | 0.018 | 13.197 | y | 5 | 10662.257 | 16875 | 131.836 | 351.562 | 2.111 | H1-1b* |
| 73 | V076 | PL1X0.375 | 0.103 | 0 | 3 | 0.016 | 0 | y | 3 | 13200.334 | 16875 | 131.836 | 351.562 | 2.219 | H1-1b |
| 74 | D077 | PL1X0.375 | 0.068 | 0 | 33 | 0.019 | 10.746 | y | 239 | 12446.572 | 16875 | 131.836 | 351.562 | 2.29 | H1-1b* |
| 75 | V078 | PL1X0.375 | 0.092 | 7.696 | 9 | 0.011 | 7.696 | y | 9 | 14435.8 | 16875 | 131.836 | 351.562 | 2.238 | H1-1b |
| 76 | D079 | PL1X0.375 | 0.058 | 0 | 9 | 0.021 | 8.578 | y | 237 | 13899.502 | 16875 | 131.836 | 351.562 | 2.255 | H1-1b |
| 77 | V080 | PL1X0.375 | 0.057 | 6.13 | 9 | 0.008 | 6.13 | y | 240 | 15283.318 | 16875 | 131.836 | 351.562 | 2.242 | H1-1b |
| 78 | D081 | PL1X0.375 | 0.037 | 0 | 9 | 0.018 | 6.694 | y | 237 | 14994.686 | 16875 | 131.836 | 351.562 | 2.168 | H1-1b |
| 79 | V082 | PL1X0.375 | 0.066 | 4.957 | 9 | 0.01 | 4.957 | y | 81 | 15816.741 | 16875 | 131.836 | 351.562 | 2.267 | H1-1b |
| 80 | D083 | PL1X0.375 | 0.048 | 0 | 33 | 0.017 | 5.879 | y | 237 | 15405.615 | 16875 | 131.836 | 351.562 | 2.194 | H1-1b* |
| 81 | V084 | PL1X0.375 | 0.11 | 3.783 | 9 | 0.021 | 3.783 | y | 9 | 16250.333 | 16875 | 131.836 | 351.562 | 2.256 | H1-1b |
| 82 | D085 | PL1X0.375 | 0.101 | 4.243 | 9 | 0.027 | 0 | y | 9 | 16092.888 | 16875 | 131.836 | 351.562 | 2.214 | H1-1b |
| 83 | V086 | PL1X0.375 | 0.28 | 3 | 9 | 0.075 | 3 | y | 9 | 16479.351 | 16875 | 131.836 | 351.562 | 2.22 | H1-1b |
| 84 | H087 | HSS4X3X4 | 0.177 | 31.036 | 9 | 0.086 | 31.036 | z | 10 | 90386.543 | 94284 | 8424 | 10287 | 1.37 | H1-1b |
| 85 | H089 | PIPE_2.5 | 0.214 | 100 | 93 | 0.203 | 37.5 | | 2 | 14558.792 | 52164 | 3699 | 3699 | 1.771 | H1-1b |
| 86 | H090 | PIPE_2.5 | 0.205 | 112.5 | 4 | 0.198 | 112.5 | | 5 | 14558.792 | 52164 | 3699 | 3699 | 1.99 | H1-1b |
| 87 | H091 | PIPE_2.5 | 0.24 | 37.5 | 9 | 0.2 | 112.5 | | 8 | 14558.792 | 52164 | 3699 | 3699 | 1.878 | H1-1b |
| 88 | H092 | PIPE_2.5 | 0.147 | 98.437 | 122 | 0.112 | 7.812 | | 12 | 14558.792 | 52164 | 3699 | 3699 | 1.831 | H1-1b |
| 89 | H093 | L3X3X6 | 0.453 | 40.523 | 2 | 0.12 | 37.569 | z | 13 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 90 | H094 | L3X3X6 | 0.396 | 40.523 | 2 | 0.137 | 40.523 | y | 94 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 91 | H095 | L3X3X6 | 0.244 | 40.523 | 10 | 0.089 | 40.523 | z | 122 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 92 | H096 | L3X3X6 | 0.267 | 40.523 | 12 | 0.087 | 40.523 | y | 140 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 93 | H097 | L3X3X6 | 0.411 | 40.523 | 8 | 0.126 | 40.523 | z | 180 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 94 | H098 | L3X3X6 | 0.438 | 40.523 | 8 | 0.125 | 40.523 | y | 185 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 95 | H099 | L3X3X6 | 0.42 | 40.523 | 5 | 0.11 | 40.523 | z | 224 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 96 | H100 | L3X3X6 | 0.363 | 40.523 | 6 | 0.121 | 40.523 | y | 230 | 61352.986 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 97 | H101 | PIPE_1.5 | 0.108 | 74.953 | 96 | 0.016 | 0 | | 96 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 1.62 | H1-1b |
| 98 | H102 | PIPE_1.5 | 0.102 | 0 | 3 | 0.016 | 0 | | 96 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 1.799 | H1-1b |
| 99 | H103 | PIPE_1.5 | 0.075 | 74.953 | 3 | 0.015 | 0 | | 140 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 2.534 | H1-1b |
| 100 | H104 | PIPE_1.5 | 0.107 | 0 | 9 | 0.013 | 0 | | 140 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 2.582 | H1-1b |
| 101 | H105 | PIPE_1.5 | 0.105 | 74.953 | 9 | 0.013 | 74.953 | | 177 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 2.218 | H1-1b |
| 102 | H106 | PIPE_1.5 | 0.098 | 0 | 178 | 0.015 | 0 | | 184 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 1.417 | H1-1b |
| 103 | H107 | PIPE_1.5 | 0.108 | 0 | 3 | 0.015 | 0 | | 230 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 2.519 | H1-1b |
| 104 | H108 | PIPE_1.5 | 0.095 | 74.953 | 231 | 0.016 | 0 | | 230 | 17294.953 | 23593.5 | 1105.125 | 1105.125 | 1.602 | H1-1b |
| 105 | H109 | L3X3X6 | 0.279 | 36.032 | 34 | 0.183 | 36.032 | z | 10 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 106 | H110 | L3X3X6 | 0.289 | 36.032 | 33 | 0.223 | 36.032 | y | 8 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 107 | H111 | L3X3X6 | 0.209 | 36.032 | 7 | 0.168 | 36.032 | z | 8 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 108 | H112 | L3X3X6 | 0.187 | 36.032 | 114 | 0.16 | 36.032 | y | 4 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 109 | H113 | L3X3X6 | 0.193 | 36.032 | 147 | 0.164 | 36.032 | z | 6 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 110 | H114 | L3X3X6 | 0.217 | 36.032 | 27 | 0.185 | 36.032 | y | 2 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 111 | H115 | L3X3X6 | 0.283 | 36.032 | 37 | 0.204 | 36.032 | z | 2 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 112 | H116 | L3X3X6 | 0.292 | 36.032 | 36 | 0.206 | 36.032 | y | 11 | 62758.854 | 68364 | 2307.398 | 5322.329 | 1.5 | H2-1 |
| 113 | H133 | PL2.5X0.5 | 0.191 | 11.684 | 31 | 0.041 | 11.684 | y | 240 | 22608.639 | 40500 | 421.875 | 2109.375 | 1.269 | H1-1b |
| 114 | H134 | PL2.5X0.5 | 0.146 | 11.684 | 27 | 0.039 | 11.684 | y | 93 | 22608.639 | 40500 | 421.875 | 2109.375 | 1.32 | H1-1b |
| 115 | H135 | PL2.5X0.5 | 0.134 | 11.684 | 31 | 0.037 | 11.684 | y | 181 | 22608.639 | 40500 | 421.875 | 2109.375 | 1.301 | H1-1b |
| 116 | H136 | PL2.5X0.5 | 0.196 | 11.684 | 33 | 0.039 | 11.684 | y | 183 | 22608.639 | 40500 | 421.875 | 2109.375 | 1.286 | H1-1b |
| 117 | H137 | PL2.5X0.5 | 0.196 | 25.472 | 33 | 0.045 | 25.472 | y | 8 | 5365.176 | 40500 | 421.875 | 2109.375 | 1.327 | H1-1b |
| 118 | H138 | PL2.5X0.5 | 0.142 | 25.472 | 31 | 0.037 | 25.472 | y | 8 | 5365.176 | 40500 | 421.875 | 2109.375 | 1.349 | H1-1b |
| 119 | H139 | PL2.5X0.5 | 0.135 | 25.472 | 171 | 0.04 | 25.472 | y | 2 | 5365.176 | 40500 | 421.875 | 2109.375 | 1.372 | H1-1b |
| 120 | H140 | PL2.5X0.5 | 0.195 | 25.472 | 37 | 0.043 | 25.472 | y | 11 | 5365.176 | 40500 | 421.875 | 2109.375 | 1.319 | H1-1b |
| 121 | H141 | PL2.5X0.5 | 0.27 | 15.74 | 33 | 0.029 | 15.74 | y | 7 | 14051.08 | 40500 | 421.875 | 2109.375 | 1.308 | H1-1b |
| 122 | H142 | PL2.5X0.5 | 0.199 | 15.74 | 7 | 0.022 | 15.74 | y | 4 | 14051.08 | 40500 | 421.875 | 2109.375 | 1.286 | H1-1b |
| 123 | H143 | PL2.5X0.5 | 0.212 | 15.74 | 3 | 0.024 | 15.74 | y | 2 | 14051.08 | 40500 | 421.875 | 2109.375 | 1.298 | H1-1b |
| 124 | H144 | PL2.5X0.5 | 0.27 | 15.74 | 37 | 0.029 | 15.74 | y | 34 | 14051.08 | 40500 | 421.875 | 2109.375 | 1.307 | H1-1b |

***Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)***

| | Member | Shape | Code Check | Loc[in] | LC | Shear Check | Loc[in] | Dir | LC | phi*Pnc [lb] | phi*Pnt [lb] | phi*Mn y-y [lb-ft] | phi*Mn z-z [lb-ft] | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 125 | H149 | PIPE_2.0 | 0.335 | 100 | 8 | 0.25 | 143.75 | | 8 | 6295.422 | 32130 | 1871.625 | 1871.625 | 3 | H3-6 |
| 126 | H150 | PIPE_2.0 | 0.356 | 6.25 | 9 | 0.255 | 6.25 | | 11 | 6295.422 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 127 | H151 | PIPE_2.0 | 0.345 | 6.25 | 12 | 0.249 | 6.25 | | 2 | 6295.422 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 128 | H152 | PIPE_2.0 | 0.293 | 143.75 | 8 | 0.167 | 146.875 | | 6 | 6295.422 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 129 | H153 | LL3X3X4X0 | 0.149 | 0 | 10 | 0.089 | 12.728 | z | 6 | 77774.564 | 93312 | 6480 | 4910.906 | 1.179 | H1-1b |
| 130 | H154 | LL3X3X4X0 | 0.147 | 0 | 2 | 0.085 | 12.728 | z | 3 | 77774.564 | 93312 | 6480 | 4450.377 | 1.433 | H1-1b |
| 131 | H155 | LL3X3X4X0 | 0.113 | 0 | 3 | 0.07 | 0 | z | 7 | 77774.564 | 93312 | 6480 | 4910.906 | 1.012 | H1-1b |
| 132 | H156 | LL3X3X4X0 | 0.156 | 0 | 13 | 0.095 | 12.728 | z | 9 | 77774.564 | 93312 | 6480 | 4910.906 | 1.182 | H1-1b |
| 133 | MP159 | PIPE_2.0 | 0.233 | 81.375 | 4 | 0.096 | 81.375 | | 5 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.565 | H1-1b |
| 134 | MP162 | PIPE_2.0 | 0.413 | 81.375 | 13 | 0.088 | 81.375 | | 8 | 16811.605 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 135 | MP165 | PIPE_2.0 | 0.511 | 81.375 | 2 | 0.078 | 81.375 | | 7 | 16811.605 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 136 | MP168 | PIPE_2.0 | 0.222 | 81.375 | 4 | 0.091 | 81.375 | | 8 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.295 | H1-1b |
| 137 | MP171 | PIPE_2.0 | 0.2 | 81.375 | 2 | 0.084 | 81.375 | | 8 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.891 | H1-1b |
| 138 | MP174 | PIPE_2.0 | 0.252 | 81.375 | 8 | 0.048 | 81.375 | | 8 | 16811.605 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 139 | MP177 | PIPE_2.0 | 0.259 | 81.375 | 13 | 0.051 | 81.375 | | 13 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.55 | H1-1b |
| 140 | MP180 | PIPE_2.0 | 0.197 | 81.375 | 8 | 0.062 | 81.375 | | 2 | 16811.605 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 141 | MP183 | PIPE_2.0 | 0.242 | 81.375 | 6 | 0.07 | 81.375 | | 2 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.443 | H1-1b |
| 142 | MP186 | PIPE_2.0 | 0.372 | 81.375 | 8 | 0.105 | 81.375 | | 2 | 16811.605 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 143 | MP189 | PIPE_2.0 | 0.541 | 81.375 | 8 | 0.06 | 81.375 | | 10 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.995 | H1-1b |
| 144 | MP192 | PIPE_2.0 | 0.215 | 81.375 | 12 | 0.09 | 81.375 | | 2 | 16811.605 | 32130 | 1871.625 | 1871.625 | 3 | H1-1b |
| 145 | MP195 | PIPE_2.0 | 0.258 | 81.375 | 7 | 0.089 | 81.375 | | 3 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.458 | H1-1b |
| 146 | MP198 | PIPE_2.0 | 0.395 | 81.375 | 5 | 0.095 | 81.375 | | 10 | 16811.605 | 32130 | 1871.625 | 1871.625 | 2.095 | H1-1b |
| 147 | MP201 | PIPE_2.0 | 0.516 | 81.375 | 4 | 0.077 | 81.375 | | 11 | 16811.605 | 32130 | 1871.625 | 1871.625 | 1.682 | H1-1b |
| 148 | MP204 | PIPE_2.0 | 0.237 | 81.375 | 7 | 0.097 | 81.375 | | 5 | 16811.605 | 32130 | 1871.625 | 1871.625 | 1.927 | H1-1b |

AMERICAN TOWER®
CORPORATION

# Structural Analysis Report

| | | |
|---|---|---|
| **Structure** | : | **142 ft Monopole** |
| **ATC Site Name** | : | **WSPT - South,CT** |
| **ATC Site Number** | : | **302511** |
| **Engineering Number** | : | **13769201_C3_05** |
| **Proposed Carrier** | : | **T-MOBILE** |
| **Carrier Site Name** | : | **Westport/ I-95/ X18/ Sher** |
| **Carrier Site Number** | : | **CT11012B** |
| **Site Location** | : | **20 Post Office Lane**<br>**Westport, CT 06880-6226**<br>**41.1235, -73.3131** |
| **County** | : | **Fairfield** |
| **Date** | : | **April 21, 2022** |
| **Max Usage** | : | **86%** |
| **Result** | : | **Pass** |


Prepared By:

Tanner Putman
Structural Engineer

Reviewed By:

Authorized by "EOR"
21 Apr 2022 04:45:59 cosign

**COA : PEC.0001553**

## Table of Contents

## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 142 ft Monopole to reflect the change in loading by T-MOBILE.

## Supporting Documents

| | |
|---|---|
| **Tower Drawings** | EEI Drawing #GS50841, dated March 2, 1998 |
| **Foundation Drawing** | Mapping by TEP Project #65218-72422, dated December 28, 2015 |
| **Geotechnical Report** | MB&A Project #011105, dated July 17, 2001 |
| **Modifications** | EEI Drawing #GS54696, dated July 24, 2003<br>ATC Job #42046633, dated October 16, 2008 |
| **Mount Analysis** | ATC Engineering #13769201_C8_04, dated April 19, 2022 |

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

| | |
|---|---|
| **Basic Wind Speed:** | 118 mph (3-second gust) |
| **Basic Wind Speed w/ Ice:** | 50 mph (3-second gust) w/ 1.00" radial ice concurrent |
| **Code:** | ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code |
| **Exposure Category:** | C |
| **Risk Category:** | II |
| **Topographic Factor Procedure:** | Method 1 |
| **Topographic Category:** | 1 |
| **Crest Height (H):** | 0 ft |
| **Crest Length (L):** | 0 ft |
| **Spectral Response:** | Ss = 0.23, $S_1$ = 0.06 |
| **Site Class:** | D - Stiff Soil - Default |

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

## Existing and Reserved Equipment

| Elev.[1] (ft) | Qty | Equipment | Mount Type | Lines | Carrier |
|---|---|---|---|---|---|
| 133.0 | 3 | Ericsson Air 6449 B77D | Triangular Platform with Handrails | (2) 0.40" (10.3mm) Fiber<br>(2) 0.88" (22.4mm) 8 AWG 6<br>(4) 0.92" (23.4mm) Cable<br>(6) 1 1/4" Coax | AT&T MOBILITY |
| 131.0 | 3 | Ericsson RRUS 4449 B5, B12 | | | |
| | 3 | Ericsson RRUS 4478 B14 | | | |
| | 3 | Ericsson RRUS 8843 B2, B66A | | | |
| | 2 | Raycap DC6-48-60-18-8F ("Squid") | | | |
| | 1 | Raycap DC6-48-60-0-8C | | | |
| | 3 | Ericsson RRUS 32 B30 | | | |
| | 3 | CCI OPA65R-BU6D | | | |
| | 3 | CCI DMP65R-BU6E | | | |
| 129.0 | 3 | Ericsson AIR 6419 B77G | | | |
| 128.5 | 3 | Kaelus DBC0061F1V51-2 | | | |
| 127.5 | 6 | Powerwave Allgon LGP21401 | | | |
| 120.0 | - | - | Square Platform with Handrails | - | T-MOBILE |
| 111.0 | - | - | Empty Triangular Platform with Handrails | - | SPRINT NEXTEL |
| 100.0 | 6 | Quintel QS6656-5D | Triangular Platform with Handrails | (12) 7/8" Coax<br>(6) 1 5/8" Coax<br>(1) 1 5/8" Hybriflex<br>(1) 1/2" Coax | VERIZON WIRELESS |
| | 3 | Antel BXA-70080/6CF__ | | | |
| | 1 | Commscope RC2DC-3315-PF-48 | | | |
| | 3 | Rymsa MGD3-800TX | | | |
| | 3 | Samsung B2/B66A RRH-BR049 | | | |
| | 1 | Generic GPS | | | |
| | 3 | Samsung B5/B13 RRH-BR04C | | | |
| 78.1 | 2 | Diamond X50A | Side Arm | (2) 0.405" (10.3mm) Coax | SENET, INC. |
| 69.7 | 1 | PCTEL GPS-TMG-HR-26N | Stand-Off | (1) 1/2" Coax | SPRINT NEXTEL |
| 53.0 | 1 | Raycap RDIDC-9181-PF-48 | Triangular Platform with Handrails | (1) 1.75" (44.5mm) Hybrid | DISH WIRELESS L.L.C. |
| | 3 | Fujitsu TA08025-B604 | | | |
| | 3 | Fujitsu TA08025-B605 | | | |
| | 3 | JMA Wireless MX08FRO665-21 | | | |

## Equipment to be Removed

| Elev.[1] (ft) | Qty | Equipment | Mount Type | Lines | Carrier |
|---|---|---|---|---|---|
| 120.0 | 4 | RFS ATMAA1412D-1A20 | - | (2) 1 1/4" (1.25"-31.8mm) Fiber<br>(1) 1 5/8" (1.63"-41.3mm) Fiber<br>(12) 1 5/8" Coax | T-MOBILE |
| | 3 | Ericsson Radio 4449 B12,B71 | | | |
| | 3 | RFS APXVAARR24_43-U-NA20 | | | |
| | 4 | Ericsson AIR 32 B2A/B66A | | | |
| | 4 | Ericsson AIR 21, 1.3 M, B2A B4P | | | |

## Proposed Equipment

| Elev.[1] (ft) | Qty | Equipment | Mount Type | Lines | Carrier |
|---|---|---|---|---|---|
| 120.0 | 3 | Ericsson 4460 BAND 2/25 | Square Platform with Handrails | (4) 1.99" (50.7mm) Hybrid | T-MOBILE |
| | 3 | Ericsson 4480 BAND 71 | | | |
| | 3 | Commscope VV-65A-R1 | | | |
| | 3 | Ericsson AIR 6419 B41 | | | |
| | 3 | RFS APXVAALL24 43-U-NA20 | | | |

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

## Structure Usages

| Structural Component | Controlling Usage | Pass/Fail |
|---|---|---|
| Anchor Bolts | 55% | Pass |
| Shaft | 82% | Pass |
| Base Plate | 86% | Pass |
| Reinforcement | 68% | Pass |
| Flanges | 62% | Pass |
| Interface | 61% | Pass |

## Foundations

| Reaction Component | Analysis Reactions | % of Usage |
|---|---|---|
| Moment (Kips-Ft) | 3252.4 | 39% |
| Shear (Kips) | 37.2 | 11% |
| Axial (Kips) | 54.5 | 25% |

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

## Deflection and Sway*

| Antenna Elevation (ft) | Antenna | Carrier | Deflection (ft) | Sway (Rotation) (°) |
|---|---|---|---|---|
| 120.0 | Ericsson 4460 BAND 2/25 | T-MOBILE | 1.322 | 1.350 |
| | Ericsson 4480 BAND 71 | | | |
| | RFS APXVAALL24 43-U-NA20 | | | |
| | Ericsson AIR 6419 B41 | | | |
| | Commscope VV-65A-R1 | | | |

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

**Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

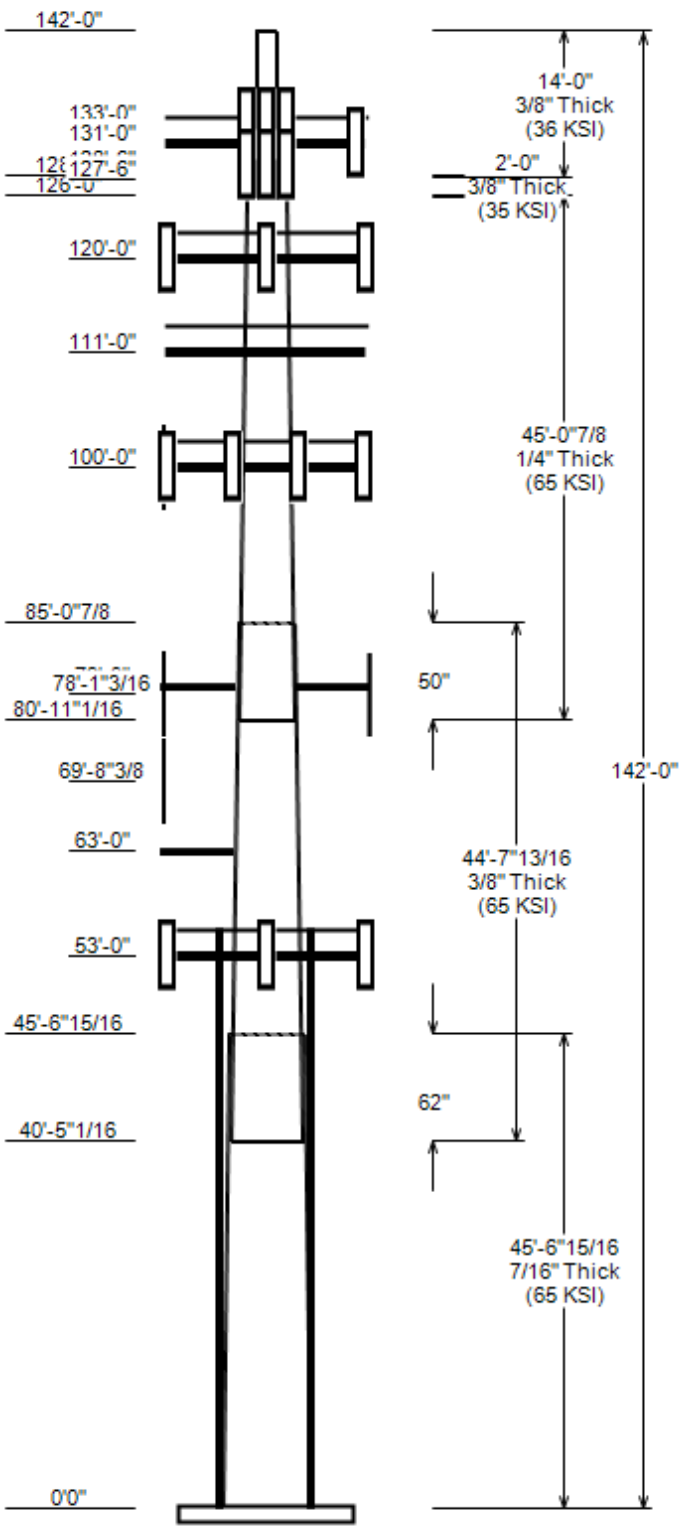
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

## JOB INFORMATION

| | | | |
|---|---|---|---|
| Asset : | 302511, WSPT - South | Height : | 142 ft |
| Client : | T-MOBILE | Base Width : | 45 |
| Code : | ANSI/TIA-222-H | Shape : | 12 Sides |




## SITE PARAMETERS

**Nominal Wind:** 118 mph wind with no ice **Topo Category:** 1

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

**Base Elev (ft):** 0.00 **Taper :** 0.21200(In/ft) **Topo Feature:**

**Structure Class:** II **Exposure :** C **$S_s$ :** 0.226 **$S_1$** : 0.055

## SECTION PROPERTIES

| Shaft Section | Length (ft) | Diameter (in) Across Flats Top | Diameter (in) Across Flats Bottom | Thick (in) | Joint Type | Overlap Length (in) | Shape | Steel Grade (ksi) |
|---|---|---|---|---|---|---|---|---|
| 1 | 45.578 | 35.32 | 45.00 | 0.438 | | 0.000 | 12 Sides | 65 |
| 2 | 44.654 | 27.69 | 37.17 | 0.375 | Slip Joint | 61.880 | 12 Sides | 65 |
| 3 | 45.076 | 19.50 | 29.07 | 0.250 | Slip Joint | 49.810 | 12 Sides | 65 |
| 4 | 2.000 | 10.75 | 10.75 | 0.375 | Butt Joint | 0.000 | Round | 35 |
| 5 | 14.000 | 10.75 | 10.75 | 0.375 | Butt Joint | 0.000 | Round | 36 |

