1 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

Transcend Wireless

May 27th, 2022

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

RE: Notice of Exempt Modification
442 North Street, Goshen, CT 06756
Latitude: 41.856326
Longitude: -73.241578
T-Mobile Site#: CTNH552A - Anchor

Dear Ms. Bachman:

T-Mobile currently maintains eight (8) antennas at the 138-foot level of the existing 150-foot monopole tower at 442 North Street, Goshen, CT. The 150-foot monopole tower is owned and operated by American Tower. The property is owned by ARCA LLC. T-Mobile now intends to remove and replace (4) antennas at the 138-foot level of the tower. These antennas will support 5G services.

Planned Modifications:
Tower:
Install New:
(4) Ericsson AIR 6419 B41 Antennas
(4) Radio 4460 B25 B66
(2) 6x24 Hybrid Cables

To Be Removed:
(4) AIR32 Antennas

To Remain:
(4) APXVAARR24 Antennas
(4) Radio 4449
(4) 6x12 Hybrid Cables
Ground:
Install (1) Enclosure 6160 AC V1, (1) B160, and PSU 4813 and 6651

This facility was originally approved by the Siting Council in Docket No. 337 dated December 17, 2007. This Docket was reopened in 2018 to approve the installation of T-Mobile low-profile square antenna mounts. 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 Selectman Todd Carusillo, Elected Official, and Martin Connor, Zoning Enforcement Officer, 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: Todd Carusillo - First Selectman of Goshen
Martin Connor - Zoning Enforcement Officer
American Tower - Tower Owner
ARCA LLC - Property Owner

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS 1 OF 1

SHIP TO:
ZEO
MARTIN CONNOR
42 NORTH STREET
GOSHEN CT 06756

CT 067 9-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9901 8352

BILLING: P/P

Reference #1: CTNH552A

XOL 22.04.20 NV45 22.0A 05/2022*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS 1 OF 1

SHIP TO:
FIRST SELECTMAN
TODD CARUSILLO
42 NORTH STREET
GOSHEN CT 06756

CT 067 9-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9457 0924

BILLING: P/P

Reference #1: CTNH552A

XOL 22.04.20 NV45 22.0A 05/2022*


ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495
1 LBS
1 OF 1
SHIP TO:
ARCA LLC
25 LARCHMONT CIRCLE
STRATFORD CT 06614
CT 066 9-01
UPS GROUND
TRACKING #: 1Z V25 742 03 9294 4935
BILLING: P/P
Reference #1: CTNH552A
XOL 22.04.20 NV45 22.0A 05/2022*


ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495
1 LBS
1 OF 1
SHIP TO:
CONTACTS MANAGEMENT
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801
MA 018 9-04
UPS GROUND
TRACKING #: 1Z V25 742 03 9574 8366
BILLING: P/P
Reference #1: CTNH552A
XOL 22.04.20 NV45 22.0A 05/2022*

Hello, your package has been delivered.

Delivery Date: Wednesday, 05/25/2022

Delivery Time: 11:39 AM

Left At: FRONT DESK

Signed by: LONG

TRANSCEND WIRELESS

Tracking Number:	1ZV257420395748366
Ship To:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTNH552A

Hello, your package has been delivered.

Delivery Date: Wednesday, 05/25/2022

Delivery Time: 12:10 PM

Signed by: TODD

TRANSCEND WIRELESS

Tracking Number:	1ZV257420394570924
Ship To:	TODD CARUSILLO 42 NORTH STREET GOSHEN, CT 06756 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTNH552A

Hello, your package has been delivered.

Delivery Date: Wednesday, 05/25/2022

Delivery Time: 12:11 PM

Signed by: MARTIN

TRANSCEND WIRELESS

Tracking Number:	1ZV257420399018352
Ship To:	MARTIN CONNOR 42 NORTH STREET GOSHEN, CT 06756 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTNH552A

Your shipment
1ZV257420392944935

Estimated delivery

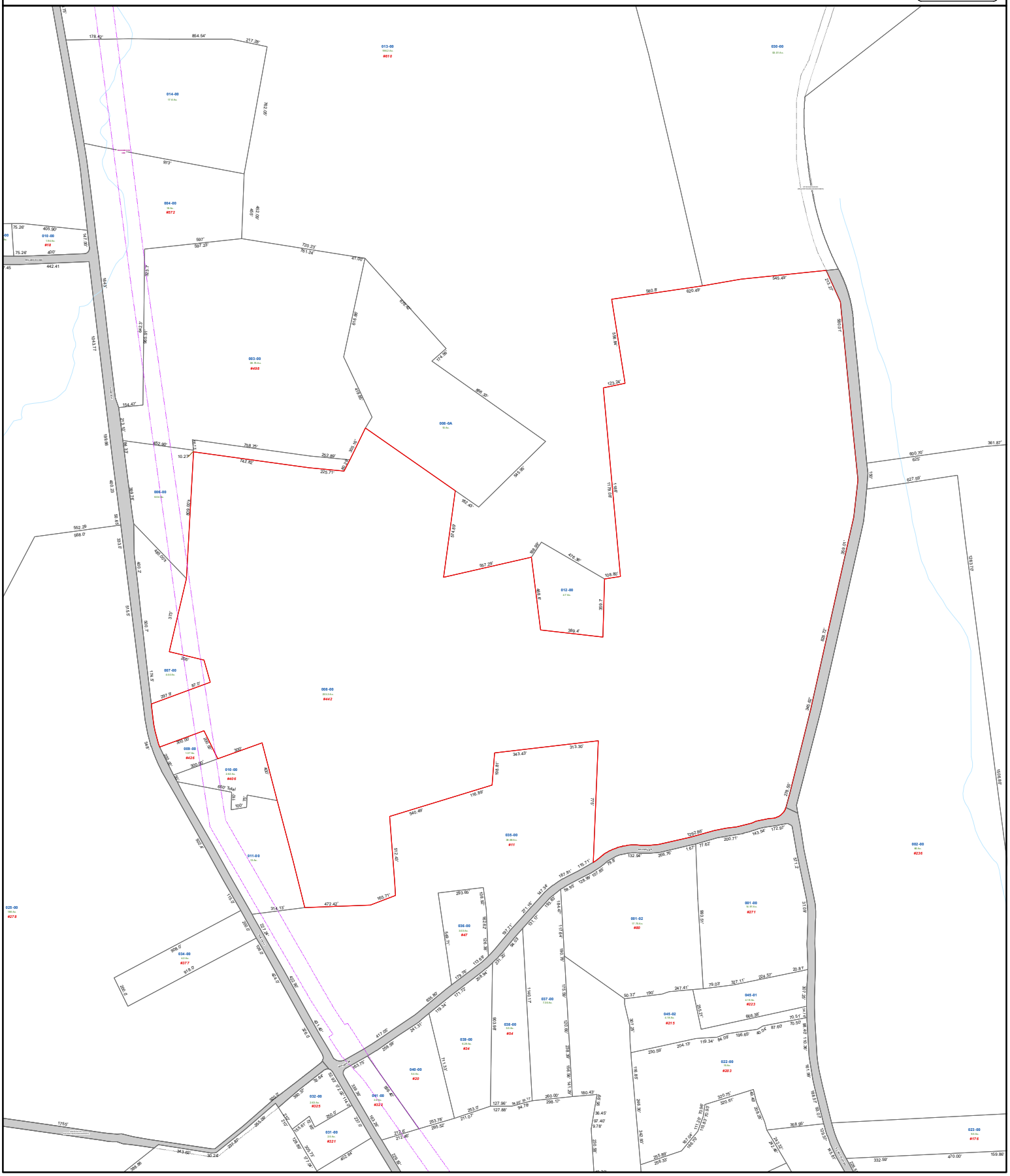
Today, May 25 by 7:00 P.M.