## DISCRETE APPURTENANCE

| Attach Elev (ft) | Force Elev (ft) | Qty | Description |
|---|---|---|---|
| 133.0 | 133.0 | 3 | Ericsson Air 6449 B77D |
| 131.0 | 131.0 | 2 | Raycap DC6-48-60-18-8F ("Squid |
| 131.0 | 131.0 | 3 | Ericsson RRUS 8843 B2, B66A |
| 131.0 | 131.0 | 3 | Ericsson RRUS 4478 B14 |
| 131.0 | 131.0 | 3 | Ericsson RRUS 4449 B5, B12 |
| 131.0 | 131.0 | 1 | Raycap DC6-48-60-0-8C |
| 131.0 | 131.0 | 3 | Ericsson RRUS 32 B30 |
| 131.0 | 131.0 | 3 | CCI DMP65R-BU6E |
| 131.0 | 131.0 | 3 | CCI OPA65R-BU6D |
| 131.0 | 131.0 | 1 | Generic Flat Platform with Han |
| 129.0 | 129.0 | 3 | Ericsson AIR 6419 B77G |
| 128.5 | 128.5 | 3 | Kaelus DBC0061F1V51-2 |
| 127.5 | 127.5 | 6 | Powerwave Allgon LGP21401 |
| 120.0 | 120.0 | 3 | Ericsson 4460 BAND 2/25 |
| 120.0 | 120.0 | 3 | Ericsson 4480 BAND 71 |
| 120.0 | 120.0 | 3 | Commscope VV-65A-R1 |
| 120.0 | 120.0 | 3 | Ericsson AIR 6419 B41 |
| 120.0 | 120.0 | 3 | RFS APXVAALL24 43-U-NA20 |
| 120.0 | 120.0 | 1 | Generic Square Platform with H |
| 111.0 | 111.0 | 1 | Generic Flat Platform with Han |
| 100.0 | 100.0 | 1 | Generic GPS |
| 100.0 | 100.0 | 3 | Samsung B2/B66A RRH-BR049 |
| 100.0 | 100.0 | 3 | Samsung B5/B13 RRH-BR04C |
| 100.0 | 100.0 | 3 | Rymsa MGD3-800TX |
| 100.0 | 100.0 | 1 | Commscope RC2DC-3315-PF-48 |
| 100.0 | 100.0 | 3 | Antel BXA-70080/6CF__ |
| 100.0 | 100.0 | 6 | Quintel QS6656-5D |
| 100.0 | 100.0 | 1 | Generic Flat Platform with Han |
| 79.0 | 79.0 | 2 | Round Side Arm |
| 78.1 | 78.1 | 2 | Diamond X50A |
| 69.7 | 69.7 | 1 | PCTEL GPS-TMG-HR-26N |
| 63.0 | 63.0 | 1 | Stand-Off |
| 53.0 | 53.0 | 1 | Raycap RDIDC-9181-PF-48 |
| 53.0 | 53.0 | 3 | Fujitsu TA08025-B604 |
| 53.0 | 53.0 | 3 | Fujitsu TA08025-B605 |
| 53.0 | 53.0 | 3 | JMA Wireless MX08FRO665-21 |
| 53.0 | 53.0 | 1 | Generic Flat Platform with Han |

## LINEAR APPURTENANCE

| Elev From (ft) | Elev To (ft) | Description | Exp To Wind |
|---|---|---|---|

JOB INFORMATION

| | | | |
|---|---|---|---|
| Asset : | 302511, WSPT - South | Height : | 142 ft |
| Client : | T-MOBILE | Base Width : | 45 |
| Code : | ANSI/TIA-222-H | Shape : | 12 Sides |

**LINEAR APPURTENANCE**

| Elev From (ft) | Elev To (ft) | Description | Exp To Wind |
|---|---|---|---|
| 0.0 | 131.0 | 1 1/4" Coax | No |
| 0.0 | 131.0 | 0.92" (23.4mm) Cable | No |
| 0.0 | 131.0 | 0.88" (22.4mm) 8 AWG 6 | No |
| 0.0 | 131.0 | 0.40" (10.3mm) Fiber | No |
| 0.0 | 120.0 | 1.99" (50.7mm) Hybrid | No |
| 0.0 | 101.0 | 7/8" Coax | No |
| 0.0 | 100.0 | 7/8" Coax | No |
| 0.0 | 100.0 | 1/2" Coax | No |
| 0.0 | 100.0 | 1 5/8" Hybriflex | No |
| 0.0 | 100.0 | 1 5/8" Coax | No |
| 0.0 | 78.0 | 0.405" (10.3mm) Coax | No |
| 0.0 | 70.0 | 1/2" Coax | No |
| 0.0 | 63.0 | #20 w/ Angle Brackets | Yes |
| 0.0 | 63.0 | #20 w/ Angle Brackets | Yes |
| 0.0 | 63.0 | #20 w/ Angle Brackets | Yes |
| 0.0 | 63.0 | #20 w/ Angle Brackets | Yes |
| 0.0 | 53.0 | 1.75" (44.5mm) Hybrid | No |

**LOAD CASES**

| | |
|---|---|
| 1.2D + 1.0W Normal | 118 mph wind with no ice |
| 0.9D + 1.0W Normal | 118 mph wind with no ice |
| 1.2D + 1.0Di + 1.0Wi Nor | 50 mph wind with 1" radial ice |
| 1.2D + 1.0Ev + 1.0Eh Nor | Seismic |
| 0.9D - 1.0Ev + 1.0Eh Nor | Seismic (Reduced DL) |
| 1.0D + 1.0W Service Norm | 60 mph Wind with No Ice |

**REACTIONS**

| Load Case | Moment (kip-ft) | Shear (Kip) | Axial (Kip) |
|---|---|---|---|
| 1.2D + 1.0W Normal | 3252.35 | 37.16 | 54.53 |
| 0.9D + 1.0W Normal | 3212.73 | 37.14 | 40.88 |
| 1.2D + 1.0Di + 1.0Wi Normal | 801.70 | 8.25 | 71.52 |
| 1.2D + 1.0Ev + 1.0Eh Normal | 154.42 | 1.37 | 54.75 |
| 0.9D - 1.0Ev + 1.0Eh Normal | 151.74 | 1.37 | 37.36 |
| 1.0D + 1.0W Service Normal | 751.17 | 8.63 | 45.50 |

**DISH DEFLECTIONS**

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

## ANALYSIS PARAMETERS

| | | | |
|---|---|---|---|
| **Location:** | Fairfield County,CT | **Height:** | 142 ft |
| **Type and Shape:** | Custom, Round | **Base Diameter:** | 45.00 in |
| **Manufacturer:** | EEI | **Top Diameter:** | 19.50 in |
| **$K_d$ (non-service):** | 0.95 | **Taper:** | 0.2120 in/ft |
| **$K_e$:** | 1.00 | **Rotation:** | 0.000° |

## ICE & WIND PARAMETERS

| | | | |
|---|---|---|---|
| **Exposure Category:** | C | **Design Wind Speed w/o Ice:** | 118 mph |
| **Risk Category:** | II | **Design Wind Speed w/Ice:** | 50 mph |
| **Topo Factor Procedure:** | Method 1 | **Operational Wind Speed:** | 60 mph |
| **Topographic Category:** | 1 | **Design Ice Thickness:** | 1.00 in |
| **Crest Height:** | 0 ft | **HMSL:** | 15.00 ft |

## SEISMIC PARAMETERS

| | | | | | |
|---|---|---|---|---|---|
| **Analysis Method:** | Equivalent Lateral Force Method | | | | |
| **Site Class:** | D - Stiff Soil | | | **Period Based on Rayleigh Method (sec):** | 2.39 |
| **$T_L$ (sec):** | 6 | **P:** | 1 | **$C_{s:}$** | 0.030 |
| **$S_{s:}$** | 0.226 | **$S_{1:}$** | 0.055 | **$C_s$ Max:** | 0.030 |
| **$F_{a:}$** | 1.600 | **$F_{v:}$** | 2.400 | **$C_s$ Min:** | 0.030 |
| **$S_{ds:}$** | 0.241 | **$S_{d1:}$** | 0.088 | | |

## LOAD CASES

| | |
|---|---|
| 1.2D + 1.0W Normal | 118 mph wind with no ice |
| 0.9D + 1.0W Normal | 118 mph wind with no ice |
| 1.2D + 1.0Di + 1.0Wi Normal | 50 mph wind with 1" radial ice |
| 1.2D + 1.0Ev + 1.0Eh Normal | Seismic |
| 0.9D - 1.0Ev + 1.0Eh Normal | Seismic (Reduced DL) |
| 1.0D + 1.0W Service Normal | 60 mph Wind with No Ice |

## SHAFT SECTION PROPERTIES

| Sect Info | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Slip Joint len (in) | Weight (lb) | Bottom Dia (in) | Bottom Elev (ft) | Bottom Area (in²) | Bottom Ix (in⁴) | Bottom W/t Ratio | Bottom D/t Ratio | Top Dia (in) | Top Elev (in) | Top Area (in²) | Top Ix (in⁴) | Top W/t Ratio | Top D/t Ratio | Taper (in/ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-12 | 45.58 | 0.4375 | 65 | | 0.00 | 8,679 | 45.00 | 0.002 | 62.78 | 15,912.1 | 24.88 | 102.86 | 35.32 | 45.58 | 49.15 | 7,634.6 | 18.95 | 80.74 | 0.2123 |
| 2-12 | 44.65 | 0.3750 | 65 | Slip | 61.88 | 5,881 | 37.17 | 40.426 | 44.43 | 7,676.9 | 23.88 | 99.11 | 27.69 | 85.08 | 32.98 | 3,140.5 | 17.10 | 73.84 | 0.2123 |
| 3-12 | 45.08 | 0.2500 | 65 | Slip | 49.81 | 2,968 | 29.07 | 80.924 | 23.20 | 2,459.5 | 28.48 | 116.28 | 19.50 | 126.00 | 15.50 | 733.0 | 18.22 | 78.00 | 0.2123 |
| | | | | | | | | 126.00 | | | | | | | | 164.6 | | | |
| 4-R | 2.00 | 0.3750 | 35 | Butt | 0.00 | 83 | 10.75 | 0 | 12.22 | 164.6 | 0.00 | 28.67 | 10.75 | 128.00 | 12.22 | | 0.00 | 28.67 | 0.0000 |
| | | | | | | | | 128.00 | | | | | | | | 164.6 | | | |
| 5-R | 14.00 | 0.3750 | 36 | Butt | 0.00 | 582 | 10.75 | 0 | 12.22 | 164.6 | 0.00 | 28.67 | 10.75 | 142.00 | 12.22 | | 0.00 | 28.67 | 0.0000 |
| | | | | Shaft Weight | | 18,193 | | | | | | | | | | | | | |

## DISCRETE APPURTENANCE PROPERTIES

| Attach Elev (ft) | Description | Qty | Ka | Vert Ecc (ft) | No Ice Weight (lb) | No Ice EPAa (sf) | No Ice Orientation Factor | Ice Weight (lb) | Ice EPAa (sf) | Ice Orientation Factor |
|---|---|---|---|---|---|---|---|---|---|---|
| 133.00 | Ericsson Air 6449 B77D | 3 | 0.75 | 0.000 | 81.60 | 4.028 | 0.65 | 149.43 | 4.935 | 0.65 |
| 131.00 | Ericsson RRUS 8843 B2, B66A | 3 | 0.75 | 0.000 | 72.00 | 1.639 | 0.50 | 112.38 | 2.196 | 0.50 |
| 131.00 | CCI DMP65R-BU6E | 3 | 0.75 | 0.000 | 103.80 | 12.709 | 0.65 | 287.31 | 14.546 | 0.65 |
| 131.00 | Ericsson RRUS 32 B30 | 3 | 0.75 | 0.000 | 60.00 | 2.743 | 0.50 | 108.47 | 3.513 | 0.50 |
| 131.00 | Raycap DC6-48-60-0-8C | 1 | 0.75 | 0.000 | 16.00 | 2.030 | 0.50 | 48.30 | 2.530 | 0.50 |
| 131.00 | Ericsson RRUS 4449 B5, B12 | 3 | 0.75 | 0.000 | 71.00 | 1.969 | 0.50 | 113.46 | 2.584 | 0.50 |
| 131.00 | Ericsson RRUS 4478 B14 | 3 | 0.75 | 0.000 | 59.90 | 1.842 | 0.50 | 96.33 | 2.433 | 0.50 |
| 131.00 | Generic Flat Platform with Han | 1 | 1.00 | 0.000 | 2500.00 | 42.400 | 1.00 | 3670.33 | 56.216 | 1.00 |
| 131.00 | CCI OPA65R-BU6D | 3 | 0.75 | 0.000 | 63.20 | 12.871 | 0.63 | 235.38 | 14.714 | 0.63 |
| 131.00 | Raycap DC6-48-60-18-8F ("Squid | 2 | 0.75 | 0.000 | 31.80 | 1.470 | 1.00 | 72.45 | 1.930 | 1.00 |
| 129.00 | Ericsson AIR 6419 B77G | 3 | 0.75 | 0.000 | 66.10 | 3.797 | 0.65 | 129.93 | 4.664 | 0.65 |
| 128.50 | Kaelus DBC0061F1V51-2 | 3 | 0.75 | 0.000 | 25.50 | 0.433 | 0.50 | 37.65 | 0.729 | 0.50 |
| 127.50 | Powerwave Allgon LGP21401 | 6 | 0.75 | 0.000 | 14.10 | 1.104 | 0.50 | 30.49 | 1.573 | 0.50 |
| 120.00 | RFS APXVAALL24 43-U-NA20 | 3 | 0.75 | 0.000 | 122.80 | 20.243 | 0.63 | 376.73 | 22.661 | 0.63 |
| 120.00 | Ericsson AIR 6419 B41 | 3 | 0.75 | 0.000 | 83.30 | 6.322 | 0.63 | 181.97 | 7.425 | 0.63 |
| 120.00 | Commscope VV-65A-R1 | 3 | 0.75 | 0.000 | 23.80 | 5.928 | 0.63 | 100.35 | 7.309 | 0.63 |
| 120.00 | Ericsson 4480 BAND 71 | 3 | 0.75 | 0.000 | 81.00 | 2.878 | 0.67 | 130.63 | 3.610 | 0.67 |
| 120.00 | Generic Square Platform with H | 1 | 1.00 | 0.000 | 3790.00 | 49.300 | 1.00 | 6681.75 | 104.828 | 1.00 |
| 120.00 | Ericsson 4460 BAND 2/25 | 3 | 0.75 | 0.000 | 109.00 | 2.564 | 0.67 | 166.62 | 3.251 | 0.67 |
| 111.00 | Generic Flat Platform with Han | 1 | 1.00 | 0.000 | 2500.00 | 42.400 | 1.00 | 3651.03 | 55.988 | 1.00 |
| 100.00 | Generic Flat Platform with Han | 1 | 1.00 | 0.000 | 2500.00 | 42.400 | 1.00 | 3636.71 | 55.819 | 1.00 |
| 100.00 | Quintel QS6656-5D | 6 | 0.75 | 0.000 | 88.00 | 8.133 | 0.74 | 215.49 | 9.917 | 0.74 |
| 100.00 | Antel BXA-70080/6CF__ | 3 | 0.75 | 0.000 | 18.00 | 5.836 | 0.72 | 98.41 | 7.358 | 0.72 |
| 100.00 | Commscope RC2DC-3315-PF-48 | 1 | 0.75 | 0.000 | 32.00 | 3.781 | 0.50 | 102.14 | 4.627 | 0.50 |
| 100.00 | Rymsa MGD3-800TX | 3 | 0.75 | 0.000 | 15.40 | 3.340 | 0.69 | 59.02 | 4.480 | 0.69 |
| 100.00 | Samsung B2/B66A RRH-BR049 | 3 | 0.75 | 0.000 | 84.40 | 1.875 | 0.50 | 125.22 | 2.453 | 0.50 |
| 100.00 | Generic GPS | 1 | 0.75 | 0.000 | 10.00 | 0.900 | 0.50 | 28.72 | 1.309 | 0.50 |
| 100.00 | Samsung B5/B13 RRH-BR04C | 3 | 0.75 | 0.000 | 70.30 | 1.875 | 0.50 | 106.90 | 2.453 | 0.50 |
| 79.00 | Round Side Arm | 2 | 0.90 | 0.000 | 150.00 | 5.200 | 0.67 | 195.80 | 6.901 | 0.67 |
| 78.10 | Diamond X50A | 2 | 1.00 | 0.000 | 2.30 | 1.120 | 1.00 | 3.21 | 2.237 | 1.00 |
| 69.70 | PCTEL GPS-TMG-HR-26N | 1 | 1.00 | 0.000 | 0.60 | 0.090 | 1.00 | 3.59 | 0.201 | 1.00 |
| 63.00 | Stand-Off | 1 | 1.00 | 0.000 | 30.00 | 1.000 | 1.00 | 38.94 | 1.319 | 1.00 |
| 53.00 | JMA Wireless MX08FRO665-21 | 3 | 0.75 | 0.000 | 64.50 | 12.489 | 0.64 | 218.79 | 14.176 | 0.64 |
| 53.00 | Fujitsu TA08025-B605 | 3 | 0.75 | 0.000 | 75.00 | 1.962 | 0.50 | 112.61 | 2.514 | 0.50 |
| 53.00 | Fujitsu TA08025-B604 | 3 | 0.75 | 0.000 | 63.90 | 1.962 | 0.50 | 98.91 | 2.514 | 0.50 |
| 53.00 | Raycap RDIDC-9181-PF-48 | 1 | 0.75 | 0.000 | 21.90 | 1.867 | 0.50 | 56.06 | 2.407 | 0.50 |
| 53.00 | Generic Flat Platform with Han | 1 | 1.00 | 0.000 | 2500.00 | 42.400 | 1.00 | 3566.42 | 54.990 | 1.00 |
| Totals | Num Loadings: 37 | 92 | | | 19,124.80 | | | 32,642.29 | | |

## LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 50.00

| Elev From (ft) | Elev To (ft) | Qty | Description | Coax Dia (in) | Coax Wt (lb/ft) | Flat | Max Coax/ Row | Dist Between Rows(in) | Dist Between Cols(in) | Azimuth (deg) | Dist From Face (in) | Exposed To Wind | Carrier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 131.00 | 6 | 1 1/4" Coax | 1.55 | 0.63 | N | 0 | 0 | 0 | 0 | 0 | N | AT&T MOBILITY |
| 0.00 | 131.00 | 4 | 0.92" (23.4mm) Cable | 0.92 | 0.89 | N | 0 | 0 | 0 | 0 | 0 | N | AT&T MOBILITY |
| 0.00 | 131.00 | 2 | 0.88" (22.4mm) 8 AWG | 0.88 | 0.68 | N | 0 | 0 | 0 | 0 | 0 | N | AT&T MOBILITY |
| 0.00 | 131.00 | 2 | 0.40" (10.3mm) Fiber | 0.4 | 0.09 | N | 0 | 0 | 0 | 0 | 0 | N | AT&T MOBILITY |
| 0.00 | 120.00 | 4 | 1.99" (50.7mm) Hybrid | 1.99 | 1.9 | N | 0 | 0 | 0 | 0 | 0 | N | T-MOBILE |

| Elev From (ft) | Elev To (ft) | Qty | Description | Coax Dia (in) | Coax Wt (lb/ft) | Flat | Max Coax/ Row | Dist Between Rows(in) | Dist Between Cols(in) | Azimuth (deg) | Dist From Face (in) | Exposed To Wind | Carrier |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 101.00 | 6 | 7/8" Coax | 1.09 | 0.33 | N | 0 | 0 | 0 | 0 | 0 | N | VERIZON WIREL |
| 0.00 | 100.00 | 6 | 7/8" Coax | 1.09 | 0.33 | N | 0 | 0 | 0 | 0 | 0 | N | VERIZON WIREL |
| 0.00 | 100.00 | 6 | 1 5/8" Coax | 1.98 | 0.82 | N | 0 | 0 | 0 | 0 | 0 | N | VERIZON WIREL |
| 0.00 | 100.00 | 1 | 1 5/8" Hybriflex | 1.98 | 1.3 | N | 0 | 0 | 0 | 0 | 0 | N | VERIZON WIREL |
| 0.00 | 100.00 | 1 | 1/2" Coax | 0.63 | 0.15 | N | 0 | 0 | 0 | 0 | 0 | N | VERIZON WIREL |
| 0.00 | 78.00 | 2 | 0.405" (10.3mm) Coax | 0.41 | 0.11 | N | 0 | 0 | 0 | 0 | 0 | N | SENET, INC. |
| 0.00 | 70.00 | 1 | 1/2" Coax | 0.63 | 0.15 | N | 1 | 0.5 | 0.5 | 40 | 0.5 | N | SPRINT NEXTEL |
| 0.00 | 63.00 | 1 | #20 w/ Angle Brackets | 4 | 4.68 | N | 1 | 0 | 0 | 220 | 0 | Y | |
| 0.00 | 63.00 | 1 | #20 w/ Angle Brackets | 4 | 4.68 | N | 1 | 0 | 0 | 130 | 0 | Y | |
| 0.00 | 63.00 | 1 | #20 w/ Angle Brackets | 4 | 4.68 | N | 1 | 0 | 0 | 40 | 0 | Y | |
| 0.00 | 63.00 | 1 | #20 w/ Angle Brackets | 4 | 4.68 | N | 1 | 0 | 0 | 310 | 0 | Y | |
| 0.00 | 53.00 | 1 | 1.75" (44.5mm) Hybrid | 1.75 | 2.72 | N | 0 | 0 | 0 | 0 | 0 | N | DISH WIRELESS |

## ADDITIONAL STEEL

| | | | | | | Intermediate Connectors | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Elev From (ft) | Elev To (ft) | Qty | Description | Fy (ksi) | Offset (in) | Description | Spacing (in) | Len (in) | Connectors | Continuation? |
| 0.00 | 55.68 | 4 | SOL #20 All Thread Bar | 80 | 2.19 | 6" Angle Bracket | 30.00 | 3.31 | 5/8" A36 U-Bolt | Y |

## SEGMENT PROPERTIES

(Max Len: 5.ft)

| Seg Top Elev (ft) | Description | Thick (in) | Flat Dia (in) | Area ($in^2$) | Ix ($in^4$) | W/t Ratio | D/t Ratio | F'y (ksi) | S ($in^3$) | Z ($in^3$) | Weight (lb) | Additional Reinforcing Area ($in^2$) | Additional Reinforcing Ix ($in^4$) | Additional Reinforcing Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | | 0.4375 | 45.000 | 62.777 | 15,912.10 | 24.88 | 102.86 | 77.6 | 683.1 | 0.0 | 0.0 | 19.640 | 6,615.40 | 0.0 |
| 5.00 | | 0.4375 | 43.939 | 61.282 | 14,801.90 | 24.23 | 100.43 | 78.3 | 650.8 | 0.0 | 1,055.4 | 19.640 | 6,347.80 | 334.0 |
| 10.00 | | 0.4375 | 42.877 | 59.787 | 13,744.60 | 23.58 | 98.00 | 79 | 619.3 | 0.0 | 1,029.9 | 19.640 | 6,085.70 | 334.0 |
| 15.00 | | 0.4375 | 41.816 | 58.291 | 12,738.80 | 22.93 | 95.58 | 79.7 | 588.5 | 0.0 | 1,004.5 | 19.640 | 5,829.10 | 334.0 |
| 20.00 | | 0.4375 | 40.754 | 56.796 | 11,783.30 | 22.28 | 93.15 | 80.4 | 558.6 | 0.0 | 979.0 | 19.640 | 5,578.10 | 334.0 |
| 25.00 | | 0.4375 | 39.693 | 55.300 | 10,876.90 | 21.63 | 90.73 | 81.1 | 529.4 | 0.0 | 953.6 | 19.640 | 5,332.60 | 334.0 |
| 30.00 | | 0.4375 | 38.631 | 53.805 | 10,018.20 | 20.98 | 88.30 | 81.8 | 501.0 | 0.0 | 928.2 | 19.640 | 5,092.60 | 334.0 |
| 35.00 | | 0.4375 | 37.570 | 52.310 | 9,205.90 | 20.33 | 85.87 | 81.9 | 473.4 | 0.0 | 902.7 | 19.640 | 4,858.20 | 334.0 |
| 40.00 | | 0.4375 | 36.508 | 50.814 | 8,438.70 | 19.68 | 83.45 | 81.9 | 446.5 | 0.0 | 877.3 | 19.640 | 4,629.30 | 334.0 |
| 40.42 | Bot - Section 2 | 0.4375 | 36.418 | 50.688 | 8,376.00 | 19.63 | 83.24 | 81.9 | 444.3 | 0.0 | 72.9 | 19.640 | 4,610.20 | 28.2 |
| 45.00 | | 0.4375 | 35.447 | 49.319 | 7,715.40 | 19.03 | 81.02 | 81.9 | 420.5 | 0.0 | 1,462.0 | 19.640 | 4,563.10 | 305.8 |
| 45.58 | Top - Section 1 | 0.3750 | 36.074 | 43.106 | 7,011.90 | 23.10 | 96.20 | 79.5 | 375.5 | 0.0 | 181.8 | 19.640 | 4,537.20 | 38.6 |
| 50.00 | | 0.3750 | 35.135 | 41.973 | 6,473.10 | 22.43 | 93.69 | 80.3 | 355.9 | 0.0 | 640.1 | 19.640 | 4,341.40 | 295.4 |
| 53.00 | | 0.3750 | 34.498 | 41.204 | 6,123.80 | 21.97 | 91.99 | 80.8 | 342.9 | 0.0 | 424.5 | 19.640 | 4,211.00 | 200.4 |
| 55.00 | | 0.3750 | 34.074 | 40.691 | 5,898.00 | 21.67 | 90.86 | 81.1 | 334.4 | 0.0 | 278.7 | 19.640 | 4,125.20 | 133.6 |
| 55.68 | Reinf. Top | 0.3750 | 33.929 | 40.517 | 5,822.50 | 21.56 | 90.48 | 81.2 | 331.5 | 0.0 | 94.0 | 19.640 | 4,096.20 | 45.4 |
| 60.00 | | 0.3750 | 33.012 | 39.409 | 5,358.00 | 20.91 | 88.03 | 81.9 | 313.5 | 0.0 | 587.5 | | | |
| 63.00 | | 0.3750 | 32.375 | 38.640 | 5,050.40 | 20.45 | 86.33 | 81.9 | 301.4 | 0.0 | 398.4 | | | |
| 65.00 | | 0.3750 | 31.951 | 38.127 | 4,852.00 | 20.15 | 85.20 | 81.9 | 293.4 | 0.0 | 261.2 | | | |
| 69.70 | | 0.3750 | 30.953 | 36.923 | 4,406.40 | 19.44 | 82.54 | 81.9 | 275.0 | 0.0 | 600.1 | | | |
| 70.00 | | 0.3750 | 30.889 | 36.846 | 4,379.00 | 19.39 | 82.37 | 81.9 | 273.9 | 0.0 | 37.7 | | | |
| 75.00 | | 0.3750 | 29.828 | 35.564 | 3,937.70 | 18.63 | 79.54 | 81.9 | 255.0 | 0.0 | 616.0 | | | |
| 78.10 | | 0.3750 | 29.169 | 34.769 | 3,679.60 | 18.16 | 77.78 | 81.9 | 243.7 | 0.0 | 371.0 | | | |
| 79.00 | | 0.3750 | 28.978 | 34.538 | 3,606.80 | 18.03 | 77.28 | 81.9 | 240.4 | 0.0 | 106.1 | | | |
| 80.00 | | 0.3750 | 28.766 | 34.282 | 3,527.10 | 17.87 | 76.71 | 81.9 | 236.9 | 0.0 | 117.1 | | | |
| 80.92 | Bot - Section 3 | 0.3750 | 28.570 | 34.045 | 3,454.40 | 17.73 | 76.19 | 81.9 | 233.6 | 0.0 | 107.5 | | | |
| 85.00 | | 0.3750 | 27.705 | 33.000 | 3,146.10 | 17.12 | 73.88 | 81.9 | 219.4 | 0.0 | 781.8 | | | |
| 85.08 | Top - Section 2 | 0.2500 | 28.188 | 22.490 | 2,240.70 | 27.53 | 112.75 | 74.7 | 153.6 | 0.0 | 14.2 | | | |
| 90.00 | | 0.2500 | 27.143 | 21.649 | 1,998.50 | 26.41 | 108.57 | 75.9 | 142.2 | 0.0 | 369.8 | | | |
| 95.00 | | 0.2500 | 26.082 | 20.794 | 1,771.00 | 25.27 | 104.33 | 77.1 | 131.2 | 0.0 | 361.1 | | | |
| 100.00 | | 0.2500 | 25.020 | 19.940 | 1,561.60 | 24.14 | 100.08 | 78.4 | 120.6 | 0.0 | 346.5 | | | |
| 105.00 | | 0.2500 | 23.959 | 19.085 | 1,369.30 | 23.00 | 95.83 | 79.6 | 110.4 | 0.0 | 332.0 | | | |
| 110.00 | | 0.2500 | 22.897 | 18.231 | 1,193.50 | 21.86 | 91.59 | 80.9 | 100.7 | 0.0 | 317.4 | | | |
| 111.00 | | 0.2500 | 22.685 | 18.060 | 1,160.20 | 21.63 | 90.74 | 81.1 | 98.8 | 0.0 | 61.7 | | | |
| 115.00 | | 0.2500 | 21.836 | 17.376 | 1,033.40 | 20.72 | 87.34 | 81.9 | 91.4 | 0.0 | 241.2 | | | |
| 120.00 | | 0.2500 | 20.774 | 16.522 | 888.30 | 19.59 | 83.10 | 81.9 | 82.6 | 0.0 | 288.4 | | | |
| 125.00 | | 0.2500 | 19.713 | 15.667 | 757.50 | 18.45 | 78.85 | 81.9 | 74.2 | 0.0 | 273.8 | | | |
| 126.00 | Top - Section 3 | 0.2500 | 19.500 | 15.496 | 733.00 | 18.22 | 78.00 | 81.9 | 72.6 | 0.0 | 53.0 | | | |
| 126.00 | Bot - Section 4 | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 35 | 30.6 | 40.4 | | | | |
| 127.50 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 35 | 30.6 | 40.4 | 62.4 | | | |
| 128.00 | Top - Section 4 | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 35 | 30.6 | 40.4 | 20.8 | | | |
| 128.00 | Bot - Section 5 | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | | | | |
| 128.50 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 20.8 | | | |
| 129.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 20.8 | | | |
| 130.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 41.6 | | | |
| 131.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 41.6 | | | |
| 133.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 83.2 | | | |
| 135.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 83.2 | | | |
| 140.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 208.0 | | | |
| 142.00 | | 0.3750 | 10.750 | 12.223 | 164.60 | 0.00 | 28.67 | 36 | 30.6 | 40.4 | 83.2 | | | |
| | | | | | | | | | Totals: | | 18,193.7 | | | 3,719.4 |

Load Case: 1.2D + 1.0W Normal — 118 mph wind with no ice — 26 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

**CALCULATED FORCES**

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (ft-kips) | Phi Mn (ft-kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -54.53 | -37.16 | 0.00 | -3,252.4 | 0.00 | 3,252.35 | 4,383.15 | 1,101.74 | 4,631.83 | 3,974.58 | 0 | 0 | 0.589 |
| 5.00 | -52.45 | -36.49 | 0.00 | -3,066.5 | 0.00 | 3,066.54 | 4,317.85 | 1,075.50 | 4,413.87 | 3,821.19 | 0.11 | -0.2 | 0.572 |
| 10.00 | -50.40 | -35.80 | 0.00 | -2,884.1 | 0.00 | 2,884.11 | 4,250.64 | 1,049.26 | 4,201.16 | 3,669.01 | 0.43 | -0.4 | 0.555 |
| 15.00 | -48.39 | -35.08 | 0.00 | -2,705.1 | 0.00 | 2,705.14 | 4,181.52 | 1,023.01 | 3,993.70 | 3,518.15 | 0.95 | -0.6 | 0.537 |
| 20.00 | -46.41 | -34.32 | 0.00 | -2,529.7 | 0.00 | 2,529.73 | 4,110.49 | 996.77 | 3,791.49 | 3,368.74 | 1.69 | -0.8 | 0.519 |
| 25.00 | -44.47 | -33.52 | 0.00 | -2,358.1 | 0.00 | 2,358.11 | 4,037.56 | 970.52 | 3,594.54 | 3,220.91 | 2.64 | -1 | 0.501 |
| 30.00 | -42.57 | -32.80 | 0.00 | -2,190.5 | 0.00 | 2,190.50 | 3,962.71 | 944.28 | 3,402.84 | 3,074.78 | 3.79 | -1.2 | 0.481 |
| 35.00 | -40.70 | -32.02 | 0.00 | -2,026.5 | 0.00 | 2,026.50 | 3,855.75 | 918.04 | 3,216.39 | 2,907.69 | 5.16 | -1.4 | 0.465 |
| 40.00 | -38.91 | -31.50 | 0.00 | -1,866.4 | 0.00 | 1,866.41 | 3,745.52 | 891.79 | 3,035.19 | 2,742.88 | 6.73 | -1.6 | 0.448 |
| 40.42 | -38.73 | -31.17 | 0.00 | -1,853.1 | 0.00 | 1,853.12 | 3,736.22 | 889.58 | 3,020.15 | 2,729.20 | 6.87 | -1.61 | 0.447 |
| 45.00 | -36.30 | -30.64 | 0.00 | -1,710.4 | 0.00 | 1,710.41 | 3,635.30 | 865.55 | 2,859.25 | 2,582.88 | 8.51 | -1.79 | 0.425 |
| 45.58 | -35.96 | -30.30 | 0.00 | -1,692.7 | 0.00 | 1,692.69 | 3,085.21 | 756.51 | 2,547.97 | 2,239.64 | 8.72 | -1.81 | 0.468 |
| 50.00 | -34.53 | -29.66 | 0.00 | -1,558.7 | 0.00 | 1,558.70 | 3,031.72 | 736.62 | 2,415.77 | 2,142.33 | 10.49 | -1.98 | 0.445 |
| 53.00 | -29.92 | -26.38 | 0.00 | -1,469.7 | 0.00 | 1,469.72 | 2,994.57 | 723.12 | 2,328.08 | 2,076.90 | 11.77 | -2.1 | 0.427 |
| 55.00 | -29.30 | -26.13 | 0.00 | -1,417.0 | 0.00 | 1,416.96 | 2,969.43 | 714.13 | 2,270.53 | 2,033.56 | 12.67 | -2.18 | 0.418 |
| 55.68 | -29.07 | -25.79 | 0.00 | -1,399.2 | 0.00 | 1,399.19 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 12.98 | -2.21 | 0.415 |
| 55.68 | -29.07 | -25.79 | 0.00 | -1,399.2 | 0.00 | 1,399.19 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 12.98 | -2.21 | 0.704 |
| 60.00 | -28.07 | -25.17 | 0.00 | -1,287.8 | 0.00 | 1,287.79 | 2,904.85 | 691.63 | 2,129.79 | 1,925.98 | 15.06 | -2.38 | 0.680 |
| 63.00 | -27.34 | -24.76 | 0.00 | -1,212.3 | 0.00 | 1,212.28 | 2,848.16 | 678.13 | 2,047.51 | 1,851.12 | 16.61 | -2.57 | 0.666 |
| 65.00 | -26.89 | -24.47 | 0.00 | -1,162.8 | 0.00 | 1,162.76 | 2,810.37 | 669.14 | 1,993.56 | 1,802.04 | 17.72 | -2.71 | 0.656 |
| 69.70 | -25.96 | -24.21 | 0.00 | -1,047.8 | 0.00 | 1,047.77 | 2,721.56 | 647.99 | 1,869.60 | 1,689.30 | 20.54 | -3.01 | 0.631 |
| 70.00 | -25.85 | -24.00 | 0.00 | -1,040.5 | 0.00 | 1,040.50 | 2,715.89 | 646.64 | 1,861.82 | 1,682.23 | 20.73 | -3.03 | 0.629 |
| 75.00 | -24.87 | -23.62 | 0.00 | -920.5 | 0.00 | 920.51 | 2,621.41 | 624.15 | 1,734.59 | 1,566.54 | 24.08 | -3.35 | 0.599 |
| 78.10 | -24.28 | -23.33 | 0.00 | -847.3 | 0.00 | 847.29 | 2,562.84 | 610.20 | 1,657.97 | 1,496.88 | 26.32 | -3.55 | 0.577 |
| 79.00 | -23.77 | -22.94 | 0.00 | -826.3 | 0.00 | 826.30 | 2,545.83 | 606.15 | 1,636.05 | 1,476.96 | 26.99 | -3.61 | 0.570 |
| 80.00 | -23.58 | -22.85 | 0.00 | -803.4 | 0.00 | 803.36 | 2,526.94 | 601.65 | 1,611.87 | 1,454.97 | 27.76 | -3.67 | 0.563 |
| 80.92 | -23.37 | -22.64 | 0.00 | -782.2 | 0.00 | 782.24 | 2,509.47 | 597.49 | 1,589.67 | 1,434.80 | 28.47 | -3.73 | 0.556 |
| 85.00 | -22.27 | -22.39 | 0.00 | -690.0 | 0.00 | 689.97 | 2,432.46 | 579.16 | 1,493.64 | 1,347.52 | 31.77 | -3.98 | 0.523 |
| 85.08 | -22.22 | -22.19 | 0.00 | -688.3 | 0.00 | 688.29 | 1,511.75 | 394.71 | 1,040.29 | 860.19 | 31.83 | -3.98 | 0.818 |
| 90.00 | -21.53 | -21.77 | 0.00 | -579.0 | 0.00 | 579.00 | 1,478.99 | 379.94 | 963.92 | 809.78 | 36.08 | -4.27 | 0.733 |
| 95.00 | -20.84 | -21.35 | 0.00 | -470.2 | 0.00 | 470.18 | 1,443.84 | 364.94 | 889.35 | 759.04 | 40.75 | -4.64 | 0.637 |
| 100.00 | -16.23 | -16.32 | 0.00 | -363.4 | 0.00 | 363.42 | 1,406.77 | 349.94 | 817.78 | 708.87 | 45.79 | -4.97 | 0.526 |
| 105.00 | -15.70 | -15.88 | 0.00 | -281.8 | 0.00 | 281.85 | 1,367.80 | 334.95 | 749.21 | 659.40 | 51.16 | -5.27 | 0.441 |
| 110.00 | -15.21 | -15.60 | 0.00 | -202.4 | 0.00 | 202.45 | 1,326.92 | 319.95 | 683.65 | 610.75 | 56.81 | -5.52 | 0.345 |
| 111.00 | -12.32 | -13.07 | 0.00 | -186.8 | 0.00 | 186.85 | 1,318.52 | 316.95 | 670.90 | 601.13 | 57.97 | -5.57 | 0.322 |
| 115.00 | -11.96 | -12.68 | 0.00 | -134.6 | 0.00 | 134.57 | 1,280.81 | 304.95 | 621.09 | 561.60 | 62.69 | -5.72 | 0.251 |
| 120.00 | -6.03 | -6.57 | 0.00 | -71.2 | 0.00 | 71.18 | 1,217.82 | 289.96 | 561.53 | 507.42 | 68.76 | -5.86 | 0.146 |
| 125.00 | -5.67 | -6.30 | 0.00 | -38.3 | 0.00 | 38.31 | 1,154.84 | 274.96 | 504.97 | 455.99 | 74.94 | -5.95 | 0.089 |
| 126.00 | -5.60 | -6.23 | 0.00 | -32.0 | 0.00 | 32.01 | 1,142.24 | 271.96 | 494.02 | 446.03 | 76.19 | -5.97 | 0.077 |
| 126.00 | -5.60 | -6.23 | 0.00 | -32.0 | 0.00 | 32.01 | 385.02 | 115.51 | 105.36 | 106.00 | 76.19 | -5.97 | 0.319 |
| 127.50 | -5.42 | -6.06 | 0.00 | -22.7 | 0.00 | 22.67 | 385.02 | 115.51 | 105.36 | 106.00 | 78.06 | -5.98 | 0.231 |
| 128.00 | -5.39 | -6.05 | 0.00 | -19.6 | 0.00 | 19.64 | 396.02 | 118.81 | 108.37 | 109.03 | 78.69 | -6 | 0.196 |
| 128.00 | -5.39 | -6.05 | 0.00 | -19.6 | 0.00 | 19.64 | 385.02 | 115.51 | 105.36 | 106.00 | 78.69 | -6 | 0.202 |
| 128.50 | -5.27 | -6.00 | 0.00 | -16.6 | 0.00 | 16.61 | 396.02 | 118.81 | 108.37 | 109.03 | 79.32 | -6.02 | 0.168 |
| 129.00 | -5.04 | -5.68 | 0.00 | -13.6 | 0.00 | 13.61 | 396.02 | 118.81 | 108.37 | 109.03 | 79.95 | -6.03 | 0.140 |
| 130.00 | -4.98 | -5.65 | 0.00 | -7.9 | 0.00 | 7.93 | 396.02 | 118.81 | 108.37 | 109.03 | 81.21 | -6.05 | 0.088 |
| 131.00 | -0.79 | -0.58 | 0.00 | -2.3 | 0.00 | 2.29 | 396.02 | 118.81 | 108.37 | 109.03 | 82.48 | -6.06 | 0.023 |
| 133.00 | -0.43 | -0.21 | 0.00 | -1.1 | 0.00 | 1.12 | 396.02 | 118.81 | 108.37 | 109.03 | 85.01 | -6.06 | 0.011 |
| 135.00 | -0.34 | -0.13 | 0.00 | -0.7 | 0.00 | 0.70 | 396.02 | 118.81 | 108.37 | 109.03 | 87.54 | -6.06 | 0.007 |
| 140.00 | -0.10 | -0.03 | 0.00 | -0.1 | 0.00 | 0.06 | 396.02 | 118.81 | 108.37 | 109.03 | 93.89 | -6.07 | 0.001 |
| 142.00 | 0.00 | -0.02 | 0.00 | 0.0 | 0.00 | 0.00 | 396.02 | 118.81 | 108.37 | 109.03 | 96.42 | -6.07 | 0.000 |

Load Case: 0.9D + 1.0W Normal 118 mph wind with no ice 26 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

**CALCULATED FORCES**

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (ft-kips) | Phi Mn (ft-kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -40.88 | -37.14 | 0.00 | -3,212.7 | 0.00 | 3,212.73 | 4,383.15 | 1,101.74 | 4,631.83 | 3,974.58 | 0 | 0 | 0.579 |
| 5.00 | -39.29 | -36.41 | 0.00 | -3,027.0 | 0.00 | 3,027.04 | 4,317.85 | 1,075.50 | 4,413.87 | 3,821.19 | 0.11 | -0.2 | 0.562 |
| 10.00 | -37.73 | -35.68 | 0.00 | -2,845.0 | 0.00 | 2,844.98 | 4,250.64 | 1,049.26 | 4,201.16 | 3,669.01 | 0.42 | -0.39 | 0.545 |
| 15.00 | -36.19 | -34.93 | 0.00 | -2,666.6 | 0.00 | 2,666.58 | 4,181.52 | 1,023.01 | 3,993.70 | 3,518.15 | 0.94 | -0.59 | 0.528 |
| 20.00 | -34.68 | -34.13 | 0.00 | -2,492.0 | 0.00 | 2,491.95 | 4,110.49 | 996.77 | 3,791.49 | 3,368.74 | 1.67 | -0.79 | 0.510 |
| 25.00 | -33.21 | -33.30 | 0.00 | -2,321.3 | 0.00 | 2,321.29 | 4,037.56 | 970.52 | 3,594.54 | 3,220.91 | 2.6 | -0.99 | 0.491 |
| 30.00 | -31.76 | -32.54 | 0.00 | -2,154.8 | 0.00 | 2,154.81 | 3,962.71 | 944.28 | 3,402.84 | 3,074.78 | 3.74 | -1.18 | 0.472 |
| 35.00 | -30.34 | -31.74 | 0.00 | -1,992.1 | 0.00 | 1,992.09 | 3,855.75 | 918.04 | 3,216.39 | 2,907.69 | 5.09 | -1.38 | 0.455 |
| 40.00 | -28.99 | -31.21 | 0.00 | -1,833.4 | 0.00 | 1,833.42 | 3,745.52 | 891.79 | 3,035.19 | 2,742.88 | 6.63 | -1.57 | 0.438 |
| 40.42 | -28.83 | -30.87 | 0.00 | -1,820.2 | 0.00 | 1,820.25 | 3,736.22 | 889.58 | 3,020.15 | 2,729.20 | 6.77 | -1.59 | 0.437 |
| 45.00 | -27.01 | -30.34 | 0.00 | -1,679.0 | 0.00 | 1,678.95 | 3,635.30 | 865.55 | 2,859.25 | 2,582.88 | 8.39 | -1.76 | 0.415 |
| 45.58 | -26.75 | -29.98 | 0.00 | -1,661.4 | 0.00 | 1,661.41 | 3,085.21 | 756.51 | 2,547.97 | 2,239.64 | 8.6 | -1.79 | 0.458 |
| 50.00 | -25.66 | -29.33 | 0.00 | -1,528.8 | 0.00 | 1,528.83 | 3,031.72 | 736.62 | 2,415.77 | 2,142.33 | 10.33 | -1.95 | 0.434 |
| 53.00 | -22.22 | -26.08 | 0.00 | -1,440.8 | 0.00 | 1,440.85 | 2,994.57 | 723.12 | 2,328.08 | 2,076.90 | 11.6 | -2.07 | 0.417 |
| 55.00 | -21.75 | -25.83 | 0.00 | -1,388.7 | 0.00 | 1,388.69 | 2,969.43 | 714.13 | 2,270.53 | 2,033.56 | 12.48 | -2.15 | 0.408 |
| 55.68 | -21.57 | -25.47 | 0.00 | -1,371.1 | 0.00 | 1,371.12 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 12.79 | -2.17 | 0.405 |
| 55.68 | -21.57 | -25.47 | 0.00 | -1,371.1 | 0.00 | 1,371.12 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 12.79 | -2.17 | 0.688 |
| 60.00 | -20.81 | -24.84 | 0.00 | -1,261.1 | 0.00 | 1,261.09 | 2,904.85 | 691.63 | 2,129.79 | 1,925.98 | 14.83 | -2.34 | 0.663 |
| 63.00 | -20.25 | -24.41 | 0.00 | -1,186.6 | 0.00 | 1,186.56 | 2,848.16 | 678.13 | 2,047.51 | 1,851.12 | 16.36 | -2.53 | 0.649 |
| 65.00 | -19.90 | -24.10 | 0.00 | -1,137.7 | 0.00 | 1,137.74 | 2,810.37 | 669.14 | 1,993.56 | 1,802.04 | 17.45 | -2.66 | 0.640 |
| 69.70 | -19.19 | -23.84 | 0.00 | -1,024.5 | 0.00 | 1,024.47 | 2,721.56 | 647.99 | 1,869.60 | 1,689.30 | 20.22 | -2.96 | 0.615 |
| 70.00 | -19.09 | -23.60 | 0.00 | -1,017.3 | 0.00 | 1,017.32 | 2,715.89 | 646.64 | 1,861.82 | 1,682.23 | 20.41 | -2.98 | 0.613 |
| 75.00 | -18.34 | -23.20 | 0.00 | -899.3 | 0.00 | 899.31 | 2,621.41 | 624.15 | 1,734.59 | 1,566.54 | 23.7 | -3.29 | 0.582 |
| 78.10 | -17.90 | -22.90 | 0.00 | -827.4 | 0.00 | 827.38 | 2,562.84 | 610.20 | 1,657.97 | 1,496.88 | 25.9 | -3.48 | 0.561 |
| 79.00 | -17.51 | -22.52 | 0.00 | -806.8 | 0.00 | 806.76 | 2,545.83 | 606.15 | 1,636.05 | 1,476.96 | 26.56 | -3.54 | 0.554 |
| 80.00 | -17.37 | -22.43 | 0.00 | -784.2 | 0.00 | 784.25 | 2,526.94 | 601.65 | 1,611.87 | 1,454.97 | 27.31 | -3.6 | 0.547 |
| 80.92 | -17.21 | -22.20 | 0.00 | -763.5 | 0.00 | 763.52 | 2,509.47 | 597.49 | 1,589.67 | 1,434.80 | 28.01 | -3.66 | 0.540 |
| 85.00 | -16.37 | -21.96 | 0.00 | -673.0 | 0.00 | 673.04 | 2,432.46 | 579.16 | 1,493.64 | 1,347.52 | 31.24 | -3.9 | 0.508 |
| 85.08 | -16.32 | -21.74 | 0.00 | -671.4 | 0.00 | 671.39 | 1,511.75 | 394.71 | 1,040.29 | 860.19 | 31.31 | -3.91 | 0.794 |
| 90.00 | -15.79 | -21.29 | 0.00 | -564.3 | 0.00 | 564.32 | 1,478.99 | 379.94 | 963.92 | 809.78 | 35.48 | -4.18 | 0.711 |
| 95.00 | -15.26 | -20.85 | 0.00 | -457.9 | 0.00 | 457.87 | 1,443.84 | 364.94 | 889.35 | 759.04 | 40.06 | -4.55 | 0.617 |
| 100.00 | -11.87 | -15.90 | 0.00 | -353.6 | 0.00 | 353.60 | 1,406.77 | 349.94 | 817.78 | 708.87 | 45 | -4.87 | 0.509 |
| 105.00 | -11.47 | -15.45 | 0.00 | -274.1 | 0.00 | 274.11 | 1,367.80 | 334.95 | 749.21 | 659.40 | 50.25 | -5.16 | 0.426 |
| 110.00 | -11.10 | -15.18 | 0.00 | -196.8 | 0.00 | 196.83 | 1,326.92 | 319.95 | 683.65 | 610.75 | 55.79 | -5.4 | 0.333 |
| 111.00 | -8.98 | -12.72 | 0.00 | -181.7 | 0.00 | 181.66 | 1,318.52 | 316.95 | 670.90 | 601.13 | 56.92 | -5.45 | 0.311 |
| 115.00 | -8.71 | -12.33 | 0.00 | -130.8 | 0.00 | 130.79 | 1,280.81 | 304.95 | 621.09 | 561.60 | 61.55 | -5.6 | 0.241 |
| 120.00 | -4.38 | -6.39 | 0.00 | -69.2 | 0.00 | 69.15 | 1,217.82 | 289.96 | 561.53 | 507.42 | 67.49 | -5.74 | 0.140 |
| 125.00 | -4.12 | -6.12 | 0.00 | -37.2 | 0.00 | 37.20 | 1,154.84 | 274.96 | 504.97 | 455.99 | 73.54 | -5.82 | 0.086 |
| 126.00 | -4.07 | -6.06 | 0.00 | -31.1 | 0.00 | 31.07 | 1,142.24 | 271.96 | 494.02 | 446.03 | 74.76 | -5.84 | 0.074 |
| 126.00 | -4.07 | -6.06 | 0.00 | -31.1 | 0.00 | 31.07 | 385.02 | 115.51 | 105.36 | 106.00 | 74.76 | -5.84 | 0.306 |
| 127.50 | -3.94 | -5.90 | 0.00 | -22.0 | 0.00 | 21.98 | 385.02 | 115.51 | 105.36 | 106.00 | 76.59 | -5.85 | 0.220 |
| 128.00 | -3.92 | -5.88 | 0.00 | -19.0 | 0.00 | 19.04 | 396.02 | 118.81 | 108.37 | 109.03 | 77.2 | -5.87 | 0.187 |
| 128.00 | -3.92 | -5.88 | 0.00 | -19.0 | 0.00 | 19.04 | 385.02 | 115.51 | 105.36 | 106.00 | 77.2 | -5.87 | 0.192 |
| 128.50 | -3.83 | -5.84 | 0.00 | -16.1 | 0.00 | 16.09 | 396.02 | 118.81 | 108.37 | 109.03 | 77.82 | -5.89 | 0.160 |
| 129.00 | -3.66 | -5.52 | 0.00 | -13.2 | 0.00 | 13.17 | 396.02 | 118.81 | 108.37 | 109.03 | 78.43 | -5.9 | 0.132 |
| 130.00 | -3.61 | -5.49 | 0.00 | -7.6 | 0.00 | 7.65 | 396.02 | 118.81 | 108.37 | 109.03 | 79.67 | -5.92 | 0.081 |
| 131.00 | -0.58 | -0.56 | 0.00 | -2.2 | 0.00 | 2.16 | 396.02 | 118.81 | 108.37 | 109.03 | 80.91 | -5.92 | 0.021 |
| 133.00 | -0.32 | -0.20 | 0.00 | -1.0 | 0.00 | 1.04 | 396.02 | 118.81 | 108.37 | 109.03 | 83.39 | -5.93 | 0.010 |
| 135.00 | -0.25 | -0.12 | 0.00 | -0.6 | 0.00 | 0.65 | 396.02 | 118.81 | 108.37 | 109.03 | 85.87 | -5.93 | 0.007 |
| 140.00 | -0.07 | -0.03 | 0.00 | -0.1 | 0.00 | 0.06 | 396.02 | 118.81 | 108.37 | 109.03 | 92.07 | -5.94 | 0.001 |
| 142.00 | 0.00 | -0.02 | 0.00 | 0.0 | 0.00 | 0.00 | 396.02 | 118.81 | 108.37 | 109.03 | 94.55 | -5.94 | 0.000 |

| | | | | | |
|---|---|---|---|---|---|
| Load Case: 1.2D + 1.0Di + 1.0Wi Normal | | 50 mph wind with 1" radial ice | | | 25 Iterations |
| Gust Response Factor: | 1.10 | Ice Dead Load Factor | 1.00 | | |
| Dead load Factor: | 1.20 | | | Ice Importance Factor | 1.00 |
| Wind Load Factor: | 1.00 | | | | |