- Label Created
- On the Way
- **Out for Delivery**
- Delivery

Ship To
STRATFORD, CT US

Town of Goshen, Connecticut - Assessment Parcel Map

Parcel: 06-012-008-00 **Location: 442 NORTH STREET**



Approximate Scale: 1 inch = 800 feet

0 420 840 1,260 1,680 Feet

Map Produced: June 2021

Town of Goshen, CT

Property Listing Report

Map Block Lot	06-012-008-00	Building #	1	PID	842	Account	00084400

Property Information

Property Location	442 NORTH STREET
Owner	ARCA LLC
Co-Owner	na
Mailing Address	25 LARCHMONT CIRCLE STRATFORD CT 06614-1336
Land Use	435 Cell Site Vac Lnd
Land Class	I
Zoning Code	RA5
Census Tract	

Photo

Sketch

Neighborhood	
Acreage	233.2
Utilities	UNKNOWN
Lot Setting/Desc	UNKNOWN UNKNOWN
Book / Page	0114/0441
Additional Info	

Primary Construction Details

Year Built	0
Building Desc.	Cell Site Vac Lnd
Building Style	UNKNOWN
Building Grade	
Stories	
Occupancy	
Exterior Walls	
Exterior Walls 2	NA
Roof Style	
Roof Cover	
Interior Walls	
Interior Walls 2	NA
Interior Floors 1	
Interior Floors 2	NA

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Vacant
Building Condition	
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA

Report Created On 5/24/2022

Town of Goshen, CT

Property Listing Report

Map Block Lot	06-012-008-00	Building #	1	PID	842	Account	00084400

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Improvements		
Outbuildings	125000	87500
Land	807630	187800
Total	932630	275300

Outbuilding and Extra Features

Type	Description
Cell Tower	1.00 Units

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	0	0

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
ARCA LLC	0114/0441	03/03/1997	310000
KULESZA MARY	0110/0088		0

Report Created On 5/24/2022

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

March 29, 2019

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **DOCKET NO. 337** - Cellco Partnership d/b/a Verizon Wireless Certificate of Environmental Compatibility and Public Need for the construction, maintenance and management of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut.

TS-T-MOBILE-055-181031 - T-Mobile request for an order to approve tower sharing at an existing telecommunications facility located at 442 North Street, Goshen, Connecticut.

Dear Attorney Baldwin:

During a public meeting held on March 28, 2019, the Connecticut Siting Council (Council) by its Decision and Order dated March 28, 2019, modified the Decision and Order in Docket 337 rendered on December 14, 2007 for the construction, maintenance and management of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut and reissued the Certificate of Environmental Compatibility and Public Need (Certificate), thereby eliminating the requirement that panel antennas of commercial wireless telecommunications providers on this telecommunications facility shall be installed using T-arm mounts.

Therefore, the Council hereby approves the T-Mobile tower share request to install eight 1900/2100 MHz antennas, eight remote radio units, one 11 GHz microwave dish, one outdoor unit and five cables on a low-profile square platform antenna mount with a handrail kit at the 138-foot level of the monopole, consistent with **TS-T-MOBILE-055-181031** - T-Mobile request for an order to approve tower sharing at an existing telecommunications facility located at 442 North Street, Goshen, Connecticut, with the following conditions:

1. Approval of any minor changes be delegated to Council staff;
2. Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
3. Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;
4. Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;
5. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by T-Mobile shall be removed within 60 days of the date the antenna ceased to function.
6. The validity of this action shall expire one year from the date of this letter; and
7. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

Enclosed are the Council's Staff report, Modified Decision and Order, and reissued Certificate.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/RDM/IN/laf

Enclosures

c: Kyle Richers, Transcend Wireless
Parties and Intervenors
State Documents Librarian
The Honorable Robert P. Valentine, First Selectman, Town of Goshen
Martin Connor, Land Use Enforcement Officer, Town of Goshen

STATE OF CONNECTICUT
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Web Site: www.ct.gov/csc

Docket No. 337
442 North Street, Goshen
ATC Request to Reopen and Modify the Decision and Order

Staff Report
March 28, 2019

Introduction

On December 27, 2007 the Connecticut Siting Council (Council) issued a Certificate of Environmental Compatibility and Public Need (Certificate) to Cellco Partnership d/b/a Verizon Wireless (Cellco) for the construction, maintenance and operation of a 150-foot telecommunications facility at 442 North Street, Goshen, Connecticut.

The Council's Docket 337 Decision and Order (D&O), Condition 1, specified that "panel antennas of commercial wireless telecommunications providers shall be installed on the tower using T-arm mounts".

On February 15, 2019, American Tower Corporation (ATC), the manager of the facility for Cellco, submitted a Request to Reopen and Modify D&O Condition 1 to allow for other types of antenna mounts to be used at this facility, thereby increasing opportunities for tower sharing from entities that cannot utilize T-arm mounts with current or future antenna designs and to promote safety of tower maintenance personnel.

Background Site Information

On May 8, 2008, the Council approved the Development and Management (D&M) Plan for this facility that included a 150-foot monopole and 12 panel antennas mounted on T-arm mounts at a centerline height of 150-feet. A minor revision to the D&M Plan was approved on August 28, 2008 to address concerns from the Department of Transportation and Department of Environmental Protection related to a curb cut and access road erosion control measures, respectively. The site was constructed and operational by mid-2009.

T-Mobile Tower Share Request

On October 19, 2018, Transcend Wireless, on behalf of T-Mobile Northeast LLC (T-Mobile), submitted a tower share request to install equipment at the 138-foot level of the existing facility. T-Mobile's tower share request included 8 panel antennas, a microwave dish and associated equipment to be installed on a low-profile antenna platform. On December 3, 2018, the Council submitted correspondence to Transcend Wireless stating the filing is incomplete as it does not conform to the Council's D&O Condition 1 that limited panel antennas to a T-arm mount design.