**CALCULATED FORCES**

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (ft-kips) | Phi Mn (ft-kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -71.52 | -8.25 | 0.00 | -801.7 | 0.00 | 801.70 | 4,383.15 | 1,101.74 | 4,631.83 | 3,974.58 | 0 | 0 | 0.155 |
| 5.00 | -69.29 | -8.17 | 0.00 | -760.5 | 0.00 | 760.46 | 4,317.85 | 1,075.50 | 4,413.87 | 3,821.19 | 0.03 | -0.05 | 0.151 |
| 10.00 | -67.06 | -8.10 | 0.00 | -719.6 | 0.00 | 719.58 | 4,250.64 | 1,049.26 | 4,201.16 | 3,669.01 | 0.11 | -0.1 | 0.148 |
| 15.00 | -64.86 | -8.02 | 0.00 | -679.1 | 0.00 | 679.09 | 4,181.52 | 1,023.01 | 3,993.70 | 3,518.15 | 0.24 | -0.15 | 0.144 |
| 20.00 | -62.68 | -7.94 | 0.00 | -639.0 | 0.00 | 638.98 | 4,110.49 | 996.77 | 3,791.49 | 3,368.74 | 0.42 | -0.2 | 0.140 |
| 25.00 | -60.53 | -7.85 | 0.00 | -599.3 | 0.00 | 599.29 | 4,037.56 | 970.52 | 3,594.54 | 3,220.91 | 0.66 | -0.25 | 0.136 |
| 30.00 | -58.41 | -7.75 | 0.00 | -560.1 | 0.00 | 560.06 | 3,962.71 | 944.28 | 3,402.84 | 3,074.78 | 0.95 | -0.3 | 0.132 |
| 35.00 | -56.33 | -7.65 | 0.00 | -521.3 | 0.00 | 521.31 | 3,855.75 | 918.04 | 3,216.39 | 2,907.69 | 1.29 | -0.35 | 0.128 |
| 40.00 | -54.28 | -7.59 | 0.00 | -483.1 | 0.00 | 483.06 | 3,745.52 | 891.79 | 3,035.19 | 2,742.88 | 1.69 | -0.4 | 0.124 |
| 40.42 | -54.10 | -7.54 | 0.00 | -479.9 | 0.00 | 479.86 | 3,736.22 | 889.58 | 3,020.15 | 2,729.20 | 1.72 | -0.41 | 0.124 |
| 45.00 | -51.43 | -7.47 | 0.00 | -445.4 | 0.00 | 445.36 | 3,635.30 | 865.55 | 2,859.25 | 2,582.88 | 2.14 | -0.45 | 0.119 |
| 45.58 | -51.10 | -7.41 | 0.00 | -441.0 | 0.00 | 441.04 | 3,085.21 | 756.51 | 2,547.97 | 2,239.64 | 2.19 | -0.46 | 0.131 |
| 50.00 | -49.45 | -7.33 | 0.00 | -408.3 | 0.00 | 408.26 | 3,031.72 | 736.62 | 2,415.77 | 2,142.33 | 2.64 | -0.5 | 0.125 |
| 53.00 | -43.23 | -6.61 | 0.00 | -386.3 | 0.00 | 386.28 | 2,994.57 | 723.12 | 2,328.08 | 2,076.90 | 2.96 | -0.54 | 0.120 |
| 55.00 | -42.51 | -6.58 | 0.00 | -373.1 | 0.00 | 373.06 | 2,969.43 | 714.13 | 2,270.53 | 2,033.56 | 3.19 | -0.56 | 0.118 |
| 55.68 | -42.26 | -6.52 | 0.00 | -368.6 | 0.00 | 368.59 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 3.27 | -0.56 | 0.117 |
| 55.68 | -42.26 | -6.52 | 0.00 | -368.6 | 0.00 | 368.59 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 3.27 | -0.56 | 0.197 |
| 60.00 | -41.06 | -6.44 | 0.00 | -340.4 | 0.00 | 340.41 | 2,904.85 | 691.63 | 2,129.79 | 1,925.98 | 3.8 | -0.61 | 0.191 |
| 63.00 | -40.20 | -6.38 | 0.00 | -321.1 | 0.00 | 321.09 | 2,848.16 | 678.13 | 2,047.51 | 1,851.12 | 4.2 | -0.66 | 0.188 |
| 65.00 | -39.72 | -6.33 | 0.00 | -308.3 | 0.00 | 308.33 | 2,810.37 | 669.14 | 1,993.56 | 1,802.04 | 4.49 | -0.7 | 0.185 |
| 69.70 | -38.63 | -6.27 | 0.00 | -278.6 | 0.00 | 278.61 | 2,721.56 | 647.99 | 1,869.60 | 1,689.30 | 5.21 | -0.78 | 0.179 |
| 70.00 | -38.56 | -6.23 | 0.00 | -276.7 | 0.00 | 276.73 | 2,715.89 | 646.64 | 1,861.82 | 1,682.23 | 5.26 | -0.78 | 0.179 |
| 75.00 | -37.44 | -6.15 | 0.00 | -245.6 | 0.00 | 245.57 | 2,621.41 | 624.15 | 1,734.59 | 1,566.54 | 6.12 | -0.87 | 0.171 |
| 78.10 | -36.75 | -6.07 | 0.00 | -226.5 | 0.00 | 226.50 | 2,562.84 | 610.20 | 1,657.97 | 1,496.88 | 6.7 | -0.92 | 0.166 |
| 79.00 | -36.12 | -5.98 | 0.00 | -221.0 | 0.00 | 221.04 | 2,545.83 | 606.15 | 1,636.05 | 1,476.96 | 6.88 | -0.93 | 0.164 |
| 80.00 | -35.91 | -5.97 | 0.00 | -215.0 | 0.00 | 215.05 | 2,526.94 | 601.65 | 1,611.87 | 1,454.97 | 7.08 | -0.95 | 0.162 |
| 80.92 | -35.71 | -5.92 | 0.00 | -209.5 | 0.00 | 209.54 | 2,509.47 | 597.49 | 1,589.67 | 1,434.80 | 7.26 | -0.97 | 0.160 |
| 85.00 | -34.47 | -5.87 | 0.00 | -185.4 | 0.00 | 185.40 | 2,432.46 | 579.16 | 1,493.64 | 1,347.52 | 8.12 | -1.03 | 0.152 |
| 85.08 | -34.44 | -5.83 | 0.00 | -185.0 | 0.00 | 184.96 | 1,511.75 | 394.71 | 1,040.29 | 860.19 | 8.13 | -1.04 | 0.238 |
| 90.00 | -33.63 | -5.74 | 0.00 | -156.3 | 0.00 | 156.26 | 1,478.99 | 379.94 | 963.92 | 809.78 | 9.24 | -1.11 | 0.216 |
| 95.00 | -32.84 | -5.66 | 0.00 | -127.6 | 0.00 | 127.55 | 1,443.84 | 364.94 | 889.35 | 759.04 | 10.46 | -1.21 | 0.191 |
| 100.00 | -25.72 | -4.44 | 0.00 | -99.3 | 0.00 | 99.26 | 1,406.77 | 349.94 | 817.78 | 708.87 | 11.78 | -1.3 | 0.158 |
| 105.00 | -25.03 | -4.35 | 0.00 | -77.0 | 0.00 | 77.04 | 1,367.80 | 334.95 | 749.21 | 659.40 | 13.19 | -1.38 | 0.135 |
| 110.00 | -24.38 | -4.28 | 0.00 | -55.3 | 0.00 | 55.32 | 1,326.92 | 319.95 | 683.65 | 610.75 | 14.68 | -1.45 | 0.109 |
| 111.00 | -20.37 | -3.65 | 0.00 | -51.0 | 0.00 | 51.04 | 1,318.52 | 316.95 | 670.90 | 601.13 | 14.99 | -1.47 | 0.100 |
| 115.00 | -19.86 | -3.55 | 0.00 | -36.5 | 0.00 | 36.46 | 1,280.81 | 304.95 | 621.09 | 561.60 | 16.23 | -1.51 | 0.081 |
| 120.00 | -9.73 | -1.70 | 0.00 | -18.7 | 0.00 | 18.71 | 1,217.82 | 289.96 | 561.53 | 507.42 | 17.84 | -1.55 | 0.045 |
| 125.00 | -9.20 | -1.63 | 0.00 | -10.2 | 0.00 | 10.20 | 1,154.84 | 274.96 | 504.97 | 455.99 | 19.47 | -1.57 | 0.030 |
| 126.00 | -9.09 | -1.61 | 0.00 | -8.6 | 0.00 | 8.58 | 1,142.24 | 271.96 | 494.02 | 446.03 | 19.8 | -1.57 | 0.027 |
| 126.00 | -9.09 | -1.61 | 0.00 | -8.6 | 0.00 | 8.58 | 385.02 | 115.51 | 105.36 | 106.00 | 19.8 | -1.57 | 0.105 |
| 127.50 | -8.80 | -1.56 | 0.00 | -6.2 | 0.00 | 6.17 | 385.02 | 115.51 | 105.36 | 106.00 | 20.29 | -1.58 | 0.081 |
| 128.00 | -8.76 | -1.55 | 0.00 | -5.4 | 0.00 | 5.39 | 396.02 | 118.81 | 108.37 | 109.03 | 20.46 | -1.58 | 0.072 |
| 128.00 | -8.76 | -1.55 | 0.00 | -5.4 | 0.00 | 5.39 | 385.02 | 115.51 | 105.36 | 106.00 | 20.46 | -1.58 | 0.074 |
| 128.50 | -8.60 | -1.53 | 0.00 | -4.6 | 0.00 | 4.61 | 396.02 | 118.81 | 108.37 | 109.03 | 20.62 | -1.59 | 0.064 |
| 129.00 | -8.18 | -1.45 | 0.00 | -3.8 | 0.00 | 3.85 | 396.02 | 118.81 | 108.37 | 109.03 | 20.79 | -1.59 | 0.056 |
| 130.00 | -8.10 | -1.44 | 0.00 | -2.4 | 0.00 | 2.40 | 396.02 | 118.81 | 108.37 | 109.03 | 21.12 | -1.6 | 0.043 |
| 131.00 | -1.18 | -0.21 | 0.00 | -1.0 | 0.00 | 0.96 | 396.02 | 118.81 | 108.37 | 109.03 | 21.46 | -1.6 | 0.012 |
| 133.00 | -0.60 | -0.10 | 0.00 | -0.5 | 0.00 | 0.54 | 396.02 | 118.81 | 108.37 | 109.03 | 22.13 | -1.6 | 0.007 |
| 135.00 | -0.47 | -0.06 | 0.00 | -0.3 | 0.00 | 0.34 | 396.02 | 118.81 | 108.37 | 109.03 | 22.8 | -1.6 | 0.004 |
| 140.00 | -0.13 | -0.01 | 0.00 | -0.0 | 0.00 | 0.03 | 396.02 | 118.81 | 108.37 | 109.03 | 24.48 | -1.6 | 0.001 |
| 142.00 | 0.00 | -0.01 | 0.00 | 0.0 | 0.00 | 0.00 | 396.02 | 118.81 | 108.37 | 109.03 | 25.15 | -1.6 | 0.000 |

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 25 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

**CALCULATED FORCES**

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (ft-kips) | Phi Mn (ft-kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -45.50 | -8.63 | 0.00 | -751.2 | 0.00 | 751.17 | 4,383.15 | 1,101.74 | 4,631.83 | 3,974.58 | 0 | 0 | 0.141 |
| 5.00 | -43.86 | -8.46 | 0.00 | -708.0 | 0.00 | 708.03 | 4,317.85 | 1,075.50 | 4,413.87 | 3,821.19 | 0.02 | -0.05 | 0.137 |
| 10.00 | -42.24 | -8.30 | 0.00 | -665.7 | 0.00 | 665.71 | 4,250.64 | 1,049.26 | 4,201.16 | 3,669.01 | 0.1 | -0.09 | 0.133 |
| 15.00 | -40.66 | -8.13 | 0.00 | -624.2 | 0.00 | 624.21 | 4,181.52 | 1,023.01 | 3,993.70 | 3,518.15 | 0.22 | -0.14 | 0.129 |
| 20.00 | -39.09 | -7.95 | 0.00 | -583.6 | 0.00 | 583.58 | 4,110.49 | 996.77 | 3,791.49 | 3,368.74 | 0.39 | -0.18 | 0.125 |
| 25.00 | -37.56 | -7.76 | 0.00 | -543.8 | 0.00 | 543.84 | 4,037.56 | 970.52 | 3,594.54 | 3,220.91 | 0.61 | -0.23 | 0.120 |
| 30.00 | -36.05 | -7.59 | 0.00 | -505.0 | 0.00 | 505.05 | 3,962.71 | 944.28 | 3,402.84 | 3,074.78 | 0.88 | -0.28 | 0.116 |
| 35.00 | -34.56 | -7.40 | 0.00 | -467.1 | 0.00 | 467.12 | 3,855.75 | 918.04 | 3,216.39 | 2,907.69 | 1.19 | -0.32 | 0.112 |
| 40.00 | -33.11 | -7.28 | 0.00 | -430.1 | 0.00 | 430.11 | 3,745.52 | 891.79 | 3,035.19 | 2,742.88 | 1.55 | -0.37 | 0.108 |
| 40.42 | -32.98 | -7.20 | 0.00 | -427.0 | 0.00 | 427.04 | 3,736.22 | 889.58 | 3,020.15 | 2,729.20 | 1.59 | -0.37 | 0.107 |
| 45.00 | -30.99 | -7.08 | 0.00 | -394.1 | 0.00 | 394.07 | 3,635.30 | 865.55 | 2,859.25 | 2,582.88 | 1.96 | -0.41 | 0.102 |
| 45.58 | -30.74 | -7.00 | 0.00 | -390.0 | 0.00 | 389.98 | 3,085.21 | 756.51 | 2,547.97 | 2,239.64 | 2.01 | -0.42 | 0.113 |
| 50.00 | -29.59 | -6.85 | 0.00 | -359.0 | 0.00 | 359.03 | 3,031.72 | 736.62 | 2,415.77 | 2,142.33 | 2.42 | -0.46 | 0.107 |
| 53.00 | -25.69 | -6.09 | 0.00 | -338.5 | 0.00 | 338.50 | 2,994.57 | 723.12 | 2,328.08 | 2,076.90 | 2.72 | -0.48 | 0.102 |
| 55.00 | -25.18 | -6.03 | 0.00 | -326.3 | 0.00 | 326.31 | 2,969.43 | 714.13 | 2,270.53 | 2,033.56 | 2.92 | -0.5 | 0.100 |
| 55.68 | -25.01 | -5.95 | 0.00 | -322.2 | 0.00 | 322.21 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 3 | -0.51 | 0.099 |
| 55.68 | -25.01 | -5.95 | 0.00 | -322.2 | 0.00 | 322.21 | 2,960.81 | 711.07 | 2,251.12 | 2,018.87 | 3 | -0.51 | 0.168 |
| 60.00 | -24.22 | -5.81 | 0.00 | -296.5 | 0.00 | 296.50 | 2,904.85 | 691.63 | 2,129.79 | 1,925.98 | 3.47 | -0.55 | 0.162 |
| 63.00 | -23.65 | -5.71 | 0.00 | -279.1 | 0.00 | 279.09 | 2,848.16 | 678.13 | 2,047.51 | 1,851.12 | 3.83 | -0.59 | 0.159 |
| 65.00 | -23.33 | -5.64 | 0.00 | -267.7 | 0.00 | 267.68 | 2,810.37 | 669.14 | 1,993.56 | 1,802.04 | 4.09 | -0.62 | 0.157 |
| 69.70 | -22.60 | -5.58 | 0.00 | -241.2 | 0.00 | 241.19 | 2,721.56 | 647.99 | 1,869.60 | 1,689.30 | 4.74 | -0.69 | 0.151 |
| 70.00 | -22.55 | -5.52 | 0.00 | -239.5 | 0.00 | 239.51 | 2,715.89 | 646.64 | 1,861.82 | 1,682.23 | 4.78 | -0.7 | 0.151 |
| 75.00 | -21.80 | -5.44 | 0.00 | -211.9 | 0.00 | 211.89 | 2,621.41 | 624.15 | 1,734.59 | 1,566.54 | 5.55 | -0.77 | 0.144 |
| 78.10 | -21.34 | -5.37 | 0.00 | -195.0 | 0.00 | 195.04 | 2,562.84 | 610.20 | 1,657.97 | 1,496.88 | 6.07 | -0.82 | 0.139 |
| 79.00 | -20.91 | -5.28 | 0.00 | -190.2 | 0.00 | 190.21 | 2,545.83 | 606.15 | 1,636.05 | 1,476.96 | 6.23 | -0.83 | 0.137 |
| 80.00 | -20.76 | -5.26 | 0.00 | -184.9 | 0.00 | 184.93 | 2,526.94 | 601.65 | 1,611.87 | 1,454.97 | 6.4 | -0.85 | 0.135 |
| 80.92 | -20.63 | -5.21 | 0.00 | -180.1 | 0.00 | 180.07 | 2,509.47 | 597.49 | 1,589.67 | 1,434.80 | 6.57 | -0.86 | 0.134 |
| 85.00 | -19.73 | -5.15 | 0.00 | -158.8 | 0.00 | 158.85 | 2,432.46 | 579.16 | 1,493.64 | 1,347.52 | 7.33 | -0.92 | 0.126 |
| 85.08 | -19.72 | -5.10 | 0.00 | -158.5 | 0.00 | 158.47 | 1,511.75 | 394.71 | 1,040.29 | 860.19 | 7.34 | -0.92 | 0.197 |
| 90.00 | -19.21 | -5.00 | 0.00 | -133.3 | 0.00 | 133.34 | 1,478.99 | 379.94 | 963.92 | 809.78 | 8.32 | -0.98 | 0.178 |
| 95.00 | -18.71 | -4.91 | 0.00 | -108.3 | 0.00 | 108.32 | 1,443.84 | 364.94 | 889.35 | 759.04 | 9.4 | -1.07 | 0.156 |
| 100.00 | -14.61 | -3.75 | 0.00 | -83.8 | 0.00 | 83.80 | 1,406.77 | 349.94 | 817.78 | 708.87 | 10.56 | -1.15 | 0.129 |
| 105.00 | -14.19 | -3.65 | 0.00 | -65.0 | 0.00 | 65.05 | 1,367.80 | 334.95 | 749.21 | 659.40 | 11.8 | -1.21 | 0.109 |
| 110.00 | -13.79 | -3.59 | 0.00 | -46.8 | 0.00 | 46.80 | 1,326.92 | 319.95 | 683.65 | 610.75 | 13.1 | -1.27 | 0.087 |
| 111.00 | -11.23 | -3.01 | 0.00 | -43.2 | 0.00 | 43.22 | 1,318.52 | 316.95 | 670.90 | 601.13 | 13.37 | -1.28 | 0.080 |
| 115.00 | -10.92 | -2.92 | 0.00 | -31.2 | 0.00 | 31.18 | 1,280.81 | 304.95 | 621.09 | 561.60 | 14.46 | -1.32 | 0.064 |
| 120.00 | -5.53 | -1.53 | 0.00 | -16.6 | 0.00 | 16.59 | 1,217.82 | 289.96 | 561.53 | 507.42 | 15.86 | -1.35 | 0.037 |
| 125.00 | -5.21 | -1.46 | 0.00 | -9.0 | 0.00 | 8.96 | 1,154.84 | 274.96 | 504.97 | 455.99 | 17.29 | -1.37 | 0.024 |
| 126.00 | -5.15 | -1.45 | 0.00 | -7.5 | 0.00 | 7.50 | 1,142.24 | 271.96 | 494.02 | 446.03 | 17.58 | -1.38 | 0.021 |
| 126.00 | -5.15 | -1.45 | 0.00 | -7.5 | 0.00 | 7.50 | 385.02 | 115.51 | 105.36 | 106.00 | 17.58 | -1.38 | 0.084 |
| 127.50 | -4.99 | -1.41 | 0.00 | -5.3 | 0.00 | 5.33 | 385.02 | 115.51 | 105.36 | 106.00 | 18.01 | -1.38 | 0.063 |
| 128.00 | -4.97 | -1.40 | 0.00 | -4.6 | 0.00 | 4.63 | 396.02 | 118.81 | 108.37 | 109.03 | 18.16 | -1.38 | 0.055 |
| 128.00 | -4.97 | -1.40 | 0.00 | -4.6 | 0.00 | 4.63 | 385.02 | 115.51 | 105.36 | 106.00 | 18.16 | -1.38 | 0.057 |
| 128.50 | -4.86 | -1.39 | 0.00 | -3.9 | 0.00 | 3.92 | 396.02 | 118.81 | 108.37 | 109.03 | 18.3 | -1.39 | 0.048 |
| 129.00 | -4.64 | -1.32 | 0.00 | -3.2 | 0.00 | 3.23 | 396.02 | 118.81 | 108.37 | 109.03 | 18.45 | -1.39 | 0.041 |
| 130.00 | -4.59 | -1.31 | 0.00 | -1.9 | 0.00 | 1.91 | 396.02 | 118.81 | 108.37 | 109.03 | 18.74 | -1.39 | 0.029 |
| 131.00 | -0.70 | -0.15 | 0.00 | -0.6 | 0.00 | 0.61 | 396.02 | 118.81 | 108.37 | 109.03 | 19.03 | -1.4 | 0.007 |
| 133.00 | -0.37 | -0.06 | 0.00 | -0.3 | 0.00 | 0.31 | 396.02 | 118.81 | 108.37 | 109.03 | 19.62 | -1.4 | 0.004 |
| 135.00 | -0.29 | -0.04 | 0.00 | -0.2 | 0.00 | 0.19 | 396.02 | 118.81 | 108.37 | 109.03 | 20.2 | -1.4 | 0.002 |
| 140.00 | -0.08 | -0.01 | 0.00 | -0.0 | 0.00 | 0.02 | 396.02 | 118.81 | 108.37 | 109.03 | 21.67 | -1.4 | 0.000 |
| 142.00 | 0.00 | -0.01 | 0.00 | 0.0 | 0.00 | 0.00 | 396.02 | 118.81 | 108.37 | 109.03 | 22.26 | -1.4 | 0.000 |

## EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

| | |
|---|---|
| Spectral Response Acceleration for Short Period ($S_S$): | 0.226 |
| Spectral Response Acceleration at 1.0 Second Period ($S_1$): | 0.055 |
| Long-Period Transition Period ($T_L$ – Seconds): | 6 |
| Importance Factor ($I_e$): | 1.000 |
| Site Coefficient $F_a$: | 1.600 |
| Site Coefficient $F_v$: | 2.400 |
| Response Modification Coefficient (R): | 1.500 |
| Design Spectral Response Acceleration at Short Period ($S_{ds}$): | 0.241 |
| Design Spectral Response Acceleration at 1.0 Second Period ($S_{d1}$): | 0.088 |
| Seismic Response Coefficient ($C_s$): | 0.030 |
| Upper Limit $C_S$: | 0.030 |
| Lower Limit $C_S$: | 0.030 |
| Period based on Rayleigh Method (sec): | 2.390 |
| Redundancy Factor (p): | 1.000 |
| Seismic Force Distribution Exponent (k): | 1.940 |
| Total Unfactored Dead Load: | 45.500 k |
| Seismic Base Shear (E): | 1.360 k |

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

| Segment | Height Above Base (ft) | Weight (lb) | $W_z$ (lb-ft) | $C_{vx}$ | Horizontal Force (lb) | Vertical Force (lb) |
|---|---|---|---|---|---|---|
| 47 | 141 | 83 | 1,252 | 0.005 | 7 | 104 |
| 46 | 137.5 | 208 | 2,981 | 0.012 | 17 | 260 |
| 45 | 134 | 83 | 1,134 | 0.005 | 6 | 104 |
| 44 | 132 | 83 | 1,101 | 0.004 | 6 | 104 |
| 43 | 130.5 | 50 | 654 | 0.003 | 4 | 63 |
| 42 | 129.5 | 50 | 644 | 0.003 | 4 | 63 |
| 41 | 128.75 | 25 | 318 | 0.001 | 2 | 31 |
| 40 | 128.25 | 25 | 316 | 0.001 | 2 | 32 |
| 39 | 127.75 | 25 | 313 | 0.001 | 2 | 31 |
| 38 | 126.75 | 76 | 926 | 0.004 | 5 | 95 |
| 37 | 125.5 | 62 | 743 | 0.003 | 4 | 77 |
| 36 | 122.5 | 318 | 3,644 | 0.015 | 20 | 397 |
| 35 | 117.5 | 371 | 3,915 | 0.016 | 22 | 463 |
| 34 | 113 | 307 | 3,006 | 0.012 | 17 | 383 |
| 33 | 110.5 | 78 | 733 | 0.003 | 4 | 98 |
| 32 | 107.5 | 400 | 3,552 | 0.014 | 20 | 499 |
| 31 | 102.5 | 416 | 3,371 | 0.014 | 19 | 520 |
| 30 | 97.5 | 481 | 3,531 | 0.014 | 20 | 600 |
| 29 | 92.5 | 495 | 3,284 | 0.013 | 18 | 618 |
| 28 | 87.5377 | 502 | 2,990 | 0.012 | 17 | 626 |
| 27 | 85.0377 | 16 | 92 | 0.000 | 1 | 20 |
| 26 | 82.9622 | 891 | 4,783 | 0.019 | 27 | 1,112 |
| 25 | 80.4622 | 132 | 669 | 0.003 | 4 | 165 |
| 24 | 79.5 | 144 | 711 | 0.003 | 4 | 180 |
| 23 | 78.55 | 130 | 629 | 0.003 | 3 | 163 |
| 22 | 76.55 | 455 | 2,088 | 0.008 | 12 | 568 |
| 21 | 72.5 | 751 | 3,103 | 0.013 | 17 | 938 |
| 20 | 69.85 | 46 | 176 | 0.001 | 1 | 57 |
| 19 | 67.35 | 728 | 2,605 | 0.011 | 14 | 909 |
| 18 | 64 | 316 | 1,023 | 0.004 | 6 | 394 |
| 17 | 61.5 | 536 | 1,608 | 0.006 | 9 | 669 |
| 16 | 57.84 | 786 | 2,092 | 0.008 | 12 | 981 |
| 15 | 55.34 | 171 | 417 | 0.002 | 2 | 213 |
| 14 | 54 | 504 | 1,174 | 0.005 | 7 | 629 |

| Segment | Height Above Base (ft) | Weight (lb) | $W_z$ (lb-ft) | $C_{vx}$ | Horizontal Force (lb) | Vertical Force (lb) |
|---|---|---|---|---|---|---|
| 13 | 51.5 | 771 | 1,638 | 0.007 | 9 | 962 |
| 12 | 47.7891 | 1,150 | 2,114 | 0.009 | 12 | 1,436 |
| 11 | 45.2891 | 249 | 411 | 0.002 | 2 | 310 |
| 10 | 42.7109 | 1,990 | 2,940 | 0.012 | 16 | 2,484 |
| 9 | 40.2109 | 122 | 160 | 0.001 | 1 | 152 |
| 8 | 37.5 | 1,454 | 1,668 | 0.007 | 9 | 1,815 |
| 7 | 32.5 | 1,480 | 1,285 | 0.005 | 7 | 1,847 |
| 6 | 27.5 | 1,505 | 945 | 0.004 | 5 | 1,879 |
| 5 | 22.5 | 1,531 | 650 | 0.003 | 4 | 1,911 |
| 4 | 17.5 | 1,556 | 406 | 0.002 | 2 | 1,942 |
| 3 | 12.5 | 1,582 | 214 | 0.001 | 1 | 1,974 |
| 2 | 7.5 | 1,607 | 81 | 0.000 | 0 | 2,006 |
| 1 | 2.5 | 1,632 | 10 | 0.000 | 0 | 2,038 |
| Ericsson Air 6449 B77D | 133 | 245 | 3,289 | 0.013 | 18 | 306 |
| Raycap DC6-48-60-18-8F ("Squid") | 131 | 64 | 830 | 0.003 | 5 | 79 |
| Ericsson RRUS 8843 B2, B66A | 131 | 216 | 2,818 | 0.011 | 16 | 270 |
| Ericsson RRUS 4478 B14 | 131 | 180 | 2,344 | 0.010 | 13 | 224 |
| Ericsson RRUS 4449 B5, B12 | 131 | 213 | 2,779 | 0.011 | 15 | 266 |
| Raycap DC6-48-60-0-8C | 131 | 16 | 209 | 0.001 | 1 | 20 |
| Ericsson RRUS 32 B30 | 131 | 180 | 2,348 | 0.010 | 13 | 225 |
| CCI DMP65R-BU6E | 131 | 311 | 4,062 | 0.016 | 23 | 389 |
| CCI OPA65R-BU6D | 131 | 190 | 2,473 | 0.010 | 14 | 237 |
| Generic Flat Platform with Handrails | 131 | 2,500 | 32,612 | 0.132 | 181 | 3,121 |
| Generic Flat Platform with Handrails | 111 | 2,500 | 23,634 | 0.096 | 131 | 3,121 |
| Generic Flat Platform with Handrails | 100 | 2,500 | 19,295 | 0.078 | 107 | 3,121 |
| Generic Flat Platform with Handrails | 53 | 2,500 | 5,617 | 0.023 | 31 | 3,121 |
| Ericsson AIR 6419 B77G | 129 | 198 | 2,511 | 0.010 | 14 | 248 |
| Kaelus DBC0061F1V51-2 | 128.5 | 76 | 961 | 0.004 | 5 | 95 |
| Powerwave Allgon LGP21401 | 127.5 | 85 | 1,047 | 0.004 | 6 | 106 |
| Ericsson 4460 BAND 2/25 | 120 | 327 | 3,597 | 0.015 | 20 | 408 |
| Ericsson 4480 BAND 71 | 120 | 243 | 2,673 | 0.011 | 15 | 303 |
| Commscope VV-65A-R1 | 120 | 71 | 785 | 0.003 | 4 | 89 |
| Ericsson AIR 6419 B41 | 120 | 250 | 2,749 | 0.011 | 15 | 312 |
| RFS APXVAALL24 43-U-NA20 | 120 | 368 | 4,053 | 0.016 | 22 | 460 |
| Generic Square Platform with Handrails | 120 | 3,790 | 41,691 | 0.169 | 231 | 4,731 |
| Generic GPS | 100 | 10 | 77 | 0.000 | 0 | 12 |
| Samsung B5/B13 RRH-BR04C | 100 | 211 | 1,628 | 0.007 | 9 | 263 |
| Samsung B2/B66A RRH-BR049 | 100 | 253 | 1,954 | 0.008 | 11 | 316 |
| Rymsa MGD3-800TX | 100 | 46 | 357 | 0.001 | 2 | 58 |
| Commscope RC2DC-3315-PF-48 | 100 | 32 | 247 | 0.001 | 1 | 40 |
| Antel BXA-70080/6CF__ | 100 | 54 | 417 | 0.002 | 2 | 67 |
| Quintel QS6656-5D | 100 | 528 | 4,075 | 0.016 | 23 | 659 |
| Round Side Arm | 79 | 300 | 1,464 | 0.006 | 8 | 374 |
| Diamond X50A | 78.1 | 5 | 22 | 0.000 | 0 | 6 |
| PCTEL GPS-TMG-HR-26N | 69.7 | 1 | 2 | 0.000 | 0 | 1 |
| Stand-Off | 63 | 30 | 94 | 0.000 | 1 | 37 |
| Raycap RDIDC-9181-PF-48 | 53 | 22 | 49 | 0.000 | 0 | 27 |
| Fujitsu TA08025-B604 | 53 | 192 | 431 | 0.002 | 2 | 239 |
| Fujitsu TA08025-B605 | 53 | 225 | 506 | 0.002 | 3 | 281 |
| JMA Wireless MX08FRO665-21 | 53 | 194 | 435 | 0.002 | 2 | 242 |
| | | 45,499 | 246,232 | 1.000 | 1,365 | 56,792 |

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

| Segment | Height Above Base (ft) | Weight (lb) | $W_z$ (lb-ft) | $C_{vx}$ | Horizontal Force (lb) | Vertical Force (lb) |
|---|---|---|---|---|---|---|
| 47 | 141 | 83 | 1,252 | 0.005 | 7 | 71 |
| 46 | 137.5 | 208 | 2,981 | 0.012 | 17 | 177 |
| 45 | 134 | 83 | 1,134 | 0.005 | 6 | 71 |
| 44 | 132 | 83 | 1,101 | 0.004 | 6 | 71 |
| 43 | 130.5 | 50 | 654 | 0.003 | 4 | 43 |
| 42 | 129.5 | 50 | 644 | 0.003 | 4 | 43 |
| 41 | 128.75 | 25 | 318 | 0.001 | 2 | 21 |

| Segment | Height Above Base (ft) | Weight (lb) | $W_z$ (lb-ft) | $C_{vx}$ | Horizontal Force (lb) | Vertical Force (lb) |
|---|---|---|---|---|---|---|
| 40 | 128.25 | 25 | 316 | 0.001 | 2 | 21 |
| 39 | 127.75 | 25 | 313 | 0.001 | 2 | 21 |
| 38 | 126.75 | 76 | 926 | 0.004 | 5 | 64 |
| 37 | 125.5 | 62 | 743 | 0.003 | 4 | 53 |
| 36 | 122.5 | 318 | 3,644 | 0.015 | 20 | 271 |
| 35 | 117.5 | 371 | 3,915 | 0.016 | 22 | 316 |
| 34 | 113 | 307 | 3,006 | 0.012 | 17 | 262 |
| 33 | 110.5 | 78 | 733 | 0.003 | 4 | 67 |
| 32 | 107.5 | 400 | 3,552 | 0.014 | 20 | 341 |
| 31 | 102.5 | 416 | 3,371 | 0.014 | 19 | 355 |
| 30 | 97.5 | 481 | 3,531 | 0.014 | 20 | 409 |
| 29 | 92.5 | 495 | 3,284 | 0.013 | 18 | 422 |
| 28 | 87.5377 | 502 | 2,990 | 0.012 | 17 | 427 |
| 27 | 85.0377 | 16 | 92 | 0.000 | 1 | 14 |
| 26 | 82.9622 | 891 | 4,783 | 0.019 | 27 | 759 |
| 25 | 80.4622 | 132 | 669 | 0.003 | 4 | 113 |
| 24 | 79.5 | 144 | 711 | 0.003 | 4 | 123 |
| 23 | 78.55 | 130 | 629 | 0.003 | 3 | 111 |
| 22 | 76.55 | 455 | 2,088 | 0.008 | 12 | 387 |
| 21 | 72.5 | 751 | 3,103 | 0.013 | 17 | 640 |
| 20 | 69.85 | 46 | 176 | 0.001 | 1 | 39 |
| 19 | 67.35 | 728 | 2,605 | 0.011 | 14 | 620 |
| 18 | 64 | 316 | 1,023 | 0.004 | 6 | 269 |
| 17 | 61.5 | 536 | 1,608 | 0.006 | 9 | 457 |
| 16 | 57.84 | 786 | 2,092 | 0.008 | 12 | 669 |
| 15 | 55.34 | 171 | 417 | 0.002 | 2 | 145 |
| 14 | 54 | 504 | 1,174 | 0.005 | 7 | 429 |
| 13 | 51.5 | 771 | 1,638 | 0.007 | 9 | 657 |
| 12 | 47.7891 | 1,150 | 2,114 | 0.009 | 12 | 980 |
| 11 | 45.2891 | 249 | 411 | 0.002 | 2 | 212 |
| 10 | 42.7109 | 1,990 | 2,940 | 0.012 | 16 | 1,695 |
| 9 | 40.2109 | 122 | 160 | 0.001 | 1 | 104 |
| 8 | 37.5 | 1,454 | 1,668 | 0.007 | 9 | 1,239 |
| 7 | 32.5 | 1,480 | 1,285 | 0.005 | 7 | 1,260 |
| 6 | 27.5 | 1,505 | 945 | 0.004 | 5 | 1,282 |
| 5 | 22.5 | 1,531 | 650 | 0.003 | 4 | 1,304 |
| 4 | 17.5 | 1,556 | 406 | 0.002 | 2 | 1,325 |
| 3 | 12.5 | 1,582 | 214 | 0.001 | 1 | 1,347 |
| 2 | 7.5 | 1,607 | 81 | 0.000 | 0 | 1,369 |
| 1 | 2.5 | 1,632 | 10 | 0.000 | 0 | 1,391 |
| Ericsson Air 6449 B77D | 133 | 245 | 3,289 | 0.013 | 18 | 209 |
| Raycap DC6-48-60-18-8F ("Squid") | 131 | 64 | 830 | 0.003 | 5 | 54 |
| Ericsson RRUS 8843 B2, B66A | 131 | 216 | 2,818 | 0.011 | 16 | 184 |
| Ericsson RRUS 4478 B14 | 131 | 180 | 2,344 | 0.010 | 13 | 153 |
| Ericsson RRUS 4449 B5, B12 | 131 | 213 | 2,779 | 0.011 | 15 | 181 |
| Raycap DC6-48-60-0-8C | 131 | 16 | 209 | 0.001 | 1 | 14 |
| Ericsson RRUS 32 B30 | 131 | 180 | 2,348 | 0.010 | 13 | 153 |
| CCI DMP65R-BU6E | 131 | 311 | 4,062 | 0.016 | 23 | 265 |
| CCI OPA65R-BU6D | 131 | 190 | 2,473 | 0.010 | 14 | 161 |
| Generic Flat Platform with Handrails | 131 | 2,500 | 32,612 | 0.132 | 181 | 2,129 |
| Generic Flat Platform with Handrails | 111 | 2,500 | 23,634 | 0.096 | 131 | 2,129 |
| Generic Flat Platform with Handrails | 100 | 2,500 | 19,295 | 0.078 | 107 | 2,129 |
| Generic Flat Platform with Handrails | 53 | 2,500 | 5,617 | 0.023 | 31 | 2,129 |
| Ericsson AIR 6419 B77G | 129 | 198 | 2,511 | 0.010 | 14 | 169 |
| Kaelus DBC0061F1V51-2 | 128.5 | 76 | 961 | 0.004 | 5 | 65 |
| Powerwave Allgon LGP21401 | 127.5 | 85 | 1,047 | 0.004 | 6 | 72 |
| Ericsson 4460 BAND 2/25 | 120 | 327 | 3,597 | 0.015 | 20 | 279 |
| Ericsson 4480 BAND 71 | 120 | 243 | 2,673 | 0.011 | 15 | 207 |
| Commscope VV-65A-R1 | 120 | 71 | 785 | 0.003 | 4 | 61 |
| Ericsson AIR 6419 B41 | 120 | 250 | 2,749 | 0.011 | 15 | 213 |
| RFS APXVAALL24 43-U-NA20 | 120 | 368 | 4,053 | 0.016 | 22 | 314 |
| Generic Square Platform with Handrails | 120 | 3,790 | 41,691 | 0.169 | 231 | 3,228 |
| Generic GPS | 100 | 10 | 77 | 0.000 | 0 | 9 |
| Samsung B5/B13 RRH-BR04C | 100 | 211 | 1,628 | 0.007 | 9 | 180 |
| Samsung B2/B66A RRH-BR049 | 100 | 253 | 1,954 | 0.008 | 11 | 216 |
| Rymsa MGD3-800TX | 100 | 46 | 357 | 0.001 | 2 | 39 |
| Commscope RC2DC-3315-PF-48 | 100 | 32 | 247 | 0.001 | 1 | 27 |
| Antel BXA-70080/6CF__ | 100 | 54 | 417 | 0.002 | 2 | 46 |
| Quintel QS6656-5D | 100 | 528 | 4,075 | 0.016 | 23 | 450 |
| Round Side Arm | 79 | 300 | 1,464 | 0.006 | 8 | 256 |

| Segment | Height Above Base (ft) | Weight (lb) | $W_z$ (lb-ft) | $C_{vx}$ | Horizontal Force (lb) | Vertical Force (lb) |
|---|---|---|---|---|---|---|
| Diamond X50A | 78.1 | 5 | 22 | 0.000 | 0 | 4 |
| PCTEL GPS-TMG-HR-26N | 69.7 | 1 | 2 | 0.000 | 0 | 1 |
| Stand-Off | 63 | 30 | 94 | 0.000 | 1 | 26 |
| Raycap RDIDC-9181-PF-48 | 53 | 22 | 49 | 0.000 | 0 | 19 |
| Fujitsu TA08025-B604 | 53 | 192 | 431 | 0.002 | 2 | 163 |
| Fujitsu TA08025-B605 | 53 | 225 | 506 | 0.002 | 3 | 192 |
| JMA Wireless MX08FRO665-21 | 53 | 194 | 435 | 0.002 | 2 | 165 |
| | | 45,499 | 246,232 | 1.000 | 1,365 | 38,755 |

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

## CALCULATED FORCES

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (fr-kips) | Mu Mx (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (kips) | Phi Mn (kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -54.75 | -1.37 | 0.00 | -154.42 | 0.00 | 154.42 | 4,383.15 | 1,101.74 | 4,632 | 3,974.58 | 0.00 | 0.00 | 0.04 |
| 5.00 | -52.75 | -1.38 | 0.00 | -147.57 | 0.00 | 147.57 | 4,317.85 | 1,075.50 | 4,414 | 3,821.19 | 0.01 | -0.01 | 0.04 |
| 10.00 | -50.77 | -1.38 | 0.00 | -140.69 | 0.00 | 140.69 | 4,250.64 | 1,049.26 | 4,201 | 3,669.01 | 0.02 | -0.02 | 0.04 |
| 15.00 | -48.83 | -1.39 | 0.00 | -133.77 | 0.00 | 133.77 | 4,181.52 | 1,023.01 | 3,994 | 3,518.15 | 0.05 | -0.03 | 0.04 |
| 20.00 | -46.92 | -1.39 | 0.00 | -126.83 | 0.00 | 126.83 | 4,110.49 | 996.77 | 3,791 | 3,368.74 | 0.08 | -0.04 | 0.03 |
| 25.00 | -45.04 | -1.39 | 0.00 | -119.87 | 0.00 | 119.87 | 4,037.56 | 970.52 | 3,595 | 3,220.91 | 0.13 | -0.05 | 0.03 |
| 30.00 | -43.19 | -1.39 | 0.00 | -112.90 | 0.00 | 112.90 | 3,962.71 | 944.28 | 3,403 | 3,074.78 | 0.18 | -0.06 | 0.03 |
| 35.00 | -41.38 | -1.39 | 0.00 | -105.93 | 0.00 | 105.93 | 3,855.75 | 918.04 | 3,216 | 2,907.69 | 0.25 | -0.07 | 0.03 |
| 40.00 | -41.23 | -1.39 | 0.00 | -98.99 | 0.00 | 98.99 | 3,745.52 | 891.79 | 3,035 | 2,742.88 | 0.33 | -0.08 | 0.03 |
| 40.42 | -38.74 | -1.38 | 0.00 | -98.40 | 0.00 | 98.40 | 3,736.22 | 889.58 | 3,020 | 2,729.20 | 0.34 | -0.08 | 0.03 |
| 45.00 | -38.43 | -1.38 | 0.00 | -92.11 | 0.00 | 92.11 | 3,635.30 | 865.55 | 2,859 | 2,582.88 | 0.42 | -0.09 | 0.03 |
| 45.58 | -37.00 | -1.37 | 0.00 | -91.31 | 0.00 | 91.31 | 3,085.21 | 756.51 | 2,548 | 2,239.64 | 0.43 | -0.09 | 0.03 |
| 50.00 | -36.03 | -1.36 | 0.00 | -85.27 | 0.00 | 85.27 | 3,031.72 | 736.62 | 2,416 | 2,142.33 | 0.52 | -0.10 | 0.03 |
| 53.00 | -31.49 | -1.31 | 0.00 | -81.19 | 0.00 | 81.19 | 2,994.57 | 723.12 | 2,328 | 2,076.90 | 0.59 | -0.11 | 0.03 |
| 55.00 | -31.28 | -1.31 | 0.00 | -78.57 | 0.00 | 78.57 | 2,969.43 | 714.13 | 2,271 | 2,033.56 | 0.63 | -0.11 | 0.03 |
| 55.68 | -30.30 | -1.30 | 0.00 | -77.68 | 0.00 | 77.68 | 2,960.81 | 711.07 | 2,251 | 2,018.87 | 0.65 | -0.11 | 0.03 |
| 55.68 | -30.30 | -1.30 | 0.00 | -77.68 | 0.00 | 77.68 | 2,960.81 | 711.07 | 2,251 | 2,018.87 | 0.65 | -0.11 | 0.05 |
| 60.00 | -29.63 | -1.29 | 0.00 | -72.08 | 0.00 | 72.08 | 2,904.85 | 691.63 | 2,130 | 1,925.98 | 0.76 | -0.12 | 0.05 |
| 63.00 | -29.20 | -1.29 | 0.00 | -68.20 | 0.00 | 68.20 | 2,848.16 | 678.13 | 2,048 | 1,851.12 | 0.84 | -0.13 | 0.05 |
| 65.00 | -28.29 | -1.28 | 0.00 | -65.62 | 0.00 | 65.62 | 2,810.37 | 669.14 | 1,994 | 1,802.04 | 0.89 | -0.14 | 0.05 |
| 69.70 | -28.23 | -1.28 | 0.00 | -59.61 | 0.00 | 59.61 | 2,721.56 | 647.99 | 1,870 | 1,689.30 | 1.04 | -0.16 | 0.05 |
| 70.00 | -27.30 | -1.27 | 0.00 | -59.22 | 0.00 | 59.22 | 2,715.89 | 646.64 | 1,862 | 1,682.23 | 1.05 | -0.16 | 0.05 |
| 75.00 | -26.73 | -1.26 | 0.00 | -52.88 | 0.00 | 52.88 | 2,621.41 | 624.15 | 1,735 | 1,566.54 | 1.23 | -0.18 | 0.04 |
| 78.10 | -26.56 | -1.26 | 0.00 | -48.97 | 0.00 | 48.97 | 2,562.84 | 610.20 | 1,658 | 1,496.88 | 1.35 | -0.19 | 0.04 |
| 79.00 | -26.00 | -1.25 | 0.00 | -47.84 | 0.00 | 47.84 | 2,545.83 | 606.15 | 1,636 | 1,476.96 | 1.38 | -0.19 | 0.04 |
| 80.00 | -25.84 | -1.25 | 0.00 | -46.59 | 0.00 | 46.59 | 2,526.94 | 601.65 | 1,612 | 1,454.97 | 1.42 | -0.20 | 0.04 |
| 80.92 | -24.73 | -1.22 | 0.00 | -45.44 | 0.00 | 45.44 | 2,509.47 | 597.49 | 1,590 | 1,434.80 | 1.46 | -0.20 | 0.04 |
| 85.00 | -24.71 | -1.22 | 0.00 | -40.47 | 0.00 | 40.47 | 2,432.46 | 579.16 | 1,494 | 1,347.52 | 1.64 | -0.21 | 0.04 |
| 85.08 | -24.08 | -1.21 | 0.00 | -40.38 | 0.00 | 40.38 | 1,511.75 | 394.71 | 1,040 | 860.19 | 1.64 | -0.21 | 0.06 |
| 90.00 | -23.46 | -1.19 | 0.00 | -34.43 | 0.00 | 34.43 | 1,478.99 | 379.94 | 964 | 809.78 | 1.87 | -0.23 | 0.06 |
| 95.00 | -22.86 | -1.18 | 0.00 | -28.46 | 0.00 | 28.46 | 1,443.84 | 364.94 | 889 | 759.04 | 2.13 | -0.25 | 0.05 |
| 100.00 | -17.81 | -0.99 | 0.00 | -22.56 | 0.00 | 22.56 | 1,406.77 | 349.94 | 818 | 708.87 | 2.41 | -0.27 | 0.04 |
| 105.00 | -17.31 | -0.97 | 0.00 | -17.61 | 0.00 | 17.61 | 1,367.80 | 334.95 | 749 | 659.40 | 2.70 | -0.29 | 0.04 |
| 110.00 | -17.21 | -0.97 | 0.00 | -12.75 | 0.00 | 12.75 | 1,326.92 | 319.95 | 684 | 610.75 | 3.02 | -0.31 | 0.03 |
| 111.00 | -13.71 | -0.81 | 0.00 | -11.78 | 0.00 | 11.78 | 1,318.52 | 316.95 | 671 | 601.13 | 3.08 | -0.31 | 0.03 |
| 115.00 | -13.24 | -0.78 | 0.00 | -8.56 | 0.00 | 8.56 | 1,280.81 | 304.95 | 621 | 561.60 | 3.35 | -0.32 | 0.03 |
| 120.00 | -6.54 | -0.42 | 0.00 | -4.64 | 0.00 | 4.64 | 1,217.82 | 289.96 | 562 | 507.42 | 3.69 | -0.33 | 0.02 |
| 125.00 | -6.47 | -0.41 | 0.00 | -2.55 | 0.00 | 2.55 | 1,154.84 | 274.96 | 505 | 455.99 | 4.04 | -0.34 | 0.01 |
| 126.00 | -6.37 | -0.41 | 0.00 | -2.14 | 0.00 | 2.14 | 1,142.24 | 271.96 | 494 | 446.03 | 4.11 | -0.34 | 0.01 |
| 126.00 | -6.37 | -0.41 | 0.00 | -2.14 | 0.00 | 2.14 | 385.02 | 115.51 | 105 | 106.00 | 4.11 | -0.34 | 0.04 |
| 127.50 | -6.24 | -0.40 | 0.00 | -1.53 | 0.00 | 1.53 | 385.02 | 115.51 | 105 | 106.00 | 4.22 | -0.34 | 0.03 |
| 128.00 | -6.20 | -0.40 | 0.00 | -1.33 | 0.00 | 1.33 | 385.02 | 115.51 | 105 | 106.00 | 4.25 | -0.34 | 0.03 |
| 128.00 | -6.20 | -0.40 | 0.00 | -1.33 | 0.00 | 1.33 | 396.02 | 118.81 | 108 | 109.03 | 4.25 | -0.34 | 0.03 |
| 128.50 | -6.08 | -0.39 | 0.00 | -1.13 | 0.00 | 1.13 | 396.02 | 118.81 | 108 | 109.03 | 4.29 | -0.34 | 0.03 |
| 129.00 | -5.77 | -0.37 | 0.00 | -0.93 | 0.00 | 0.93 | 396.02 | 118.81 | 108 | 109.03 | 4.32 | -0.34 | 0.02 |
| 130.00 | -5.70 | -0.37 | 0.00 | -0.56 | 0.00 | 0.56 | 396.02 | 118.81 | 108 | 109.03 | 4.39 | -0.34 | 0.02 |
| 131.00 | -0.77 | -0.05 | 0.00 | -0.19 | 0.00 | 0.19 | 396.02 | 118.81 | 108 | 109.03 | 4.47 | -0.34 | 0.00 |
| 133.00 | -0.36 | -0.03 | 0.00 | -0.09 | 0.00 | 0.09 | 396.02 | 118.81 | 108 | 109.03 | 4.61 | -0.34 | 0.00 |
| 135.00 | -0.10 | -0.01 | 0.00 | -0.04 | 0.00 | 0.04 | 396.02 | 118.81 | 108 | 109.03 | 4.75 | -0.34 | 0.00 |
| 140.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 396.02 | 118.81 | 108 | 109.03 | 5.11 | -0.34 | 0.00 |

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (fr-kips) | Mu Mx (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (kips) | Phi Mn (kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 142.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 396.02 | 118.81 | 108 | 109.03 | 5.26 | -0.34 | 0.00 |