Request to Reopen and Modify

In response to the Council's December 3, 2018 tower share request incomplete letter, ATC's February 15, 2019 Request to Reopen and Modify the D&O seeks to allow the use of low-profile platform antenna mounts and other antenna mounting designs to promote tower sharing, enhance existing wireless service and promote worker safety, as detailed below:

- Restricting antenna installations to T-arm mounts has the potential to deter wireless carriers and other entities that do not use this type of antenna mounting equipment from co-locating on the facility;
- Since the time of the Council's approval of this facility in 2007, there have been many technological advancements and changes to wireless technology and services. Panel antennas are larger and heavier and are usually deployed with associated remote radio heads, tower-mounted amplifiers, and other tower-mounted equipment. Due to the increase in the structural mass of antenna deployments, different mounting designs may be necessary to adequately support antenna structural loading;
- The use of a low-profile antenna platform increases worker safety and reduces overall work time for a cell site technician to perform work at an antenna installation by providing a safe, level workspace at the antenna array. T-arm antenna deployments require the use of cranes or a mechanical lift to provide safe access to the arrays, thereby increasing project time and cost for antenna maintenance/deployments; and
- The visual effect of a T-arm antenna deployment compared to a low-profile antenna deployment is negligible. Although there are walkways and handrails associated with a low-profile antenna mount, these components are mounted behind the visual mass of the antennas and would not be overly discernible except when viewed from areas near and below the tower. For this site, the tower is located in a heavily wooded area, approximately 1,000 feet east of the nearest road. No residences are within 500 feet. Based on a recent field evaluation of tower visibility, the existing antenna mounting equipment is not discernible from area vantage points, the nearest of which is a 0.65 mile to the northwest along Route 63.

On February 15, 2019, ATC notified the Town of Goshen and abutting property owners of the Request to Reopen and Modify the D&O.

On February 19, 2019, the Council notified parties and intervenors and the Town of Goshen of the Request to Reopen and Modify the D&O and requested that any submission of comments or statements with respect to whether the Request to Reopen and Modify the D&O should be granted or denied including any request for a hearing be submitted to the Council by close of business on March 15, 2019. No comments were received.

Photo simulation of Proposed T-Mobile installation with platform-mounted antennas

VIEW	LOCATION	ORIENTATION	DISTANCE TO SITE
1	ROUTE 63 SOUTH OF HILLHOUSE ROAD	SOUTHEAST	+/- 0.65 MILE

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 337

Pursuant to General Statutes § 4-181a(b), the Connecticut Siting Council hereby reissues a Certificate of Environmental Compatibility and Public Need to Cellco Partnership d/b/a Verizon Wireless for the construction, maintenance and operation of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on March 28, 2019.

By order of the Council,

Melanie A. Bachman, Executive Director

March 28, 2019

DOCKET NO. 337 - Cellco Partnership d/b/a Verizon Wireless Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		March 28, 2019

Decision and Order

In response to the Connecticut Siting Council's (Council) reopening of the record in this docket on March 28, 2019 to consider whether changed conditions exist that would warrant a modification to the original Decision and Order's Condition 1 eliminating the requirement that panel antennas on this telecommunications facility be installed using T-arm mounts, the Council hereby rescinds the Decision and Order in Docket 337 rendered on December 14, 2007 and issues this new Decision and Order for the construction, maintenance and operation of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be designed and constructed as a monopole no taller than 150 feet above ground level to provide telecommunications services to both public and private entities.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Goshen and all parties and intervenors, as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

   a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antenna mountings, equipment building, access road, and utility line;

   b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council in the event other carriers locate at this facility or if circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new state or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Goshen public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Goshen. Any proposed modifications to this Decision and Order shall likewise be so served.

9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

10. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

We hereby direct that a copy of the staff report and modified Decision and Order be served on each person listed in the Service List, dated May 24, 2007, and notice of issuance published in the Waterbury Republican-American.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

STATE OF CONNECTICUT)

ss. New Britain, Connecticut : March 29, 2019

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Modified Decision and Order and reissued Certificate of Environmental Compatibility and Public Need by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Melanie A. Bachman
Executive Director
Connecticut Siting Council

I certify that a copy of the Modified Decision and Order and reissued Certificate of Environmental Compatibility and Public Need in Docket No. 337 have been forwarded by Certified First Class Return Receipt Requested mail on March 29, 2019, to all parties and intervenors of record as listed on the attached service list, dated May 24, 2007.

ATTEST:

Lisa Fontaine
Fiscal Administrative Officer
Connecticut Siting Council

May 24, 2007

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	Cellco Partnership d/b/a Verizon Wireless 99 East River Drive East Hartford, CT 06108	Sandy Carter Regulatory Manager Verizon Wireless 99 East River Drive East Hartford, CT 06108 Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

March 29, 2019

TO: Classified/Legal Supervisor
337190328
Waterbury Republican American
389 Meadow Street
P.O. Box 2090
Waterbury, CT 06722

FROM: Lisa Fontaine, Fiscal Administrative Officer

RE: **DOCKET NO. 337 -** Cellco Partnership d/b/a Verizon Wireless Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut.

Please publish the attached legal notice for one day on the first day possible from receipt of this notice.

Please send an affidavit of publication and invoice to my attention.

Thank you.

RDM/laf

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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E-Mail: siting.council@ct.gov

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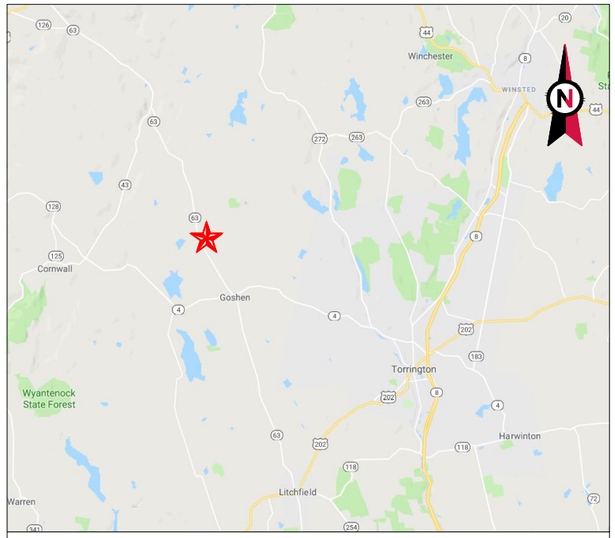
NOTICE

Pursuant to General Statutes § 4-181a(b), the Connecticut Siting Council (Council) announces that, on March 28, 2019, the Council modified the Decision and Order in Docket 337, dated December 14, 2007, and reissued the Certificate of Environmental Compatibility and Public Need, thereby eliminating the requirement that panel antennas on this telecommunications facility be installed using T-arm mounts in DOCKET NO. 337 - Cellco Partnership d/b/a Verizon Wireless Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located off North Street (Route 63), Goshen, Connecticut. This record is available for public inspection in the Council's office, Ten Franklin Square, New Britain, Connecticut.