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

## CALCULATED FORCES

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (fr-kips) | Mu Mx (ft-kips) | Resultant Moment (ft-kips) | Phi Pn (kips) | Phi Vn (kips) | Phi Tn (kips) | Phi Mn (kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -37.36 | -1.37 | 0.00 | -151.74 | 0.00 | 151.74 | 4,383.15 | 1,101.74 | 4,632 | 3,974.58 | 0.00 | 0.00 | 0.03 |
| 5.00 | -36.00 | -1.37 | 0.00 | -144.91 | 0.00 | 144.91 | 4,317.85 | 1,075.50 | 4,414 | 3,821.19 | 0.01 | -0.01 | 0.03 |
| 10.00 | -34.65 | -1.38 | 0.00 | -138.05 | 0.00 | 138.05 | 4,250.64 | 1,049.26 | 4,201 | 3,669.01 | 0.02 | -0.02 | 0.03 |
| 15.00 | -33.32 | -1.38 | 0.00 | -131.16 | 0.00 | 131.16 | 4,181.52 | 1,023.01 | 3,994 | 3,518.15 | 0.04 | -0.03 | 0.03 |
| 20.00 | -32.02 | -1.38 | 0.00 | -124.27 | 0.00 | 124.27 | 4,110.49 | 996.77 | 3,791 | 3,368.74 | 0.08 | -0.04 | 0.03 |
| 25.00 | -30.74 | -1.38 | 0.00 | -117.36 | 0.00 | 117.36 | 4,037.56 | 970.52 | 3,595 | 3,220.91 | 0.13 | -0.05 | 0.03 |
| 30.00 | -29.48 | -1.38 | 0.00 | -110.46 | 0.00 | 110.46 | 3,962.71 | 944.28 | 3,403 | 3,074.78 | 0.18 | -0.06 | 0.03 |
| 35.00 | -28.24 | -1.37 | 0.00 | -103.58 | 0.00 | 103.58 | 3,855.75 | 918.04 | 3,216 | 2,907.69 | 0.25 | -0.07 | 0.03 |
| 40.00 | -28.13 | -1.37 | 0.00 | -96.73 | 0.00 | 96.73 | 3,745.52 | 891.79 | 3,035 | 2,742.88 | 0.32 | -0.08 | 0.03 |
| 40.42 | -26.44 | -1.36 | 0.00 | -96.15 | 0.00 | 96.15 | 3,736.22 | 889.58 | 3,020 | 2,729.20 | 0.33 | -0.08 | 0.03 |
| 45.00 | -26.23 | -1.36 | 0.00 | -89.94 | 0.00 | 89.94 | 3,635.30 | 865.55 | 2,859 | 2,582.88 | 0.41 | -0.09 | 0.03 |
| 45.58 | -25.25 | -1.35 | 0.00 | -89.15 | 0.00 | 89.15 | 3,085.21 | 756.51 | 2,548 | 2,239.64 | 0.42 | -0.09 | 0.03 |
| 50.00 | -24.59 | -1.34 | 0.00 | -83.20 | 0.00 | 83.20 | 3,031.72 | 736.62 | 2,416 | 2,142.33 | 0.51 | -0.10 | 0.03 |
| 53.00 | -21.49 | -1.29 | 0.00 | -79.19 | 0.00 | 79.19 | 2,994.57 | 723.12 | 2,328 | 2,076.90 | 0.57 | -0.11 | 0.03 |
| 55.00 | -21.35 | -1.29 | 0.00 | -76.61 | 0.00 | 76.61 | 2,969.43 | 714.13 | 2,271 | 2,033.56 | 0.62 | -0.11 | 0.03 |
| 55.68 | -20.68 | -1.28 | 0.00 | -75.73 | 0.00 | 75.73 | 2,960.81 | 711.07 | 2,251 | 2,018.87 | 0.64 | -0.11 | 0.03 |
| 55.68 | -20.68 | -1.28 | 0.00 | -75.73 | 0.00 | 75.73 | 2,960.81 | 711.07 | 2,251 | 2,018.87 | 0.64 | -0.11 | 0.05 |
| 60.00 | -20.22 | -1.27 | 0.00 | -70.22 | 0.00 | 70.22 | 2,904.85 | 691.63 | 2,130 | 1,925.98 | 0.74 | -0.12 | 0.04 |
| 63.00 | -19.93 | -1.27 | 0.00 | -66.41 | 0.00 | 66.41 | 2,848.16 | 678.13 | 2,048 | 1,851.12 | 0.82 | -0.13 | 0.04 |
| 65.00 | -19.31 | -1.26 | 0.00 | -63.87 | 0.00 | 63.87 | 2,810.37 | 669.14 | 1,994 | 1,802.04 | 0.88 | -0.14 | 0.04 |
| 69.70 | -19.27 | -1.26 | 0.00 | -57.97 | 0.00 | 57.97 | 2,721.56 | 647.99 | 1,870 | 1,689.30 | 1.02 | -0.15 | 0.04 |
| 70.00 | -18.63 | -1.24 | 0.00 | -57.60 | 0.00 | 57.60 | 2,715.89 | 646.64 | 1,862 | 1,682.23 | 1.03 | -0.16 | 0.04 |
| 75.00 | -18.24 | -1.23 | 0.00 | -51.39 | 0.00 | 51.39 | 2,621.41 | 624.15 | 1,735 | 1,566.54 | 1.20 | -0.17 | 0.04 |
| 78.10 | -18.12 | -1.23 | 0.00 | -47.57 | 0.00 | 47.57 | 2,562.84 | 610.20 | 1,658 | 1,496.88 | 1.32 | -0.18 | 0.04 |
| 79.00 | -17.74 | -1.22 | 0.00 | -46.46 | 0.00 | 46.46 | 2,545.83 | 606.15 | 1,636 | 1,476.96 | 1.35 | -0.19 | 0.04 |
| 80.00 | -17.63 | -1.22 | 0.00 | -45.24 | 0.00 | 45.24 | 2,526.94 | 601.65 | 1,612 | 1,454.97 | 1.39 | -0.19 | 0.04 |
| 80.92 | -16.87 | -1.19 | 0.00 | -44.12 | 0.00 | 44.12 | 2,509.47 | 597.49 | 1,590 | 1,434.80 | 1.43 | -0.20 | 0.04 |
| 85.00 | -16.86 | -1.19 | 0.00 | -39.27 | 0.00 | 39.27 | 2,432.46 | 579.16 | 1,494 | 1,347.52 | 1.60 | -0.21 | 0.04 |
| 85.08 | -16.43 | -1.18 | 0.00 | -39.18 | 0.00 | 39.18 | 1,511.75 | 394.71 | 1,040 | 860.19 | 1.61 | -0.21 | 0.06 |
| 90.00 | -16.01 | -1.16 | 0.00 | -33.39 | 0.00 | 33.39 | 1,478.99 | 379.94 | 964 | 809.78 | 1.83 | -0.23 | 0.05 |
| 95.00 | -15.60 | -1.15 | 0.00 | -27.59 | 0.00 | 27.59 | 1,443.84 | 364.94 | 889 | 759.04 | 2.08 | -0.25 | 0.05 |
| 100.00 | -12.15 | -0.96 | 0.00 | -21.86 | 0.00 | 21.86 | 1,406.77 | 349.94 | 818 | 708.87 | 2.35 | -0.27 | 0.04 |
| 105.00 | -11.81 | -0.94 | 0.00 | -17.06 | 0.00 | 17.06 | 1,367.80 | 334.95 | 749 | 659.40 | 2.64 | -0.28 | 0.04 |
| 110.00 | -11.74 | -0.94 | 0.00 | -12.35 | 0.00 | 12.35 | 1,326.92 | 319.95 | 684 | 610.75 | 2.95 | -0.30 | 0.03 |
| 111.00 | -9.35 | -0.78 | 0.00 | -11.41 | 0.00 | 11.41 | 1,318.52 | 316.95 | 671 | 601.13 | 3.01 | -0.30 | 0.03 |
| 115.00 | -9.04 | -0.76 | 0.00 | -8.29 | 0.00 | 8.29 | 1,280.81 | 304.95 | 621 | 561.60 | 3.27 | -0.31 | 0.02 |
| 120.00 | -4.47 | -0.41 | 0.00 | -4.50 | 0.00 | 4.50 | 1,217.82 | 289.96 | 562 | 507.42 | 3.60 | -0.32 | 0.01 |
| 125.00 | -4.41 | -0.40 | 0.00 | -2.47 | 0.00 | 2.47 | 1,154.84 | 274.96 | 505 | 455.99 | 3.94 | -0.33 | 0.01 |
| 126.00 | -4.35 | -0.40 | 0.00 | -2.07 | 0.00 | 2.07 | 1,142.24 | 271.96 | 494 | 446.03 | 4.01 | -0.33 | 0.01 |
| 126.00 | -4.35 | -0.40 | 0.00 | -2.07 | 0.00 | 2.07 | 385.02 | 115.51 | 105 | 106.00 | 4.01 | -0.33 | 0.03 |
| 127.50 | -4.25 | -0.39 | 0.00 | -1.48 | 0.00 | 1.48 | 385.02 | 115.51 | 105 | 106.00 | 4.11 | -0.33 | 0.03 |
| 128.00 | -4.23 | -0.39 | 0.00 | -1.29 | 0.00 | 1.29 | 385.02 | 115.51 | 105 | 106.00 | 4.15 | -0.33 | 0.02 |
| 128.00 | -4.23 | -0.39 | 0.00 | -1.29 | 0.00 | 1.29 | 396.02 | 118.81 | 108 | 109.03 | 4.15 | -0.33 | 0.02 |
| 128.50 | -4.15 | -0.38 | 0.00 | -1.09 | 0.00 | 1.09 | 396.02 | 118.81 | 108 | 109.03 | 4.18 | -0.33 | 0.02 |
| 129.00 | -3.93 | -0.36 | 0.00 | -0.90 | 0.00 | 0.90 | 396.02 | 118.81 | 108 | 109.03 | 4.22 | -0.33 | 0.02 |
| 130.00 | -3.89 | -0.36 | 0.00 | -0.54 | 0.00 | 0.54 | 396.02 | 118.81 | 108 | 109.03 | 4.29 | -0.33 | 0.02 |
| 131.00 | -0.53 | -0.05 | 0.00 | -0.19 | 0.00 | 0.19 | 396.02 | 118.81 | 108 | 109.03 | 4.36 | -0.33 | 0.00 |
| 133.00 | -0.25 | -0.02 | 0.00 | -0.09 | 0.00 | 0.09 | 396.02 | 118.81 | 108 | 109.03 | 4.50 | -0.33 | 0.00 |
| 135.00 | -0.07 | -0.01 | 0.00 | -0.04 | 0.00 | 0.04 | 396.02 | 118.81 | 108 | 109.03 | 4.64 | -0.33 | 0.00 |
| 140.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 396.02 | 118.81 | 108 | 109.03 | 4.99 | -0.33 | 0.00 |
| 142.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 396.02 | 118.81 | 108 | 109.03 | 5.13 | -0.33 | 0.00 |

## ANALYSIS SUMMARY

| | Reactions | | | | | | Max Usage | |
|---|---|---|---|---|---|---|---|---|
| Load Case | Shear FX (kips) | Shear FZ (kips) | Axial FY (kips) | Moment MX (ft-kips) | Moment MY (ft-kips) | Moment MZ (ft-kips) | Elev (ft) | Interaction Ratio |
| 1.2D + 1.0W Normal | 37.16 | 0.00 | 54.53 | 0.00 | 0.00 | 3252.35 | 85.08 | 0.82 |
| 0.9D + 1.0W Normal | 37.14 | 0.00 | 40.88 | 0.00 | 0.00 | 3212.73 | 85.08 | 0.79 |
| 1.2D + 1.0Di + 1.0Wi Normal | 8.25 | 0.00 | 71.52 | 0.00 | 0.00 | 801.70 | 85.08 | 0.24 |
| 1.2D + 1.0Ev + 1.0Eh Normal | 1.39 | 0.00 | 54.75 | 0.00 | 0.00 | 154.42 | 85.08 | 0.06 |
| 0.9D - 1.0Ev + 1.0Eh Normal | 1.38 | 0.00 | 37.36 | 0.00 | 0.00 | 151.74 | 85.08 | 0.06 |
| 1.0D + 1.0W Service Normal | 8.63 | 0.00 | 45.50 | 0.00 | 0.00 | 751.17 | 85.08 | 0.2 |

## ADDITIONAL STEEL SUMMARY

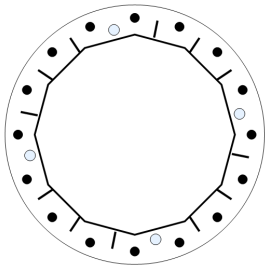
| | | | Intermediate Connectors | | | | Max member | | |
|---|---|---|---|---|---|---|---|---|---|
| Elev From (ft) | Elev To (ft) | Member | VQ/I | Shear Applied (kips) | Shear (phiVn) (kips) | Ratio | Pu (kip) | PhiPn (kip) | Ratio |
| 0.00 | 55.68 | SOL #20 All Thread Bar | 282.9 | 8.5 | 16.8 | 0.5048 | 223.9 | 330.5 | 0.6775 |

| | | | Upper Termination Connectors | | | | | Lower Termination Connectors | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Elev From (ft) | Elev To (ft) | Member | MQ/I | phiVn (kips) | Num Reqd | Num Actual | Ratio | MQ/I (kips) | phiVn (kip) | Num Reqd | Num Actual | Ratio |
| 0.00 | 55.68 | SOL #20 All Thread Bar | 169.594 | 12 | 15 | 22 | 0.6424 | 0 | 12 | 0 | 0 | 0.0000 |

# BASE PLATE ANALYSIS @ 0 FT

## PLATE PARAMETERS (ID# 15669)

| | | |
|---|---|---|
| Diameter: | 60 | in |
| Shape: | Round | |
| Thickness: | 2 | in |
| Grade: | A871-60 | |
| Yield Strength: | 60 | ksi |
| Tensile Strength: | 75 | ksi |
| Rod Detail Type: | c | |
| Clear Distance | - | in |
| Base Weld Size: | 0.125 | in |
| Orientation Offset: | - | ° |
| Analysis Type: | Elastic | |
| Neutral Axis: | 90 | ° |



## ANCHOR ROD PARAMETERS

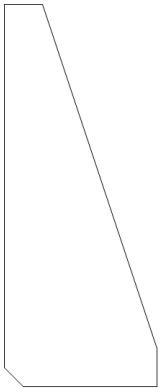
| Class | Arrangement | Quantity | Diameter (in) | Circle (in) | Grade | Fy (ksi) | Fu (ksi) | Spacing (in) | Offset (°) |
|---|---|---|---|---|---|---|---|---|---|
| Original [ID# 16040] | Radial | 16 | 2.25 | 54 | A615-75 | 75 | 100 | - | - |

## DYWIDAG BAR PARAMETERS

| Quantity | Bar Size | Bar Diameter (in) | Fy (ksi) | Fu (ksi) | Bracket Type | Bracket Offset (in) | Circle (in) | Offset (°) |
|---|---|---|---|---|---|---|---|---|
| 4 [ID# 954] | #20 | 2.5 | 80 | 100 | Angle | 2.19 | 51.88 | 11.25 |

## STIFFENER PARAMETERS

| | | |
|---|---|---|
| Arrangement: | Radial | |
| Quantity: | 12 | |
| Height: | 10 | in |
| Width: | 4 | in |
| Thickness: | 0.5 | in |
| Notch: | 0.5 | in |
| Grade: | A36 | |
| Yield Strength: | 36 | ksi |
| Tensile Strength: | 58 | ksi |
| Horizontal Weld Type: | Fillet | |
| Horizontal Weld Fillet Size: | 0.313 | in |
| Vertical Weld Fillet Size: | 0.313 | in |
| Weld Strength: | 70 | ksi |
| Orientation Offset: | - | ° |



**ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (16) 2.25"ø [ID 16040]**

| Position | Radians | X (in) | Y (in) | Moment Arm (in) | Inertia ($in^4$) | Axial Load (k) | Shear Load (k) |
|---|---|---|---|---|---|---|---|
| 1 | 0.393 | 24.94 | 10.33 | -23.732 | 1829.987 | -119.39 | 1.41 |
| 2 | 0.785 | 19.09 | 19.09 | -18.164 | 1072.330 | -90.82 | 2.61 |
| 3 | 1.178 | 10.33 | 24.94 | -9.830 | 314.672 | -48.07 | 3.41 |
| 4 | 1.571 | 0.00 | 27.00 | 0.000 | 0.839 | 2.37 | 3.70 |
| 5 | 1.963 | -10.33 | 24.94 | 9.830 | 314.672 | 52.80 | 3.41 |
| 6 | 2.356 | -19.09 | 19.09 | 18.164 | 1072.330 | 95.56 | 2.61 |
| 7 | 2.749 | -24.94 | 10.33 | 23.732 | 1829.987 | 124.13 | 1.41 |
| 8 | 3.142 | -27.00 | 0.00 | 25.688 | 2143.820 | 134.16 | 0.00 |
| 9 | 3.534 | -24.94 | -10.33 | 23.732 | 1829.987 | 124.13 | 1.41 |
| 10 | 3.927 | -19.09 | -19.09 | 18.164 | 1072.330 | 95.56 | 2.61 |
| 11 | 4.320 | -10.33 | -24.94 | 9.830 | 314.672 | 52.80 | 3.41 |
| 12 | 4.712 | 0.00 | -27.00 | 0.000 | 0.839 | 2.37 | 3.70 |
| 13 | 5.105 | 10.33 | -24.94 | -9.830 | 314.672 | -48.07 | 3.41 |
| 14 | 5.498 | 19.09 | -19.09 | -18.164 | 1072.330 | -90.82 | 2.61 |
| 15 | 5.890 | 24.94 | -10.33 | -23.732 | 1829.987 | -119.39 | 1.41 |
| 16 | 6.283 | 27.00 | 0.00 | -25.688 | 2143.820 | -129.43 | 0.00 |

**DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #20 [ID 954]**

| Position | Radians | X (in) | Y (in) | Moment Arm (in) | Inertia ($in^4$) | Axial Load (k) |
|---|---|---|---|---|---|---|
| 1 | 1.767 | -5.06 | 25.44 | 5.061 | 127.631 | 48.95 |
| 2 | 3.338 | -25.44 | -5.06 | 25.442 | 3179.214 | 229.32 |
| 3 | 4.909 | 5.06 | -25.44 | -5.061 | 127.631 | -40.62 |
| 4 | 0.196 | 25.44 | 5.06 | -25.442 | 3179.214 | -220.99 |

**STIFFENER GEOMETRY AND APPLIED LOADS**

| Position | Radians | Moment Arm (in) | Inertia ($in^4$) | Axial Load (k) | Shear Load (k) |
|---|---|---|---|---|---|
| 1 | 0.589 | -20.371 | 654.442 | -41.10 | 0.72 |
| 2 | 0.982 | -13.611 | 293.660 | -27.17 | 1.07 |
| 3 | 1.374 | -4.780 | 38.549 | -8.98 | 1.27 |
| 4 | 2.160 | 13.611 | 293.660 | 28.91 | 1.07 |
| 5 | 2.553 | 20.371 | 654.442 | 42.83 | 0.72 |
| 6 | 2.945 | 24.029 | 909.553 | 50.37 | 0.25 |
| 7 | 3.731 | 20.371 | 654.442 | 42.83 | 0.72 |
| 8 | 4.123 | 13.611 | 293.660 | 28.91 | 1.07 |
| 9 | 4.516 | 4.780 | 38.549 | 10.71 | 1.27 |
| 10 | 5.301 | -13.611 | 293.660 | -27.17 | 1.07 |
| 11 | 5.694 | -20.371 | 654.442 | -41.10 | 0.72 |
| 12 | 6.087 | -24.029 | 909.553 | -48.64 | 0.25 |

## REACTION DISTRIBUTION

| Component | ID | Moment Mu (k-ft) | Axial Load Pu (k) | Shear Vu (k) | Moment Factor |
|---|---|---|---|---|---|
| Pole | 45"ø x 0.4375" (12 Sides) | 2258.7 | 54.53 | 37.16 | 0.694 |
| Bolt Group | Original (16) 2.25"ø | 2258.7 | - | 37.16 | 0.694 |
| Dywidag Group | (4) #20 | 993.6 | - | - | 0.306 |
| Stiffeners | (12) 10"H x 4"W x 0.5"T | 620.0 | - | 10.20 | 0.191 |
| | **TOTALS** | **3252.35** | **54.53** | **37.16** | |

## COMPONENT PROPERTIES

| Component | ID | Gross Area ($in^2$) | Net Area ($in^2$) | Individual Inertia ($in^4$) | Moment of Inertia ($in^4$) | Threads/in |
|---|---|---|---|---|---|---|
| Pole | 45"ø x 0.4375" (12 Sides) | 60.5515 | - | - | 15034.41 | - |
| Bolt Group | Original (16) 2.25"ø | 3.9761 | 3.2477 | 0.8393 | 17157.27 | 4.5 |
| Dywidag Group | (4) #20 | 4.9087 | 4.9087 | 1.9175 | 6613.69 | - |
| Stiffeners | (12) 10"H x 4"W x 0.5"T | 1.7500 | 1.5750 | 10.6667 | 5688.61 | - |

## EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

**POLE PROPERTIES**

| | | |
|---|---|---|
| Flat-to-Flat Diameter: | 45.12 | in |
| Point-to-Point Diameter: | 46.72 | in |
| Flat Width: | 12.091 | in |
| Flat Radians: | 0.524 | rad |

**PLATE PROPERTIES**

| | | |
|---|---|---|
| Neutral Axis: | 90 | ° |
| Bend Line Lower Limit: | 2.559 | rad |
| Bend Line Upper Limit: | 3.724 | rad |

| Bend Line | Chord Length (in) | Additional Length (in) | Section Modulus ($in^3$) | Applied Moment Mu (k-in) | Moment Capacity ϕMn (k-in) | Ratio |
|---|---|---|---|---|---|---|
| Flat | 35.459 | 3.11 | 38.572 | 709.6 | 2082.9 | 0.341 |
| Corner | 33.334 | 1.70 | 35.029 | 405.3 | 1891.6 | 0.214 |
| Circumferential | 44.434 | 4.06 | 48.497 | 890.7 | 2618.9 | 0.340 |

## ELASTIC ANCHOR ROD ANALYSIS

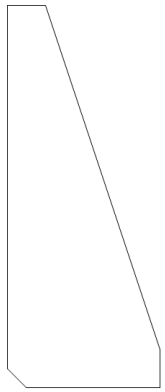
| Class | Group Quantity | Rod Diameter (in) | Applied Axial Load Pu (k) | Applied Shear Load Vu (k) | Compressive Capacity ϕPn (k) | Ratio | Interaction |
|---|---|---|---|---|---|---|---|
| Original | 16 | 2.25 | 134.2 | 0.0 | 243.6 | 0.551 | 0.551 |

## DYWIDAG BAR ANALYSIS

| Group Quantity | Bar Size | Bar Circle (in) | Applied Axial Load Pu (k) | Compressive Capacity ϕPn (k) | Ratio |
|---|---|---|---|---|---|
| 4 | #20 | 51.88 | 229.3 | 368.2 | 0.623 |

## BASE PLATE STIFFENER ANALYSIS

| | | |
|---|---|---|
| Quantity: | 12 | |
| Height: | 10 | in |
| Width: | 4 | in |
| Effective Width: | 4.000 | in |
| Thickness: | 0.5 | in |
| Notch: | 0.5 | in |
| Grade: | A36 | |
| Yield Strength: | 36 | ksi |
| Tensile Strength: | 58 | ksi |
| Horizontal Weld Type: | Fillet | |
| Horizontal Weld Fillet Size: | 0.313 | in |
| Horizontal Weld Bevel Size: | | in |
| Vertical Weld Fillet Size: | 0.313 | in |
| Weld Strength: | 70 | ksi |
| Electrode Coefficient: | 1.000 | |



### PLATE COMPRESSION

| | | |
|---|---|---|
| Radius of Gyration: | 0.144 | $in^3$ |
| kl/r: | 41.57 | |
| 4.71 √(E/Fy): | 133.68 | |
| Buckling Stress, Fe: | 165.64 | ksi |
| Crit. Buckling Stress, Fcr: | 145.26 | ksi |
| Applied Compression, Pu: | 50.37 | k |
| Compressive Capacity, ϕPn: | 228.79 | k |
| **Pu/ϕPn:** | **0.110** | |

### PLATE TENSION

| | | |
|---|---|---|
| Gross Cross Section: | 1.7500 | $in^2$ |
| Net Cross Section: | 1.5750 | $in^2$ |
| Applied Tension, Tu: | 48.63 | k |
| Tensile Capacity, ϕTn: | 56.70 | k |
| **Tu/ϕTn:** | **0.429** | |

### VERTICAL WELD TO POLE

| | | |
|---|---|---|
| Vertical Eccentricity Ratio, $a=e_x/l$: | 0.133 | |
| Spacing Ratio, k: | 0.050 | |
| Weld Coefficient, C: | 3.720 | |
| Applied Compression, Pu: | 50.37 | k |
| Compressive Capacity, ϕPn: | 139.72 | k |
| Horizontal Eccentricity Ratio, $a=e_x/l$: | 0.333 | |
| Weld Coefficient, C: | 2.940 | |
| Applied Shear, Vu | 0.25 | k |
| Shear Capacity, ϕVn: | 110.43 | k |
| **Pu/ϕPn + Vu/ϕVn:** | **0.363** | |

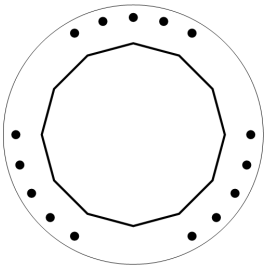
### HORIZONTAL WELD TO PLATE

| | | |
|---|---|---|
| Horizontal Eccentricity Ratio, $a=e_x/l$: | 0.167 | |
| Spacing Ratio, k: | 0.125 | |
| Weld Coefficient, C: | 3.940 | |
| Effective Fillet Size: | 0.313 | in |
| Applied Compression, Pu: | 50.37 | k |
| Compressive Capacity, ϕPn: | 59.19 | k |
| Vertical Eccentricity Ratio, $a=e_x/l$: | 0.417 | |
| Weld Coefficient, C: | 2.670 | |
| Applied Shear, Vu | 0.25 | k |
| Shear Capacity, ϕVn: | 40.11 | k |
| **Pu/ϕPn + Vu/ϕVn:** | **0.857** | |

# LOWER FLANGE PLATE ANALYSIS @ 125.9999 FT

## PLATE PARAMETERS (ID# 16078)

| | | |
|---|---|---|
| Diameter: | 28.5 | in |
| Shape: | Round | |
| Thickness: | 1.5 | in |
| Grade: | A871-60 | |
| Yield Strength: | 60 | ksi |
| Tensile Strength: | 75 | ksi |
| Pole Weld Size: | 0.125 | in |
| Orientation Offset: | - | ° |
| Analysis Type: | Plastic | |
| Neutral Axis: | 120 | ° |



## FLANGE BOLT PARAMETERS

| Class | Arrangement | Quantity | Diameter (in) | Circle (in) | Grade | Fy (ksi) | Fu (ksi) | Spacing (in) | Offset (°) |
|---|---|---|---|---|---|---|---|---|---|
| Original [ID# 16456] | Cluster | 15 | 1 | 25.75 | A325 | 92 | 120 | 6 | - |

## FLANGE BOLT GEOMETRY AND APPLIED LOADS --- ORIGINAL (15) 1"ø [ID 16456]

| Position | Radians | X (in) | Y (in) | Moment Arm (in) | Inertia (in$^4$) | Axial Load (k) | Shear Load (k) |
|---|---|---|---|---|---|---|---|
| 1 | 1.047 | 6.44 | 11.15 | -10.609 | 68.204 | -2.62 | 0.33 |
| 2 | 1.309 | 3.33 | 12.44 | -8.662 | 45.479 | -2.62 | 0.47 |
| 3 | 1.571 | 0.00 | 12.88 | -6.125 | 22.754 | -2.62 | 0.58 |
| 4 | 1.833 | -3.33 | 12.44 | -3.171 | 6.118 | -2.62 | 0.64 |
| 5 | 2.094 | -6.44 | 11.15 | 0.000 | 0.029 | 4.11 | 0.67 |
| 6 | 3.142 | -12.88 | 0.00 | 10.609 | 68.204 | 4.11 | 0.33 |
| 7 | 3.403 | -12.44 | -3.33 | 11.833 | 84.840 | 4.11 | 0.17 |
| 8 | 3.665 | -11.15 | -6.44 | 12.250 | 90.929 | 4.11 | 0.00 |
| 9 | 3.927 | -9.10 | -9.10 | 11.833 | 84.840 | 4.11 | 0.17 |
| 10 | 4.189 | -6.44 | -11.15 | 10.609 | 68.204 | 4.11 | 0.33 |
| 11 | 5.236 | 6.44 | -11.15 | 0.000 | 0.029 | -2.62 | 0.67 |
| 12 | 5.498 | 9.10 | -9.10 | -3.171 | 6.118 | -2.62 | 0.64 |
| 13 | 5.760 | 11.15 | -6.44 | -6.125 | 22.754 | -2.62 | 0.58 |
| 14 | 6.021 | 12.44 | -3.33 | -8.662 | 45.479 | -2.62 | 0.47 |
| 15 | 6.283 | 12.88 | 0.00 | -10.609 | 68.204 | -2.62 | 0.33 |

## REACTION DISTRIBUTION

| Component | ID | Moment Mu (k-ft) | Axial Load Pu (k) | Shear Vu (k) | Moment Factor |
|---|---|---|---|---|---|
| Pole | 19.5002"ø x 0.25" (12 Sides) | 32.0 | 5.60 | 6.23 | 1.000 |
| Bolt Group | Original (15) 1"ø | 32.0 | - | 6.23 | 1.000 |
| | **TOTALS** | **32.01** | **5.6** | **6.23** | |

## COMPONENT PROPERTIES

| Component | ID | Gross Area ($in^2$) | Net Area ($in^2$) | Individual Inertia ($in^4$) | Moment of Inertia ($in^4$) | Threads/in |
|---|---|---|---|---|---|---|
| Pole | 19.5002"ø x 0.25" (12 Sides) | 14.9470 | - | - | 692.68 | - |
| Bolt Group | Original (15) 1"ø | 0.7854 | 0.6057 | 0.0292 | 682.19 | 8.0 |

## EXTERNAL LOWER FLANGE PLATE BEND LINE ANALYSIS @ 125.9999 FT

**POLE PROPERTIES**

| | | |
|---|---|---|
| Flat-to-Flat Diameter: | 19.62 | in |
| Point-to-Point Diameter: | 20.32 | in |
| Flat Width: | 5.259 | in |
| Flat Radians: | 0.524 | rad |

**PLATE PROPERTIES**

| | | |
|---|---|---|
| Neutral Axis: | 120 | ° |
| Bend Line Lower Limit: | | rad |
| Bend Line Upper Limit: | -0.332 | rad |

| Bend Line | Chord Length (in) | Additional Length (in) | Section Modulus ($in^3$) | Applied Moment Mu (k-in) | Moment Capacity ϕMn (k-in) | Ratio |
|---|---|---|---|---|---|---|
| Flat | 19.013 | 0.00 | 10.695 | 35.3 | 577.5 | 0.061 |
| Corner | 18.272 | 0.00 | 10.278 | 27.9 | 555.0 | 0.050 |