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: GOSHEN (BRASS MOUNTAIN) CT
ATC SITE NUMBER: 413850
T-MOBILE SITE NAME: CTNH552A
T-MOBILE SITE NUMBER: CTNH552A
SITE ADDRESS: 438 NORTH STREET
GOSHEN, CT 06756-1206

LOCATION MAP

BIRD WATCH SITE:
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR AMERICAN TOWER NOC AT 877-518-6937 FOR ASSISTANCE

T-MOBILE ANCHOR AMENDMENT PLAN
4SEC-67D5D998E MUAC 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: CONNECTICUT LIGHT & POWER CO
PHONE: (888) 783-6617

TELEPHONE COMPANY: AT&T
PHONE: UNKNOWN

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

PROJECT SUMMARY

SITE ADDRESS:

438 NORTH STREET
GOSHEN, CT 06756-1206
COUNTY: LITCHFIELD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.85633859
LONGITUDE: -73.24159535
GROUND ELEVATION: 1599' AMSL

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:

ARCA LLC
438 NORTH STREET
GOSHEN, CT 06756-1206

PROJECT DESCRIPTION

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

TOWER WORK:

REMOVE (4) ANTENNA(s)

INSTALL (4) ANTENNA(s), (4) RRU(s), AND (2) ERICSSON HYBRID TRUNK 6/24 4AWG CABLE(s)

EXISTING (4) ANTENNA(s), (4) RRU(s), AND (4) ERICSSON 6X12 HCS CABLE(s) TO REMAIN

GROUND WORK:

INSTALL (1) ENCLOSURE 6160 AC V1, (1) B160, AND PSU 4813 AND 6651

EXISTING (1) RBS 6102 MU AC 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

HEAD SOUTHWEST ON I-84TAKE EXIT 15 FOR US-6 E/CT-67 TOWARD SOUTHBURYTURN RIGHT ONTO CT-67 N/US-6 E/MAIN ST SCONTINUE TO FOLLOW US-6 E/MAIN ST SFOLLOW FLANDERS RD TO CT-61 N/MAIN ST S IN BETHLEHEMTURN LEFT ONTO FLANDERS RDTURN RIGHT TO STAY ON FLANDERS RDFOLLOW CT-61 N TO CT-63 IN GOSHENTURN LEFT ONTO CT-61 N/MAIN ST SCONTINUE TO FOLLOW CT-61 NTURN RIGHT ONTO CT-109 E/CT-61 NTURN LEFT ONTO CT-61 NTURN RIGHT TO STAY ON CT-61 NTURN LEFT ONTO CT-63 NTURN LEFT ONTO EAST STTURN RIGHT ONTO NORTH STCONTINUE ONTO CT-63 N/GOSHEN RDCONTINUE TO FOLLOW CT-63 NAT THE TRAFFIC CIRCLE, CONTINUE STRAIGHT ONTO CT-63

SHEET INDEX

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R-608	SUPPLEMENTAL			
R-609	SUPPLEMENTAL			

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	05/06/22

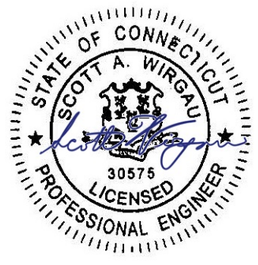
ATC SITE NUMBER:
413850

ATC SITE NAME:
GOSHEN (BRASS MOUNTAIN) CT

T-MOBILE SITE NAME:
CTNH552A

SITE ADDRESS:
438 NORTH STREET
GOSHEN, CT 06756-1206

SEAL:



Authorized by "EOR"
06 May 2022 12:16:38

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DATE DRAWN:	05/06/22
ATC JOB NO:	14089646_G3
CUSTOMER ID:	CTNH552A
CUSTOMER #:	CTNH552A

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	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.

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.
   - 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)

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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SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	05/06/22

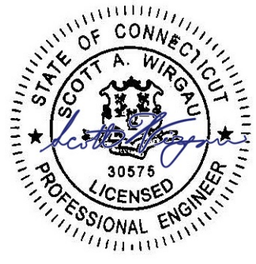
ATC SITE NUMBER:
413850

ATC SITE NAME:
GOSHEN (BRASS MOUNTAIN) CT

T-MOBILE SITE NAME:
CTNH552A

SITE ADDRESS:
438 NORTH STREET
GOSHEN, CT 06756-1206

SEAL:



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06 May 2022 12:16:38

T-Mobile

DATE DRAWN:	05/06/22
ATC JOB NO:	14089646_G3
CUSTOMER ID:	CTNH552A
CUSTOMER #:	CTNH552A

GENERAL NOTES

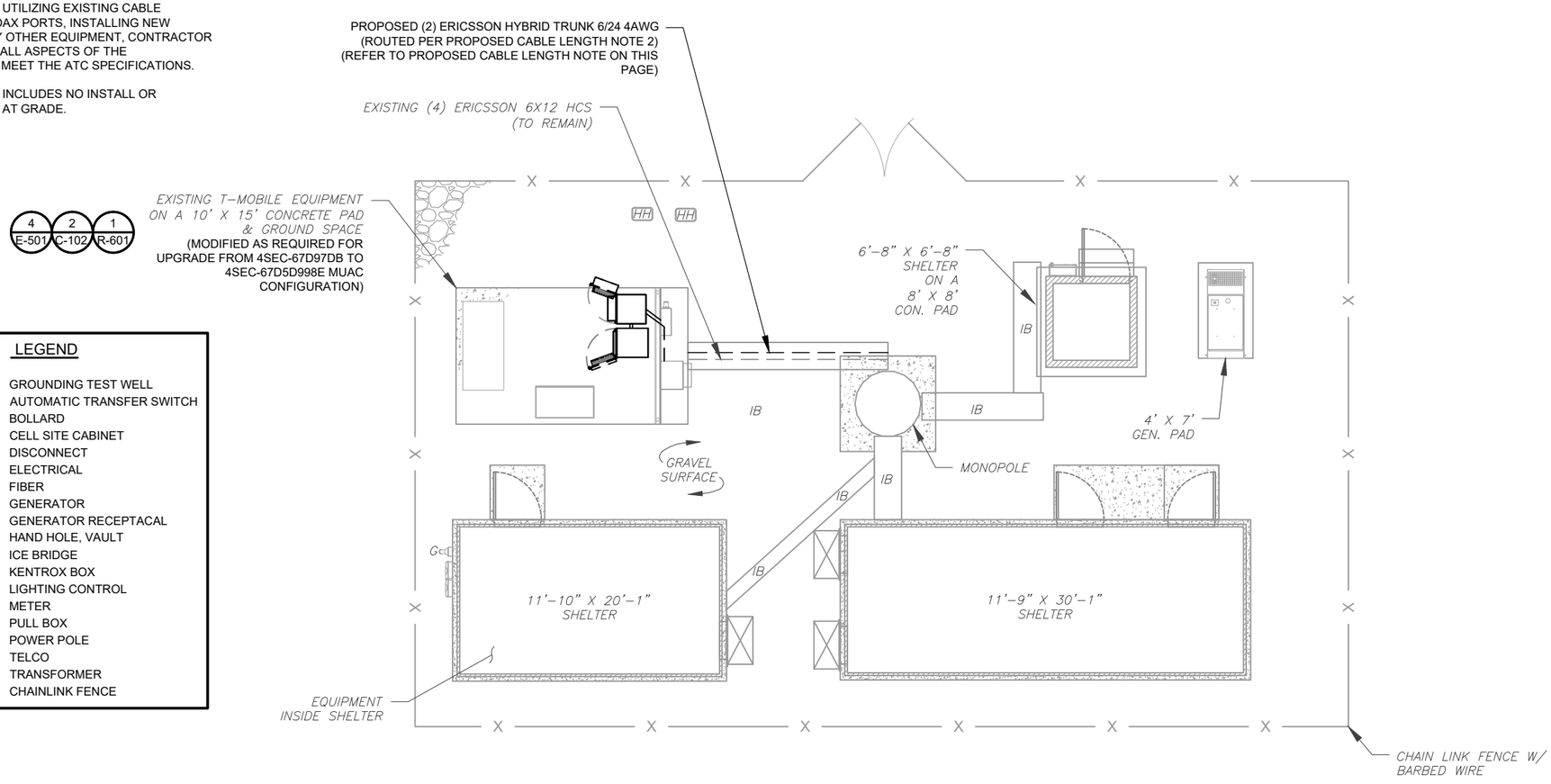
SHEET NUMBER:	REVISION:
G-002	0

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. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.