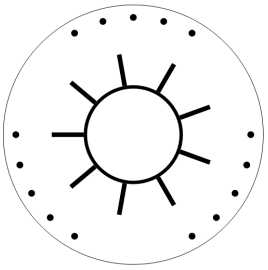
## PLASTIC FLANGE BOLT ANALYSIS

| Class | Group Quantity | Bolt Diameter (in) | Applied Axial Load Pu (k) | Applied Shear Load Vu (k) | Compressive Capacity ϕPn (k) | Ratio |
|---|---|---|---|---|---|---|
| Original | 15 | 1 | 4.1 | 0.7 | 54.5 | 0.075 |

# UPPER FLANGE PLATE ANALYSIS @ 127.9999 FT

## PLATE PARAMETERS (ID# 15670)

| | | |
|---|---|---|
| Diameter: | 28.5 | in |
| Shape: | Round | |
| Thickness: | 0.75 | in |
| Grade: | A36 | |
| Yield Strength: | 36 | ksi |
| Tensile Strength: | 58 | ksi |
| Pole Weld Size: | 0.125 | in |
| Orientation Offset: | - | ° |
| Analysis Type: | Plastic | |
| Neutral Axis: | 126 | ° |

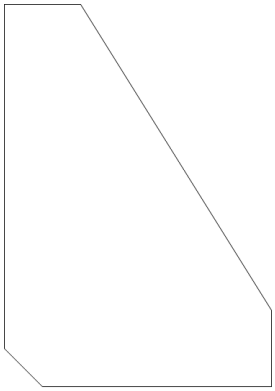


## FLANGE BOLT PARAMETERS

| Class | Arrangement | Quantity | Diameter (in) | Circle (in) | Grade | Fy (ksi) | Fu (ksi) | Spacing (in) | Offset (°) |
|---|---|---|---|---|---|---|---|---|---|
| Original [ID# 16041] | Cluster | 15 | 0.75 | 25.75 | A325 | 92 | 120 | 6 | - |

## STIFFENER PARAMETERS

| | | |
|---|---|---|
| Arrangement: | Radial | |
| Quantity: | 9 | |
| Height: | 5 | in |
| Width: | 3.5 | in |
| Thickness: | 0.375 | in |
| Notch: | 0.5 | in |
| Grade: | A36 | |
| Yield Strength: | 36 | ksi |
| Tensile Strength: | 58 | ksi |
| Horizontal Weld Type: | Fillet | |
| Horizontal Weld Fillet Size: | 0.375 | in |
| Vertical Weld Fillet Size: | 0.375 | in |
| Weld Strength: | 70 | ksi |
| Orientation Offset: | - | ° |



**FLANGE BOLT GEOMETRY AND APPLIED LOADS --- ORIGINAL (15) 0.75"ø [ID 16041]**

| Position | Radians | X (in) | Y (in) | Moment Arm (in) | Inertia ($in^4$) | Axial Load (k) | Shear Load (k) |
|---|---|---|---|---|---|---|---|
| 1 | 1.047 | 6.44 | 11.15 | -11.334 | 42.971 | -1.28 | 0.26 |
| 2 | 1.309 | 3.33 | 12.44 | -9.641 | 31.100 | -1.28 | 0.40 |
| 3 | 1.571 | 0.00 | 12.88 | -7.292 | 17.794 | -1.28 | 0.52 |
| 4 | 1.833 | -3.33 | 12.44 | -4.446 | 6.620 | -1.28 | 0.60 |
| 5 | 2.094 | -6.44 | 11.15 | -1.297 | 0.571 | -1.28 | 0.63 |
| 6 | 3.142 | -12.88 | 0.00 | 10.037 | 33.702 | 2.72 | 0.38 |
| 7 | 3.403 | -12.44 | -3.33 | 11.582 | 44.876 | 2.72 | 0.23 |
| 8 | 3.665 | -11.15 | -6.44 | 12.338 | 50.925 | 2.72 | 0.07 |
| 9 | 3.927 | -9.10 | -9.10 | 12.254 | 50.228 | 2.72 | 0.10 |
| 10 | 4.189 | -6.44 | -11.15 | 11.334 | 42.971 | 2.72 | 0.26 |
| 11 | 5.236 | 6.44 | -11.15 | 1.297 | 0.571 | 2.72 | 0.63 |
| 12 | 5.498 | 9.10 | -9.10 | -1.941 | 1.269 | -1.28 | 0.63 |
| 13 | 5.760 | 11.15 | -6.44 | -5.046 | 8.525 | -1.28 | 0.58 |
| 14 | 6.021 | 12.44 | -3.33 | -7.808 | 20.397 | -1.28 | 0.50 |
| 15 | 6.283 | 12.88 | 0.00 | -10.037 | 33.702 | -1.28 | 0.38 |

**STIFFENER GEOMETRY AND APPLIED LOADS**

| Position | Radians | Moment Arm (in) | Inertia ($in^4$) | Axial Load (k) | Shear Load (k) |
|---|---|---|---|---|---|
| 1 | 0.349 | -6.849 | 47.611 | -3.71 | 0.17 |
| 2 | 1.047 | -6.509 | 43.131 | -3.51 | 0.25 |
| 3 | 1.745 | -3.123 | 10.963 | -1.50 | 0.56 |
| 4 | 2.443 | 1.724 | 4.271 | 1.38 | 0.60 |
| 5 | 3.142 | 5.764 | 34.115 | 3.77 | 0.36 |
| 6 | 3.840 | 7.108 | 51.172 | 4.57 | 0.04 |
| 7 | 4.538 | 5.125 | 27.252 | 3.39 | 0.43 |
| 8 | 5.236 | 0.745 | 1.887 | 0.80 | 0.62 |
| 9 | 5.934 | -3.984 | 16.998 | -2.01 | 0.52 |

**REACTION DISTRIBUTION**

| Component | ID | Moment Mu (k-ft) | Axial Load Pu (k) | Shear Vu (k) | Moment Factor |
|---|---|---|---|---|---|
| Pole | 10.75"ø x 0.375" (Round) | 19.6 | 5.39 | 6.05 | 1.000 |
| Bolt Group | Original (15) 0.75"ø | 19.6 | - | 6.05 | 1.000 |
| Stiffeners | (9) 5"H x 3.5"W x 0.375"T | 11.6 | - | 3.57 | 0.590 |
| | **TOTALS** | **19.64** | **5.39** | **6.05** | |

**COMPONENT PROPERTIES**

| Component | ID | Gross Area ($in^2$) | Net Area ($in^2$) | Individual Inertia ($in^4$) | Moment of Inertia ($in^4$) | Threads/in |
|---|---|---|---|---|---|---|
| Pole | 10.75"ø x 0.375" (Round) | 12.2226 | - | - | 165.04 | - |
| Bolt Group | Original (15) 0.75"ø | 0.4418 | 0.3345 | 0.0089 | 386.22 | 10.0 |
| Stiffeners | (9) 5"H x 3.5"W x 0.375"T | 1.1250 | 1.0125 | 5.3594 | 237.40 | - |

## EXTERNAL UPPER FLANGE PLATE BEND LINE ANALYSIS @ 127.9999 FT

**POLE PROPERTIES**

| | | |
|---|---|---|
| Flat-to-Flat Diameter: | 10.88 | in |
| Point-to-Point Diameter: | 10.88 | in |
| Flat Width: | 0.095 | in |
| Flat Radians: | 0.017 | rad |

**PLATE PROPERTIES**

| | | |
|---|---|---|
| Neutral Axis: | 126 | ° |
| Bend Line Lower Limit: | | rad |
| Bend Line Upper Limit: | -5.641 | rad |

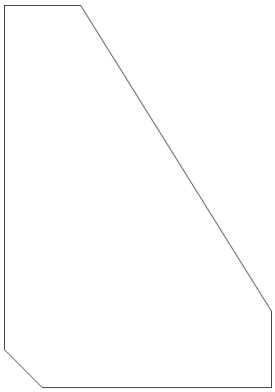
| Bend Line | Chord Length (in) | Additional Length (in) | Section Modulus ($in^3$) | Applied Moment Mu (k-in) | Moment Capacity ϕMn (k-in) | Ratio |
|---|---|---|---|---|---|---|
| Flat | 24.672 | 4.74 | 4.137 | 82.9 | 134.0 | 0.619 |
| Corner | 24.672 | 4.74 | 4.137 | 82.9 | 134.0 | 0.619 |

## PLASTIC FLANGE BOLT ANALYSIS

| Class | Group Quantity | Bolt Diameter (in) | Applied Axial Load Pu (k) | Applied Shear Load Vu (k) | Compressive Capacity ϕPn (k) | Ratio |
|---|---|---|---|---|---|---|
| Original | 15 | 0.75 | 2.7 | 0.6 | 30.1 | 0.090 |

## UPPER FLANGE PLATE STIFFENER ANALYSIS

| | | |
|---|---|---|
| Quantity: | 9 | |
| Height: | 5 | in |
| Width: | 3.5 | in |
| Effective Width: | 3.500 | in |
| Thickness: | 0.375 | in |
| Notch: | 0.5 | in |
| Grade: | A36 | |
| Yield Strength: | 36 | ksi |
| Tensile Strength: | 58 | ksi |
| Horizontal Weld Type: | Fillet | |
| Horizontal Weld Fillet Size: | 0.375 | in |
| Horizontal Weld Bevel Size: | | in |
| Vertical Weld Fillet Size: | 0.375 | in |
| Weld Strength: | 70 | ksi |
| Electrode Coefficient: | 1.000 | |



### PLATE COMPRESSION

| | | |
|---|---|---|
| Radius of Gyration: | 0.108 | $in^3$ |
| kl/r: | 27.71 | |
| 4.71 √(E/Fy): | 133.68 | |
| Buckling Stress, Fe: | 372.68 | ksi |
| Crit. Buckling Stress, Fcr: | 326.84 | ksi |
| Applied Compression, Pu: | 4.57 | k |
| Compressive Capacity, ϕPn: | 330.93 | k |
| **Pu/ϕPn:** | **0.007** | |

### PLATE TENSION

| | | |
|---|---|---|
| Gross Cross Section: | 1.1250 | $in^2$ |
| Net Cross Section: | 1.0125 | $in^2$ |
| Applied Tension, Tu: | 3.71 | k |
| Tensile Capacity, ϕTn: | 36.45 | k |
| **Tu/ϕTn:** | **0.051** | |

### VERTICAL WELD TO POLE

| | | |
|---|---|---|
| Vertical Eccentricity Ratio, $a=e_x/l$: | 0.233 | |
| Spacing Ratio, k: | 0.075 | |
| Weld Coefficient, C: | 3.510 | |
| Applied Compression, Pu: | 4.57 | k |
| Compressive Capacity, ϕPn: | 78.98 | k |
| Horizontal Eccentricity Ratio, $a=e_x/l$: | 0.333 | |
| Weld Coefficient, C: | 2.940 | |
| Applied Shear, Vu | 0.04 | k |
| Shear Capacity, ϕVn: | 66.15 | k |
| **Pu/ϕPn + Vu/ϕVn:** | **0.058** | |

### HORIZONTAL WELD TO PLATE

| | | |
|---|---|---|
| Horizontal Eccentricity Ratio, $a=e_x/l$: | 0.167 | |
| Spacing Ratio, k: | 0.107 | |
| Weld Coefficient, C: | 3.940 | |
| Effective Fillet Size: | 0.375 | in |
| Applied Compression, Pu: | 4.57 | k |
| Compressive Capacity, ϕPn: | 62.06 | k |
| Vertical Eccentricity Ratio, $a=e_x/l$: | 0.238 | |
| Weld Coefficient, C: | 3.510 | |
| Applied Shear, Vu | 0.04 | k |
| Shear Capacity, ϕVn: | 55.28 | k |
| **Pu/ϕPn + Vu/ϕVn:** | **0.074** | |

| | |
|---|---|
| **Site ID** | **302511** |
| **Site Name** | **WSPT-South** |
| **Project #** | **13769201_C3_05** |
| **Date** | **Thursday, April 21, 2022** |
| **Engineer** | **TP** |

*Version*
*1.0*
*12/6/2017*

AMERICAN TOWER® CORPORATION

# EXTENSION INTERFACE

| Analysis Details | |
|---|---|
| Strength Reduction Factor, ϕ | 0.9 |
| | |
| k = Z/S | 1.75 |
| Weld Strength Reduction Factor, ϕ | 0.75 |

| Material Properties | | |
|---|---|---|
| Stiffener Plate Grade | A36 | - |
| Yield Strength, Fy (ksi) | 36 | ksi |
| Tensile Strength, Fu (ksi) | 58 | ksi |
| Modulus of Elasticity, E | 29000 | ksi |
| Shear Modulus of Elasticity, G | 11200 | ksi |

| Section & Loading | | |
|---|---|---|
| Extension Interface Elevation | 126 | ft |
| Total Moment, Mu_t | 32.0 | kip-ft |
| Total Shear, Vu_t | 6.2 | kip |
| Total Axial Load, Pu_t | 5.6 | kip |

| Top of Tower Flange Details | | Show Top Flange? Y |
|---|---|---|
| Tower Flange Diameter | 28.5 | (in) |
| Tower Flange Opening Dia | 14 | (in) |
| Flange Bolt Circle | 25.75 | (in) |
| Flange Bolt Size | 1 | (in) |
| Number of bolts on flange | 24 | Works best with 3 and 4 pieces! |
| Rotation of bolts | 15.0° | 7.5° half bolt rotation angle |

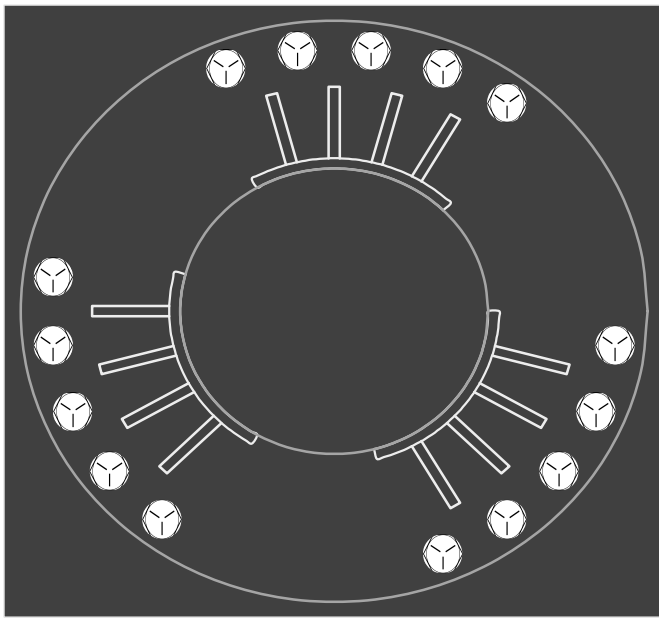
| Forces on Single Interface Weldment | | |
|---|---|---|
| Axial Compression, Pu | 29.14 | kip |
| Flexure (from Compression), Mu_P | 141.96 | kip-in |
| Axial Tension, Tu | 25.41 | kip |
| Flexure (from Tension), Mu_T | 123.78 | kip-in |

| Design Tensile Strength | | |
|---|---|---|
| Design Tensile Strength, ϕPn | **380.5** | k |
| Usage | **6.7%** | **Pass** |

| Design Compressive Strength | | |
|---|---|---|
| Effective Length Factor, k | 1.0 | - |
| Unbraced Length, Lu | 22 1/2 | in |
| Radius of Gyration, r | 1.79 | in |
| kL/r | 12.60 | - |
| Fcr | 35.70 | ksi |
| Design Compressive Strength, ϕPn | **377.38** | k |
| Usage | **7.7%** | **Pass** |

| Design Flexural Strength | | |
|---|---|---|
| Yield Moment, My | 257.3 | kip-in |
| Plastic Moment (Stem in T), Mp_T | 411.72 | kip-in |
| Plastic Moment (Stem in C), Mp_C | 257.33 | kip-in |
| Lateral Torsional Bucking Variable, B | 3.30 | - |
| Nominal Moment (Stem in T), Mn_T | 153032.76 | kip-in |
| Nominal Moment (Stem in C), Mn_C | 3366.26 | kip-in |
| Limiting w-t Ratio (Flange), λp | 10.79 | - |
| w-t Ratio (Flange), λ | 1.46 | - |
| FLB Apply? | NO | - |
| Design Flexural Strength, ϕMn_T | **370.55** | kip-in |
| Usage | **33.4%** | **Pass** |
| Design Flexural Strength, ϕMn_C | **231.59** | kip-in |
| Usage | **61.3%** | **Pass** |

| Interface Weldment Section Properties | | |
|---|---|---|
| Rotation of shapes | 7.5° | |
| Length of Stiffener Plate, L | 22.50 | (in) |
| Number of Pieces | 3 | 3 or 4 |
| Interface angles | 75.0° | 40° to 115° |
| Stiffener offset angle | 15.0° | Min ang: 4.875° |
| Opening angles and width | 45° & 10.61" | |
| Pipe Diameter | 15 | (in) |
| Pipe Thickness | 0.5 | (in) |
| Stiffener Base | 3.5 | (in) |
| Stiffener Thickness | 0.5 | (in) |
| Internal Stiffeners | 2 | |



| Weld Strength | | |
|---|---|---|
| Weld Size, D/16 | 3/8 | in |
| Weld Electrode Strength | 70 | ksi |
| Eccentricity, $e_x$ | 1.75 | in |
| Weld Length | 22 1/2 | in |
| a = ($e_x$/L) | 0.08 | - |
| Weld Coefficient, C | 3.72 | - |
| Electrode Strength Coefficient, $C_1$ | 1.0 | - |
| Pu_weld | 63.0 | kip |
| Design Strength, ϕRn | **376.4** | k |
| Usage | **16.7%** | **Pass** |

| Stiffener Angle Overrides | |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

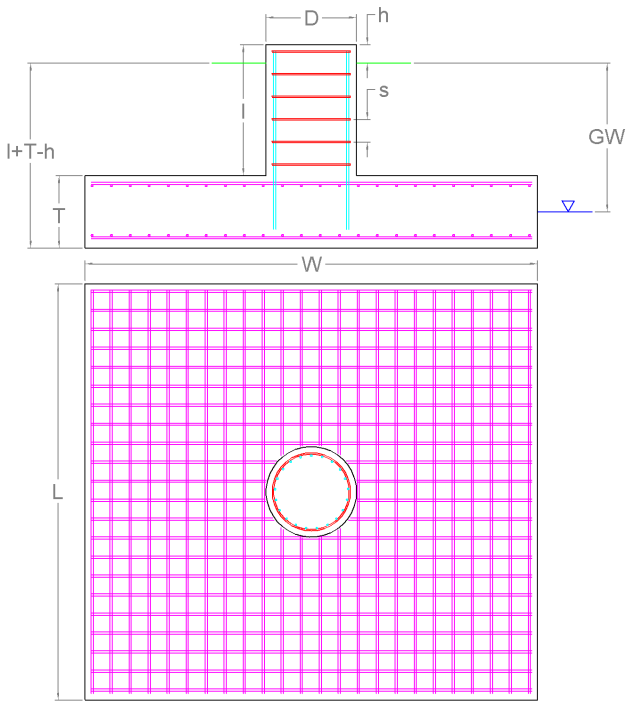
| Single Interface Weldment Section Properties | | |
|---|---|---|
| Distance From Center to Centriod, d | 8.00 | in |
| Distance Between Centroids, e | 4.87 | in |
| Width of Stiffener, W | 3.50 | in |
| Thickness of Stiffener, t | 0.50 | in |
| Width of Pipe b/t Stiffener Plates, bf | 1.46 | in |
| Gross Area, Ag | 11.75 | $in^2$ |
| Min Radius of Gyration, r | 1.79 | in |
| Section Modulus - Stiffener, Sx_s | 7.15 | $in^3$ |
| Plastic Section Modulus, Zx | 12.51 | $in^3$ |
| Moment of Inertia, Iy | 83.120 | $in^4$ |
| Torsional Constant, J | 0.979 | $in^4$ |

| Equivalent Round Section for SES |
|---|
| |

# Monolithic Mat Foundation Analysis (ANSI/TIA-222-H)

| Foundation & Tower Parameters | | | |
|---|---|---|---|
| Ignore Mat Rebar? | | Y | |
| Ignore Pier Rebar? | | Y | |
| Foundation has Pier(s)? | | Y | |
| Pier Shape | | Square | |
| Pier Diameter | *D* | 6.5 | ft |
| Pier Height Above Ground | *h* | 0.5 | ft |
| Pier Length | *l* | 4.5 | ft |
| Mat Base Depth | *l+T-h* | 7 | ft |
| Mat Length | *L* | 26.5 | ft |
| Mat Width | *W* | 26.5 | ft |
| Mat Thickness | *T* | 3 | ft |
| Unit Weight of Concrete | | 150 | pcf |
| Tower Eccentricity | ecc | 0 | ft |
| Tower Face Width | FW | 3.75 | ft |
| Tower Leg Count | | 1 | |

| Reactions | | |
|---|---|---|
| Moment, $M_u$ | 3,252.35 | k-ft |
| Shear, $V_u$ | 37.16 | k |
| Axial, $P_u$ | 54.53 | k |
| Uplift, $T_u$ | 0 | k |
| Tower Weight | 54.53 | k |
| Tower Dead Load Factor | 0.9 | |




| Soil Parameters | | | |
|---|---|---|---|
| Water Table Depth [BGL] | *GW* | 10 | ft |
| Unit Weight of Soil | | 125 | pcf |
| Unit Weight of Soil [Submerged] | | 62.6 | pcf |
| Shear Friction Coefficient | | 0.2 | |
| Ultimate Bearing Pressure | | 18,255 | psf |
| Bearing Pressure Type | | Gross | |
| Conical Failure Angle | | 15 | ° |
| Capacity Increase (Transient Loads) | | 1.00 | |
| Soil Strength Reduction Factor, $\phi_s$ | | 0.75 | |
| Dead Load Factor | | 1.2 | |

| Soil Capacities | | |
|---|---|---|
| Design Moment, $M_u$ | 3,531.05 | k-ft |
| Nominal Moment Capacity, $\phi_m M_n$ | 9,089.56 | k-ft |
| $M_u / \phi_s M_n$ | **38.8%** | |
| Net Bearing Pressure | 1,555 | k |
| Nominal Bearing Capacity, $\phi_b P_n$ | 13,691 | k |
| Bearing Pressure Controlling Load Direction | Diagonal to Pad Edge | |
| $P_u / \phi_s P_n$ | **11.4%** | |
| Ultimate Friction Resistance | 143.99 | k |
| Ultimate Passive Pressure Resistance | 54.66 | k |
| Nominal Shear Capacity, $\phi_s V_n$ | 148.99 | k |
| $V_u / \phi_s V_n$ | **25.0%** | |

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3
Replacement_Colo Consolidation

## Section 1 - Site Information

**Site ID:** CT11012B
**Status:** Final
**Version:** 6
**Project Type:** Anchor
**Approved:** 3/22/2022 10:40:34 AM
**Approved By:** Pratik.Patil30@T-Mobile.com
**Last Modified:** 3/22/2022 10:40:34 AM
**Last Modified By:** Pratik.Patil30@T-Mobile.com

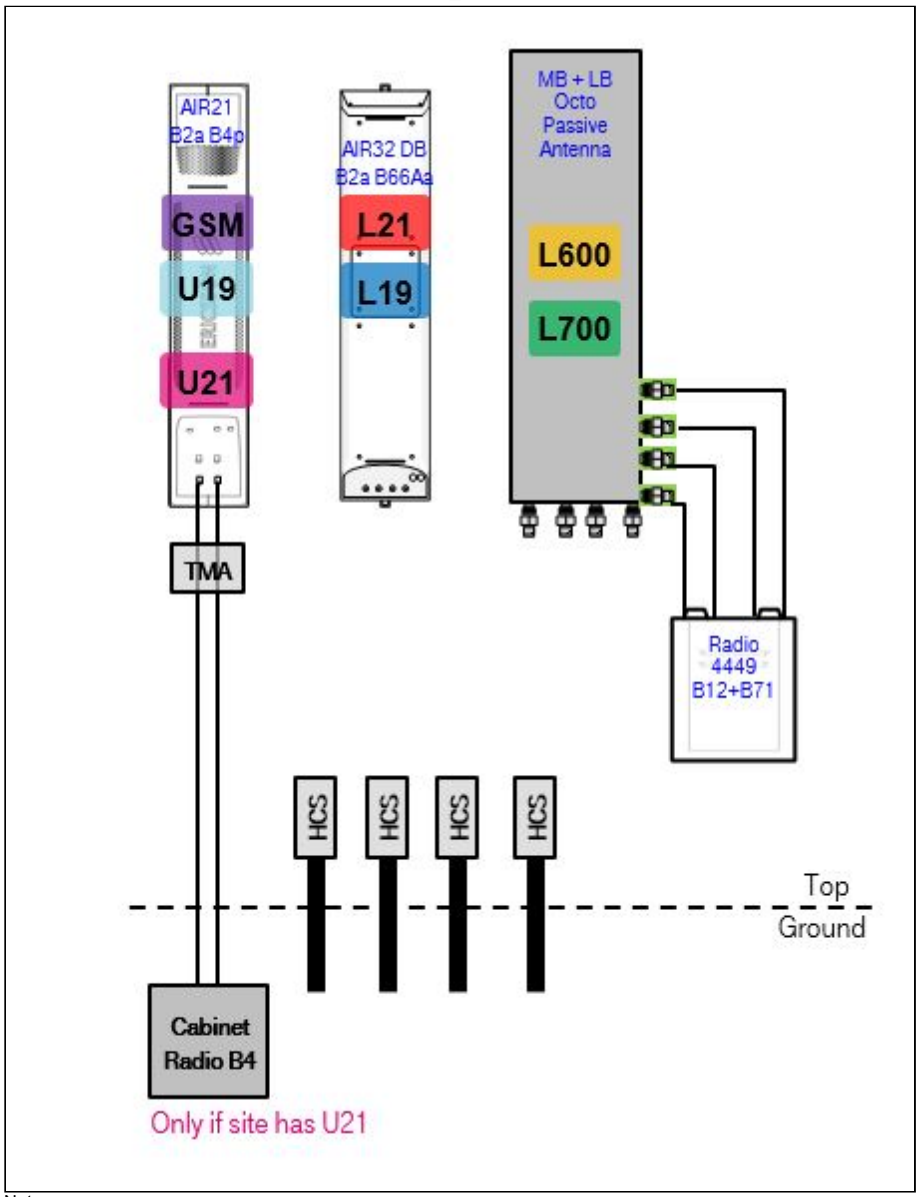
**Site Name:** Westport/ I-95/ X18/ Sher
**Site Class:** Monopole
**Site Type:** Structure Non Building
**Plan Year:** 2022
**Market:** CONNECTICUT CT
**Vendor:** Ericsson
**Landlord:** <undefined>

**Latitude:** 41.12338700
**Longitude:** -73.31304500
**Address:** 20 Post Office Lane
**City, State:** Westport, CT
**Region:** NORTHEAST

| RAN Template: 67E5D998E Hybrid | | | AL Template: 67E5998E_1xAIR+1OP+1QP | |
|---|---|---|---|---|
| **Sector Count:** 3 | **Antenna Count:** 9 | **Coax Line Count:** 0 | **TMA Count:** 0 | **RRU Count:** 6 |

## Section 2 - Existing Template Images

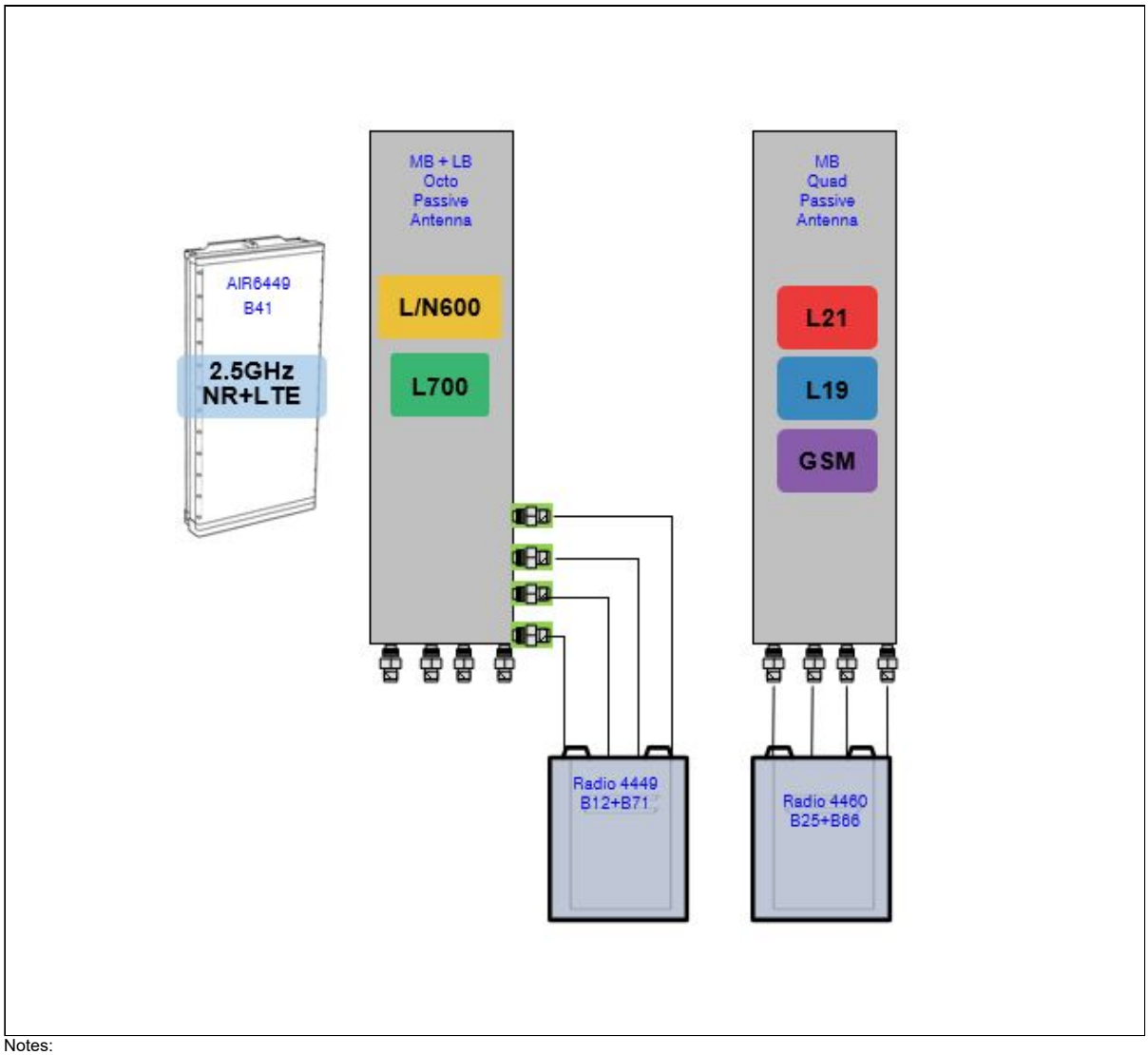
4Sec-67D92DB_2xAIR+1OP.JPG




Notes:

## Section 3 - Proposed Template Images

67D5998E_1xAIR+1OP+1QP.JPG




Notes:

## Section 4 - Siteplan Images

----- This section is intentionally blank. -----

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3
Replacement_Colo Consolidation

## Section 5 - RAN Equipment

### Existing RAN Equipment

**Template:** 4Sec-67D92DB Hybrid

| Enclosure | 1 | 2 |
|---|---|---|
| Enclosure Type | RBS 6102 | Ancillary Equipment (Ericsson) |
| Baseband | DUW30 (U2100); DUW30 (U1900 (DECOMMISSIONED)); DUG20 (G1900); BB 6630 (L2100, L1900); BB 6630 (L700, L600, N600) | |
| Hybrid Cable System | | Ericsson 9x18 HCS *Select Length*; Ericsson 6x12 HCS *Select Length & AWG* **(x 2 )**; Ericsson 6x12 HCS *Select AWG & Length* |
| Radio | RUS01 B4 **(x 8 )** (U2100) | |

### Proposed RAN Equipment

**Template:** 67E5D998E Hybrid

| Enclosure | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Enclosure Type | RBS 6102 | Ancillary Equipment (Ericsson) | Enclosure 6160 AC V1 | B160 |
| Baseband | DUG20 (G1900); BB 6630 (L700, L600, N600); BB 6630 (L2100, L1900) | | RP 6651 (L2500, N2500) | |
| Hybrid Cable System | Ericsson Hybrid Trunk 6/24 4AWG 50m **(x 2 )** | | PSU 4813 vR4A (Kit) **(x 2 )**; Ericsson Hybrid Trunk 6/24 4AWG 50m **(x 2 )** | |
| Transport System | | | CSR IXRe V2 (Gen2) | |

**RAN Scope of Work:**

Remove and return cabinet Radios form existing cabinet 6102.

U2100 will be decom.

Add (1) Enclosure 6160.

Add (1) iXRe Router to new Enclosure 6160.

Add (1) RP 6651 for L2500/N2500 to new Enclosure 6160.

Add (2) PSU4813 Voltage Booster to new Enclosure 6160.

Add (1) Battery Cabinet B160.

Existing : (1) 9x18, (3) 6x12

Remove all Coax, remove (1) 9x18 remove (3) 6x12.

Add (2) 6X24 HCS terminating at the Enclosure 6160 and (2) 6x24 terminating at existing 6102. Connect DC for the AIR6419 B41 to the PSU4813 Voltage Booster.

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Section 6 - A&L Equipment

**Existing Template:** 4Sec-67D92DB_2xAIR+1OP
**Proposed Template:** 67E5998E_1xAIR+1OP+1QP

### Sector 1 (Existing) view from behind

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | | | | | |
| **Antenna** | 1 | | 2 | | | | 3 | | | |
| **Antenna Model** | Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad) | | Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo) | | | | RFS - APXVAARR24_43-U-NA20 (Octo) | | | |
| **Azimuth** | 70 | | 70 | | | | 70 | | | |
| **M. Tilt** | 0 | | 0 | | | | 0 | | | |
| **Height** | 90 | | 90 | | | | 90 | | | |
| **Ports** | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 |
| **Active Tech.** | G1900 | U2100 | L2100 | L2100 | L1900 | L1900 | L700<br>L600<br>N600 | L700<br>L600<br>N600 | | |
| **Dark Tech.** | | | | | | | | | | |
| **Restricted Tech.** | | | | | | | | | | |
| **Decomm. Tech.** | U1900 | | | | | | | | | |
| **E. Tilt** | | | | | | | | | | |
| **Cables** | | 1 5/8In AVA COAX CABLE FIRE RETARDENT - 151 ft. **(x2)**<br>JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | Fiber Jumper | | Fiber Jumper | | JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | | |
| **TMAs** | | Generic Twin Style 1B - AWS (AtAntenna) | | | | | | | | |
| **Diplexers / Combiners** | | | | | | | | | | |
| **Radio** | | | | | | | Radio 4449 B71+B85 (At Antenna) | | | |
| **Sector Equipment** | | | | | | | | | | |

**Unconnected Equipment:**

**Scope of Work:**

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Sector 1 (Proposed) view from behind

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | | | |
| **Antenna** | 1 | | 2 | | 3 | | | |
| **Antenna Model** | Commscope_VV-65A-R1 (Quad) | | AIR 6419 B41 (Active Antenna - Massive MIMO) | | RFS - APXVAALL24_43-U-NA20 (Octo) | | | |
| **Azimuth** | 70 | | 70 | | 70 | | | |
| **M. Tilt** | 0 | | 0 | | 0 | | | |
| **Height** | 120 | | 120 | | 120 | | | |
| **Ports** | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 |
| **Active Tech.** | L2100 L1900 G1900 | L2100 L1900 G1900 | L2500 N2500 | L2500 N2500 | L700 L600 N600 | L700 L600 N600 | | |
| **Dark Tech.** | | | | | | | | |
| **Restricted Tech.** | | | | | | | | |
| **Decomm. Tech.** | | | | | | | | |
| **E. Tilt** | | | | | | | | |
| **Cables** | Coax Jumper **(x2)** Fiber Jumper | Coax Jumper **(x2)** Fiber Jumper | Fiber Jumper **(x2)** | Fiber Jumper **(x2)** | Coax Jumper **(x2)** Fiber Jumper | Coax Jumper **(x2)** Fiber Jumper | | |
| **TMAs** | | | | | | | | |
| **Diplexers / Combiners** | | | | | | | | |
| **Radio** | Radio 4460 B25+B66 (At Antenna) | SHARED Radio 4460 B25+B66 (At Antenna) | | | Radio 4480 B71+B85 (At Antenna) | SHARED Radio 4480 B71+B85 (At Antenna) | | |
| **Sector Equipment** | | | | | | | | |

**Unconnected Equipment:**

**Scope of Work:**

There will be Three antennae per sector.

Use Sprint RAD center at 120 feet.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines if existing.

Replace antenna in Position 1 with (1) Mid-band Quad VV-65A-R1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and GSM to Position 1 at antenna.

Replace Antenna in Position 2 with (1) AIR6419 B41 for L2500 and N2500.

Replace existing octo with APXVAALL24 in Position 3.

Replace existing Radio 4449 with Radio 4480 B71+B85 for L600, L700 and N600 in Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Sector 2 (Existing) view from behind

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | | | | | |
| **Antenna** | 1 | | 2 | | | | 3 | | | |
| **Antenna Model** | Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad) | | Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo) | | | | RFS - APXVAARR24_43-U-NA20 (Octo) | | | |
| **Azimuth** | 270 | | 270 | | | | 270 | | | |
| **M. Tilt** | 0 | | 0 | | | | 0 | | | |
| **Height** | 90 | | 90 | | | | 90 | | | |
| **Ports** | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 |
| **Active Tech.** | G1900 | U2100 | L2100 | L2100 | L1900 | L1900 | L700<br>L600<br>N600 | L700<br>L600<br>N600 | | |
| **Dark Tech.** | | | | | | | | | | |
| **Restricted Tech.** | | | | | | | | | | |
| **Decomm. Tech.** | U1900 | | | | | | | | | |
| **E. Tilt** | | | | | | | | | | |
| **Cables** | | 1 5/8In AVA COAX CABLE FIRE RETARDENT - 151 ft. **(x2)**<br>JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | Fiber Jumper | | Fiber Jumper | | JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | | |
| **TMAs** | | Generic Twin Style 1B - AWS (AtAntenna) | | | | | | | | |
| **Diplexers / Combiners** | | | | | | | | | | |
| **Radio** | | | | | | | Radio 4449 B71+B85 (At Antenna) | | | |
| **Sector Equipment** | | | | | | | | | | |

**Unconnected Equipment:**

**Scope of Work:**

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Sector 2 (Proposed) view from behind

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | | | |
| **Antenna** | 1 | | 2 | | 3 | | | |
| **Antenna Model** | Commscope_VV-65A-R1 (Quad) | | AIR 6419 B41 (Active Antenna - Massive MIMO) | | RFS - APXVAALL24_43-U-NA20 (Octo) | | | |
| **Azimuth** | 270 | | 270 | | 270 | | | |
| **M. Tilt** | 0 | | 0 | | 0 | | | |
| **Height** | 120 | | 120 | | 120 | | | |
| **Ports** | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 |
| **Active Tech.** | L2100 L1900 G1900 | L2100 L1900 G1900 | L2500 N2500 | L2500 N2500 | L700 L600 N600 | L700 L600 N600 | | |
| **Dark Tech.** | | | | | | | | |
| **Restricted Tech.** | | | | | | | | |
| **Decomm. Tech.** | | | | | | | | |
| **E. Tilt** | | | | | | | | |
| **Cables** | Coax Jumper **(x2)** Fiber Jumper | Coax Jumper **(x2)** Fiber Jumper | Fiber Jumper **(x2)** | Fiber Jumper **(x2)** | Coax Jumper **(x2)** Fiber Jumper | Coax Jumper **(x2)** Fiber Jumper | | |
| **TMAs** | | | | | | | | |
| **Diplexers / Combiners** | | | | | | | | |
| **Radio** | Radio 4460 B25+B66 (At Antenna) | SHARED Radio 4460 B25+B66 (At Antenna) | | | Radio 4480 B71+B85 (At Antenna) | SHARED Radio 4480 B71+B85 (At Antenna) | | |
| **Sector Equipment** | | | | | | | | |

**Unconnected Equipment:**

**Scope of Work:**

There will be Three antennae per sector.

Use Sprint RAD center at 120 feet.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines if existing.

Replace antenna in Position 1 with (1) Mid-band Quad VV-65A-R1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and GSM to Position 1 at antenna.

Replace Antenna in Position 2 with (1) AIR6419 B41 for L2500 and N2500.

Replace existing octo with APXVAALL24 in Position 3.

Replace existing Radio 4449 with Radio 4480 B71+B85 for L600, L700 and N600 in Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Sector 3 (Existing) view from behind

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | | | | | |
| **Antenna** | 1 | | 2 | | | | 3 | | | |
| **Antenna Model** | Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad) | | Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo) | | | | RFS - APXVAARR24_43-U-NA20 (Octo) | | | |
| **Azimuth** | 350 | | 350 | | | | 350 | | | |
| **M. Tilt** | 0 | | 0 | | | | 0 | | | |
| **Height** | 90 | | 90 | | | | 90 | | | |
| **Ports** | **P1** | **P2** | **P3** | **P4** | **P5** | **P6** | **P7** | **P8** | **P9** | **P10** |
| **Active Tech.** | G1900 | U2100 | L2100 | L2100 | L1900 | L1900 | L700<br>L600<br>N600 | L700<br>L600<br>N600 | | |
| **Dark Tech.** | | | | | | | | | | |
| **Restricted Tech.** | | | | | | | | | | |
| **Decomm. Tech.** | U1900 | | | | | | | | | |
| **E. Tilt** | | | | | | | | | | |
| **Cables** | | 1 5/8In AVA COAX CABLE FIRE RETARDENT - 151 ft. **(x2)**<br>JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | Fiber Jumper | | Fiber Jumper | | JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | | |
| **TMAs** | | Generic Twin Style 1B - AWS (AtAntenna) | | | | | | | | |
| **Diplexers / Combiners** | | | | | | | | | | |
| **Radio** | | | | | | | Radio 4449 B71+B85 (At Antenna) | | | |
| **Sector Equipment** | | | | | | | | | | |

**Unconnected Equipment:**

**Scope of Work:**

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Sector 3 (Proposed) view from behind

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | | | |
| **Antenna** | 1 | | 2 | | 3 | | | |
| **Antenna Model** | Commscope_VV-65A-R1 (Quad) | | AIR 6419 B41 (Active Antenna - Massive MIMO) | | RFS - APXVAALL24_43-U-NA20 (Octo) | | | |
| **Azimuth** | 350 | | 350 | | 350 | | | |
| **M. Tilt** | 0 | | 0 | | 0 | | | |
| **Height** | 120 | | 120 | | 120 | | | |
| **Ports** | **P1** | **P2** | **P3** | **P4** | **P5** | **P6** | **P7** | **P8** |
| **Active Tech.** | L2100 L1900 G1900 | L2100 L1900 G1900 | L2500 N2500 | L2500 N2500 | L700 L600 N600 | L700 L600 N600 | | |
| **Dark Tech.** | | | | | | | | |
| **Restricted Tech.** | | | | | | | | |
| **Decomm. Tech.** | | | | | | | | |
| **E. Tilt** | | | | | | | | |
| **Cables** | Coax Jumper **(x2)** Fiber Jumper | Coax Jumper **(x2)** Fiber Jumper | Fiber Jumper **(x2)** | Fiber Jumper **(x2)** | Coax Jumper **(x2)** Fiber Jumper | Coax Jumper **(x2)** Fiber Jumper | | |
| **TMAs** | | | | | | | | |
| **Diplexers / Combiners** | | | | | | | | |
| **Radio** | Radio 4460 B25+B66 (At Antenna) | SHARED Radio 4460 B25+B66 (At Antenna) | | | Radio 4480 B71+B85 (At Antenna) | SHARED Radio 4480 B71+B85 (At Antenna) | | |
| **Sector Equipment** | | | | | | | | |

**Unconnected Equipment:**

**Scope of Work:**

There will be Three antennae per sector.

Use Sprint RAD center at 120 feet.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines if existing.

Replace antenna in Position 1 with (1) Mid-band Quad VV-65A-R1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and GSM to Position 1 at antenna.

Replace Antenna in Position 2 with (1) AIR6419 B41 for L2500 and N2500.

Replace existing octo with APXVAALL24 in Position 3.

Replace existing Radio 4449 with Radio 4480 B71+B85 for L600, L700 and N600 in Position 3 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

# CT11012B_Anchor_6

**Print Name:** Preliminary (RFDS_For_Scoping)
**PORs:** Anchor_Phase 3 Replacement_Colo Consolidation

## Sector 4 (Existing) view from behind

| | | | | | | |
|---|---|---|---|---|---|---|
| **Coverage Type** | A - Outdoor Macro | | | | | |
| **Antenna** | 1 | | 2 | | | |
| **Antenna Model** | Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad) | | Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo) | | | |
| **Azimuth** | 160 | | 160 | | | |
| **M. Tilt** | 0 | | 0 | | | |
| **Height** | 90 | | 90 | | | |
| **Ports** | **P1** | **P2** | **P3** | **P4** | **P5** | **P6** |
| **Active Tech.** | G1900 | U2100 | L2100 | L2100 | L1900 | L1900 |
| **Dark Tech.** | | | | | | |
| **Restricted Tech.** | | | | | | |
| **Decomm. Tech.** | U1900 | | | | | |
| **E. Tilt** | | | | | | |
| **Cables** | | 1 5/8In AVA COAX CABLE FIRE RETARDENT - 151 ft. **(x2)**<br>JUMPER 6' SUREFLEX DIN MALE-DIN MALE **(x2)** | Fiber Jumper | | Fiber Jumper | |
| **TMAs** | | Generic Twin Style 1B - AWS (AtAntenna) | | | | |
| **Diplexers / Combiners** | | | | | | |
| **Radio** | | | | | | |
| **Sector Equipment** | | | | | | |

**Unconnected Equipment:**

Cable: JUMPER 6' SUREFLEX DIN MALE-DIN MALE
Cable: JUMPER 6' SUREFLEX DIN MALE-DIN MALE
Cable: JUMPER 6' SUREFLEX DIN MALE-DIN MALE
Cable: JUMPER 6' SUREFLEX DIN MALE-DIN MALE
Sector Equipment: Radio 4449 B71+B85

**Scope of Work:**

| RAN Template: | A&L Template: |
|---|---|
| 67E5D998E Hybrid | 67E5998E_1xAIR+1OP+1QP |

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Replacement_Colo Consolidation

## Section 7 - Power Systems Equipment

| Existing Power Systems Equipment |
|---|
| ----- This section is intentionally blank. ----- |

| | Proposed Power Systems Equipment |
|---|---|
| Enclosure | 1 |
| Enclosure Type | Enclosure 6160 AC V1 |

EBI Consulting

environmental | engineering | due diligence

# RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
# EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11012B

Westport/ I-95/ X18/ Sher
20 Post Office Lane
Westport, Connecticut 06880

**May 25, 2022**

**EBI Project Number: 6222003370**

| **Site Compliance Summary** | |
|---|---|
| Compliance Status: | **COMPLIANT** |
| Site total MPE% of FCC general population allowable limit: | **52.33%** |

May 25, 2022

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11012B - Westport/ I-95/ X18/ Sher

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **20 Post Office Lane** in **Westport, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. 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 done for the proposed T-Mobile Wireless antenna facility located at 20 Post Office Lane in Westport, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antennas used in this modeling are the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector A, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector B, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all

calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 120 feet above ground level (AGL).

15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

# T-Mobile Site Inventory and Power Data

| Sector: | A | Sector: | B | Sector: | C |
|---|---|---|---|---|---|
| Antenna #: | 1 | Antenna #: | 1 | Antenna #: | 1 |
| Make / Model: | Commscope VV-65A-R1 | Make / Model: | Commscope VV-65A-R1 | Make / Model: | Commscope VV-65A-R1 |
| Frequency Bands: | 1900 MHz / 1900 MHz / 2100 MHz | Frequency Bands: | 1900 MHz / 1900 MHz / 2100 MHz | Frequency Bands: | 1900 MHz / 1900 MHz / 2100 MHz |
| Gain: | 15.55 dBd / 15.55 dBd / 16.05 dBd | Gain: | 15.55 dBd / 15.55 dBd / 16.05 dBd | Gain: | 15.55 dBd / 15.55 dBd / 16.05 dBd |
| Height (AGL): | 120 feet | Height (AGL): | 120 feet | Height (AGL): | 120 feet |
| Channel Count: | 8 | Channel Count: | 8 | Channel Count: | 8 |
| Total TX Power (W): | 360.00 Watts | Total TX Power (W): | 360.00 Watts | Total TX Power (W): | 360.00 Watts |
| ERP (W): | 13,446.73 | ERP (W): | 13,446.73 | ERP (W): | 13,446.73 |
| Antenna A1 MPE %: | **3.72%** | Antenna B1 MPE %: | **3.72%** | Antenna C1 MPE %: | **3.72%** |
| Antenna #: | **2** | Antenna #: | **2** | Antenna #: | **2** |
| Make / Model: | Ericsson AIR 6419 | Make / Model: | Ericsson AIR 6419 | Make / Model: | Ericsson AIR 6419 |
| Frequency Bands: | 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz | Frequency Bands: | 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz | Frequency Bands: | 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz |
| Gain: | 22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd | Gain: | 22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd | Gain: | 22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd |
| Height (AGL): | 120 feet | Height (AGL): | 120 feet | Height (AGL): | 120 feet |
| Channel Count: | 4 | Channel Count: | 4 | Channel Count: | 4 |
| Total TX Power (W): | 240.00 Watts | Total TX Power (W): | 240.00 Watts | Total TX Power (W): | 240.00 Watts |
| ERP (W): | 31,011.95 | ERP (W): | 31,011.95 | ERP (W): | 31,011.95 |
| Antenna A2 MPE %: | **8.58%** | Antenna B2 MPE %: | **8.58%** | Antenna C2 MPE %: | **8.58%** |
| Antenna #: | **3** | Antenna #: | **3** | Antenna #: | **3** |
| Make / Model: | RFS APXVAALL24_43-U-NA20 | Make / Model: | RFS APXVAALL24_43-U-NA20 | Make / Model: | RFS APXVAALL24_43-U-NA20 |
| Frequency Bands: | 600 MHz / 600 MHz / 700 MHz | Frequency Bands: | 600 MHz / 600 MHz / 700 MHz | Frequency Bands: | 600 MHz / 600 MHz / 700 MHz |
| Gain: | 12.95 dBd / 12.95 dBd / 13.65 dBd | Gain: | 12.95 dBd / 12.95 dBd / 13.65 dBd | Gain: | 12.95 dBd / 12.95 dBd / 13.65 dBd |
| Height (AGL): | 120 feet | Height (AGL): | 120 feet | Height (AGL): | 120 feet |
| Channel Count: | 5 | Channel Count: | 5 | Channel Count: | 5 |
| Total TX Power (W): | 200.00 Watts | Total TX Power (W): | 200.00 Watts | Total TX Power (W): | 200.00 Watts |
| ERP (W): | 4,151.83 | ERP (W): | 4,151.83 | ERP (W): | 4,151.83 |
| Antenna A3 MPE %: | **2.73%** | Antenna B3 MPE %: | **2.73%** | Antenna C3 MPE %: | **2.73%** |

| Site Composite MPE % | |
|---|---|
| **Carrier** | **MPE %** |
| T-Mobile (Max at Sector A): | 15.03% |
| AT&T | 5.34% |
| Verizon | 22.63% |
| Metro PCS | 1.24% |
| T-Mobile (Existing) | 8.01% |
| Clearwire | 0.08% |
| **Site Total MPE % :** | 52.33% |

| T-Mobile MPE % Per Sector | |
|---|---|
| T-Mobile Sector A Total: | 15.03% |
| T-Mobile Sector B Total: | 15.03% |
| T-Mobile Sector C Total: | 15.03% |
| | |
| Site Total MPE % : | 52.33% |

## T-Mobile Maximum MPE Power Values (Sector A)

| T-Mobile Frequency Band / Technology (Sector A) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density (μW/cm²) | Frequency (MHz) | Allowable MPE (μW/cm²) | Calculated % MPE |
|---|---|---|---|---|---|---|---|
| T-Mobile 1900 MHz GSM | 4 | 1076.77 | 120.0 | 11.91 | 1900 MHz GSM | 1000 | 1.19% |
| T-Mobile 1900 MHz LTE | 2 | 2153.53 | 120.0 | 11.91 | 1900 MHz LTE | 1000 | 1.19% |
| T-Mobile 2100 MHz LTE | 2 | 2416.30 | 120.0 | 13.37 | 2100 MHz LTE | 1000 | 1.34% |
| T-Mobile 2500 MHz LTE 1C & 2C Traffic | 1 | 9619.47 | 120.0 | 26.61 | 2500 MHz LTE 1C & 2C Traffic | 1000 | 2.66% |
| T-Mobile 2500 MHz LTE 1C & 2C Broadcast | 1 | 717.84 | 120.0 | 1.99 | 2500 MHz LTE 1C & 2C Broadcast | 1000 | 0.20% |
| T-Mobile 2500 MHz NR Traffic | 1 | 19238.94 | 120.0 | 53.22 | 2500 MHz NR Traffic | 1000 | 5.32% |
| T-Mobile 2500 MHz NR Broadcast | 1 | 1435.69 | 120.0 | 3.97 | 2500 MHz NR Broadcast | 1000 | 0.40% |
| T-Mobile 600 MHz LTE | 2 | 591.73 | 120.0 | 3.27 | 600 MHz LTE | 400 | 0.82% |
| T-Mobile 600 MHz NR | 1 | 1577.94 | 120.0 | 4.37 | 600 MHz NR | 400 | 1.09% |
| T-Mobile 700 MHz LTE | 2 | 695.22 | 120.0 | 3.85 | 700 MHz LTE | 467 | 0.82% |
| | | | | | | **Total:** | **15.03%** |

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

## 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 T-Mobile 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:

| T-Mobile Sector | Power Density Value (%) |
|---|---|
| Sector A: | 15.03% |
| Sector B: | 15.03% |
| Sector C: | 15.03% |
| T-Mobile Maximum MPE % (Sector A): | 15.03% |
| | |
| Site Total: | 52.33% |
| | |
| Site Compliance Status: | **COMPLIANT** |

The anticipated composite MPE value for this site assuming all carriers present is **52.33%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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.