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
———	CHAINLINK FENCE

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **175'**. 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

10 0 5 10

(IN FEET)
1 UNIT = 10 FEET

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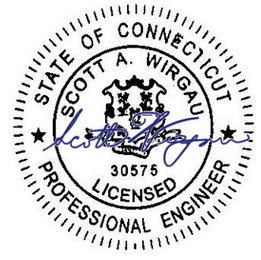

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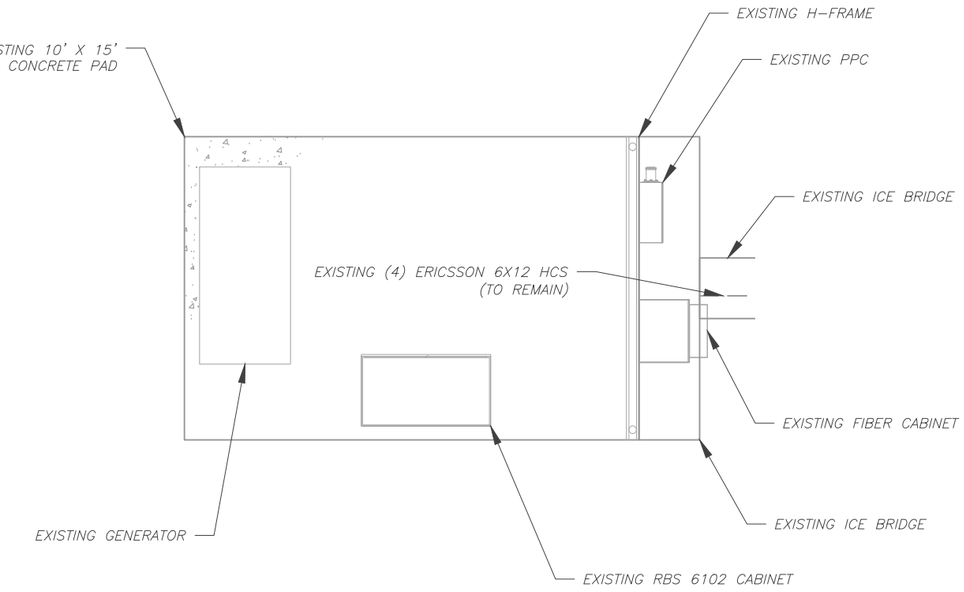
CUSTOMER #:	CTNH552A

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.



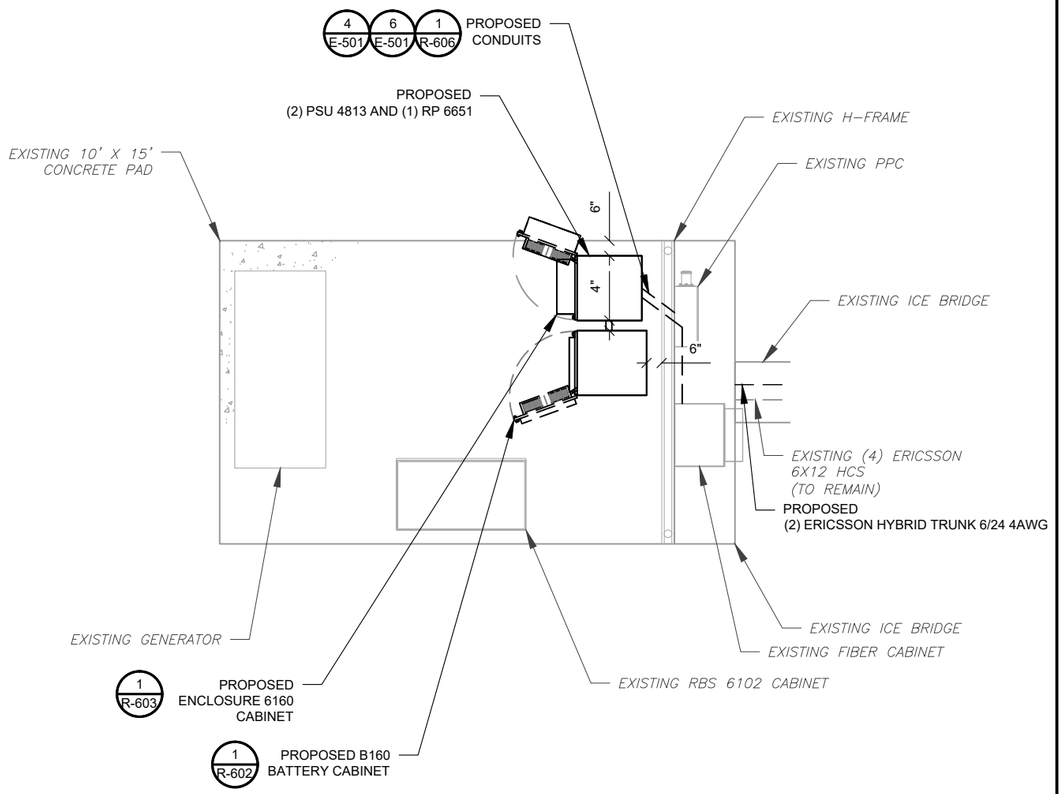
1 EXISTING GROUND EQUIPMENT LAYOUT

GRAPHIC SCALE

5 0 2.5 5

(IN FEET)
1 UNIT = 5 FEET

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS.



2 PROPOSED GROUND EQUIPMENT LAYOUT

GRAPHIC SCALE

5 0 2.5 5

(IN FEET)
1 UNIT = 5 FEET

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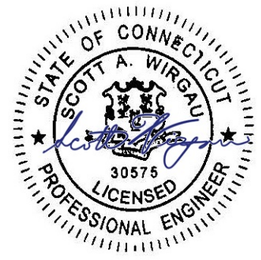

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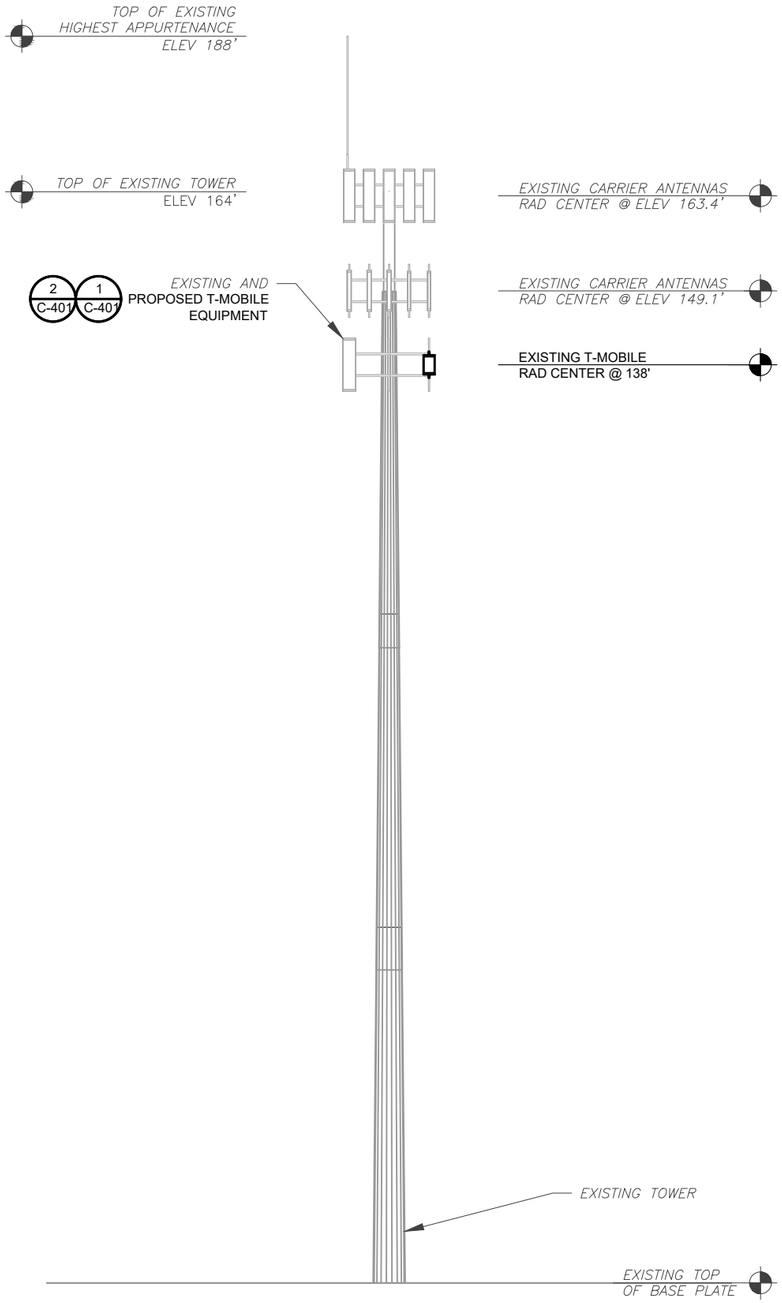
DETAILED EQUIPMENT PLAN

SHEET NUMBER:	REVISION:
C-102	0

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORP, DATED 04/12/2022, THE EXISTING 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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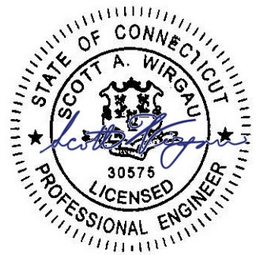
GOSHEN, CT 06756-1206

SEAL:



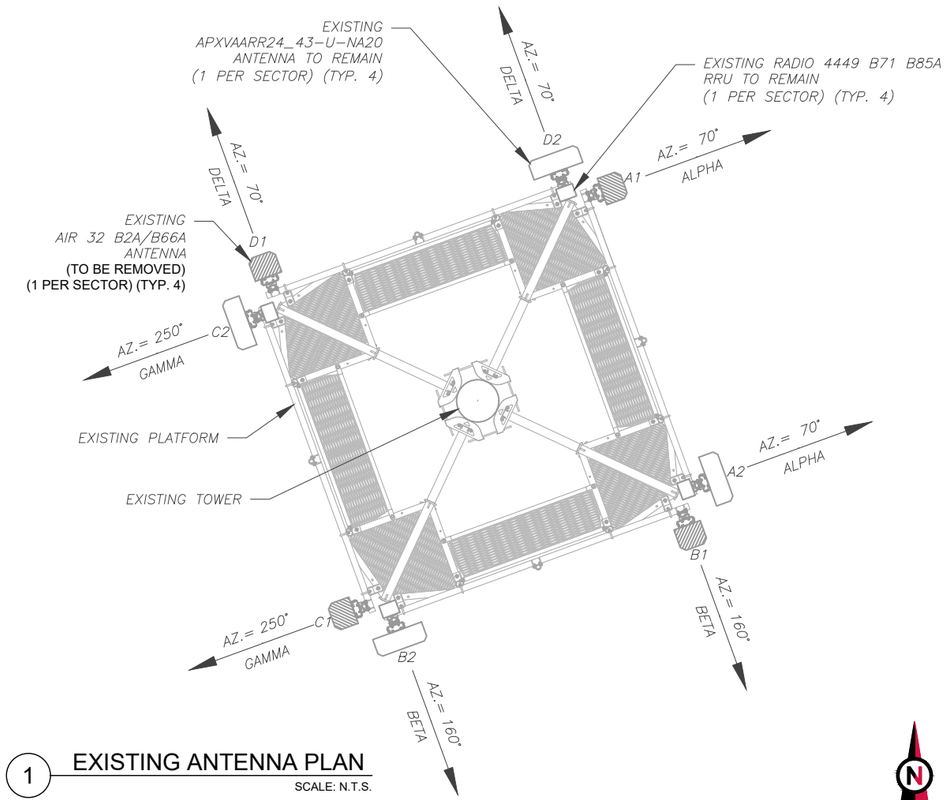
Authorized by "EOR"
06 May 2022 12:16:39

T-Mobile

DATE DRAWN:	05/06/22
ATC JOB NO:	14089646_G3
CUSTOMER ID:	CTNH552A
CUSTOMER #:	CTNH552A

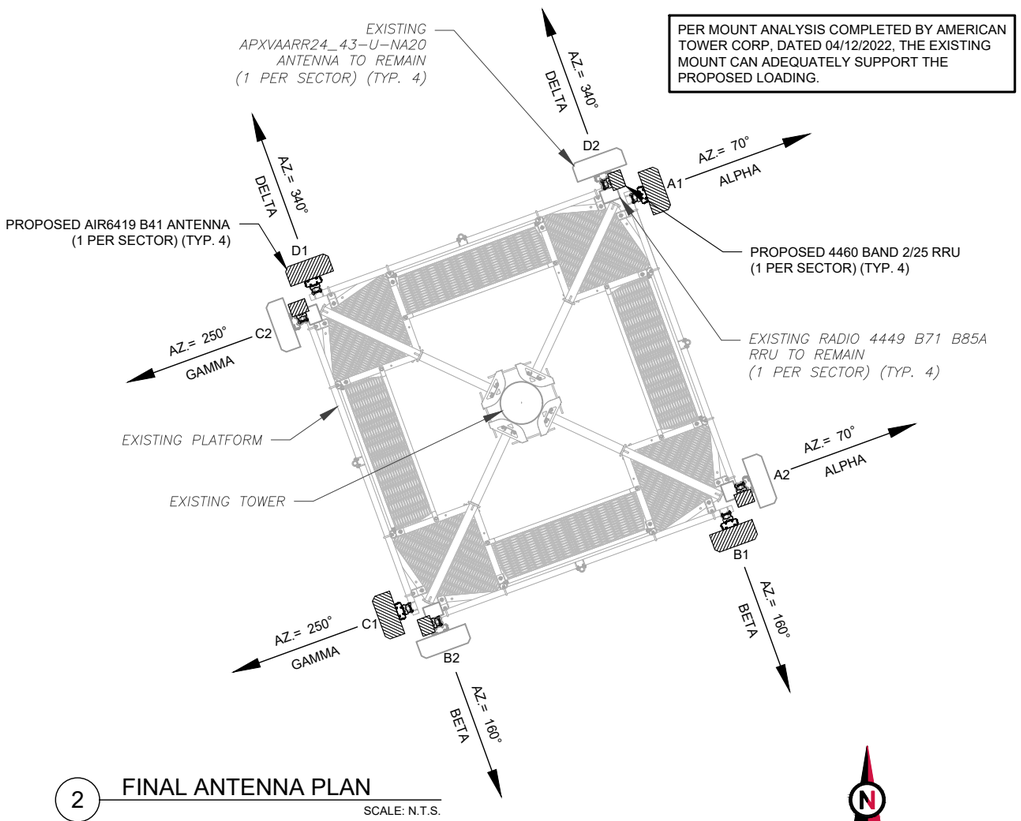
TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.



2 FINAL ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORP, DATED 04/12/2022, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

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	138'	70°	A1	AIR 32 B2A/B66A	L2100, U1900, L1900	–°/2°	RMV	–	–
			A2	APXVAARR24_43-U-NA20	L700, L600, N600	–°/2°	RMN	**RADIO 4449 B71 B85A**	RMN
BETA	138'	160°	B1	AIR 32 B2A/B66A	L2100, U1900, L1900	–°/2°	RMV	–	–
			B2	APXVAARR24_43-U-NA20	L700, L600, N600	–°/2°	RMN	**RADIO 4449 B71 B85A**	RMN
GAMMA	138'	250°	C1	AIR 32 B2A/B66A	L2100, U1900, L1900	–°/2°	RMV	–	–
			C2	APXVAARR24_43-U-NA20	L700, L600, N600	–°/2°	RMN	**RADIO 4449 B71 B85A**	RMN
DELTA	138'	340°	D1	AIR 32 B2A/B66A	L2100, U1900, L1900	–°/2°	RMV	–	–
			D2	APXVAARR24_43-U-NA20	L700, L600, N600	–°/2°	RMN	**RADIO 4449 B71 B85A**	RMN

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	138'	70°	A1	AIR6419 B41	N2500, L2500	0°/2°	ADD	-	-
			A2	APXVAARR24_43-U-NA20	L700, L600, N600, L2100, L1900, U1900	–°/2°	RMN	**RADIO 4449 B71 B85A,** 4460 BAND 2/25	RMN ADD
BETA	138'	160°	B1	AIR6419 B41	N2500, L2500	0°/2°	ADD	-	-
			B2	APXVAARR24_43-U-NA20	L700, L600, N600, L2100, L1900, U1900	–°/2°	RMN	**RADIO 4449 B71 B85A,** 4460 BAND 2/25	RMN ADD
GAMMA	138'	250°	C1	AIR6419 B41	N2500, L2500	0°/2°	ADD	-	-
			C2	APXVAARR24_43-U-NA20	L700, L600, N600, L2100, L1900, U1900	–°/2°	RMN	**RADIO 4449 B71 B85A,** 4460 BAND 2/25	RMN ADD
DELTA	138'	340°	D1	AIR6419 B41	N2500, L2500	0°/2°	ADD	-	-
			D2	APXVAARR24_43-U-NA20	L700, L600, N600, L2100, L1900, U1900	–°/2°	RMN	**RADIO 4449 B71 B85A,** 4460 BAND 2/25	RMN ADD

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
–		(4) ERICSSON 6X12 HCS	RMN

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
–		(4) ERICSSON 6X12 HCS	RMN
-		(2) ERICSSON HYBRID TRUNK 6/24 4AWG	ADD

3 EQUIPMENT SCHEDULES

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	05/06/22

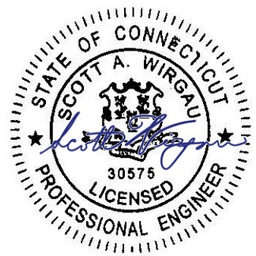
ATC SITE NUMBER:
413850

ATC SITE NAME:
GOSHEN (BRASS MOUNTAIN) CT

T-MOBILE SITE NAME:
CTNH552A

SITE ADDRESS:
438 NORTH STREET
GOSHEN, CT 06756-1206

SEAL:



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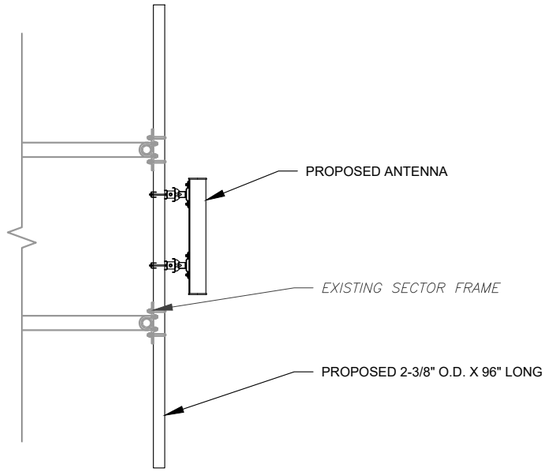
06 May 2022 12:16:39

T-Mobile cosign

DATE DRAWN:	05/06/22
ATC JOB NO:	14089646_G3
CUSTOMER ID:	CTNH552A
CUSTOMER #:	CTNH552A

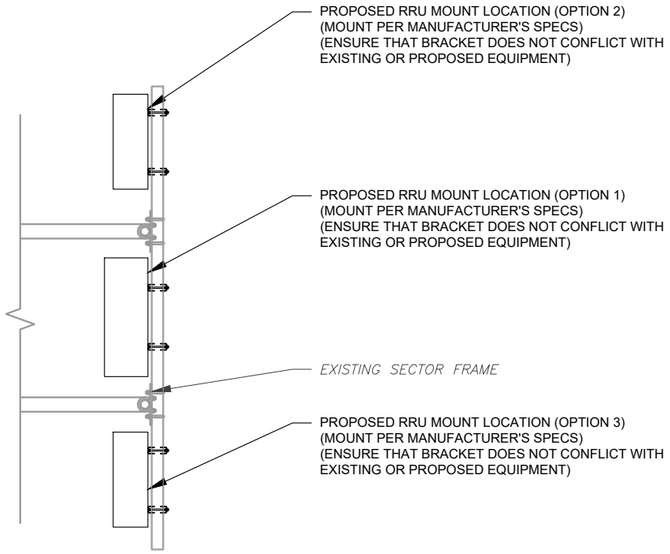
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	0



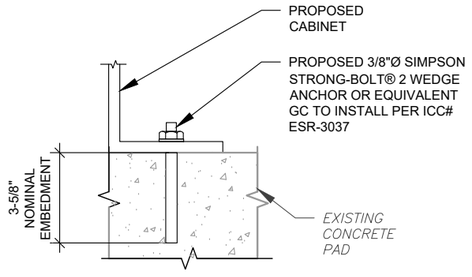
1 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



NOTE:

INSTALL SIMPSON STRONG-TIE® STRONG-BOLT® 2 WEDGE ANCHOR(S) STRICTLY PER INSTALLATION INSTRUCTIONS INCLUDED WITH PRODUCT OR FOUND ONLINE AT WWW.STRONGTIE.COM. PROPER INSTALLATION IS CRITICAL FOR FULL PERFORMANCE.

3 CABINET ATTACHMENT DETAIL

SCALE: N.T.S.

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	05/06/22

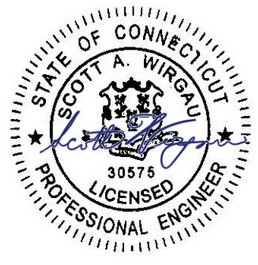
ATC SITE NUMBER:
413850

ATC SITE NAME:
GOSHEN (BRASS MOUNTAIN) CT

T-MOBILE SITE NAME:
CTNH552A

SITE ADDRESS:
438 NORTH STREET
GOSHEN, CT 06756-1206

SEAL:

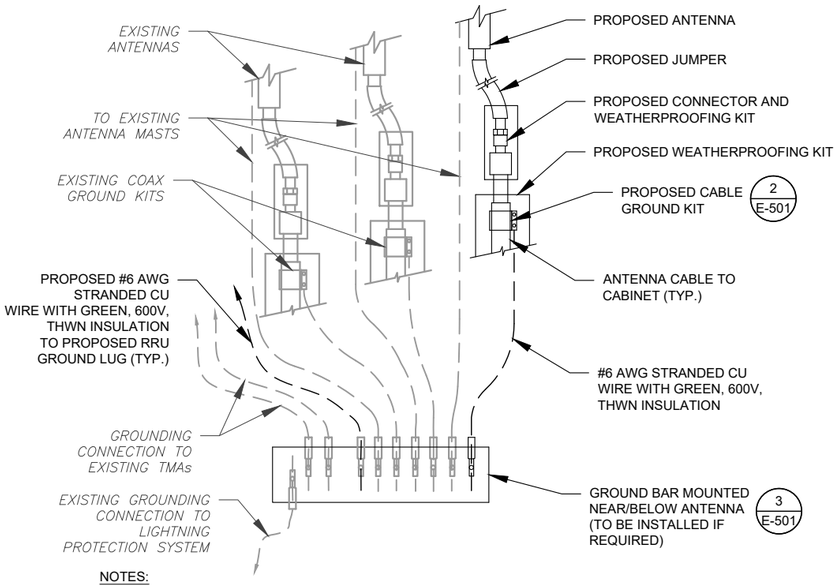


Authorized by "EOR"
06 May 2022 12:16:40

DATE DRAWN:	05/06/22
ATC JOB NO:	14089646_G3
CUSTOMER ID:	CTNH552A
CUSTOMER #:	CTNH552A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

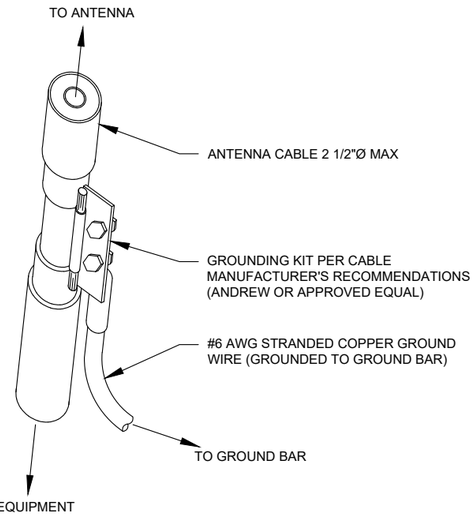


NOTES:

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.

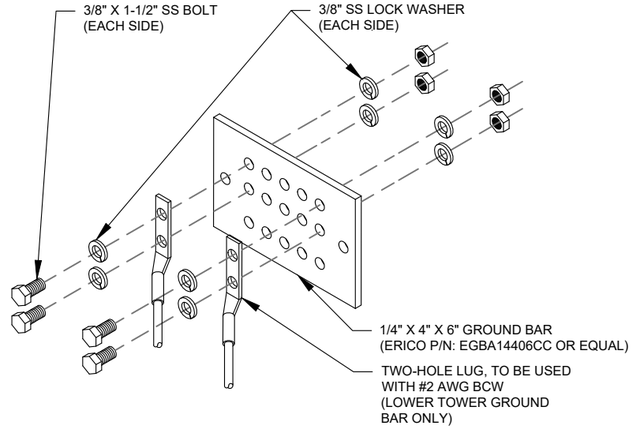


GROUND KIT NOTES:

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.

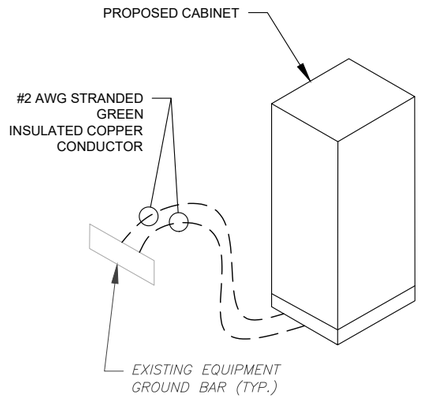
3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.

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

4 CONDUIT USE TABLES



5 CABINET GROUNDING 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"

6 ELECTRICAL NOTES

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TC	05/06/22

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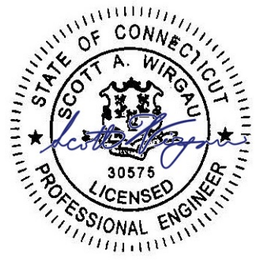
SEAL:



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06 May 2022 12:16:40

T-Mobile cosign

DATE DRAWN:	05/06/22
ATC JOB NO:	14089646_G3
CUSTOMER ID:	CTNH552A
CUSTOMER #:	CTNH552A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Proposed RAN Equipment				
Template: 4Sec-67D5D998E MUAC				
Enclosure	**1**	**2**	**3**	**4**
Enclosure Type	Ancillary Equipment (Ericsson)	RBS 6102 MU AC	Enclosure 6160 AC V1	B160
Baseband		DUW30 U1900 / BB 6630 L2100 L1900 / BB 6630 L700 L600 N600	RP 6651 N2500 L2500	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* **(x 4)**		PSU 4813 vR4A (Kit) **(x 2)** Ericsson Hybrid Trunk 6/24 4AWG 60m **(x 2)**	
Transport System			CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Remove and return all cabinet radios from existing base station cabinet.

Upgrade 6102 breaker to 125A.(to be confirmed)

Add 150A Breaker for 6160.

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.

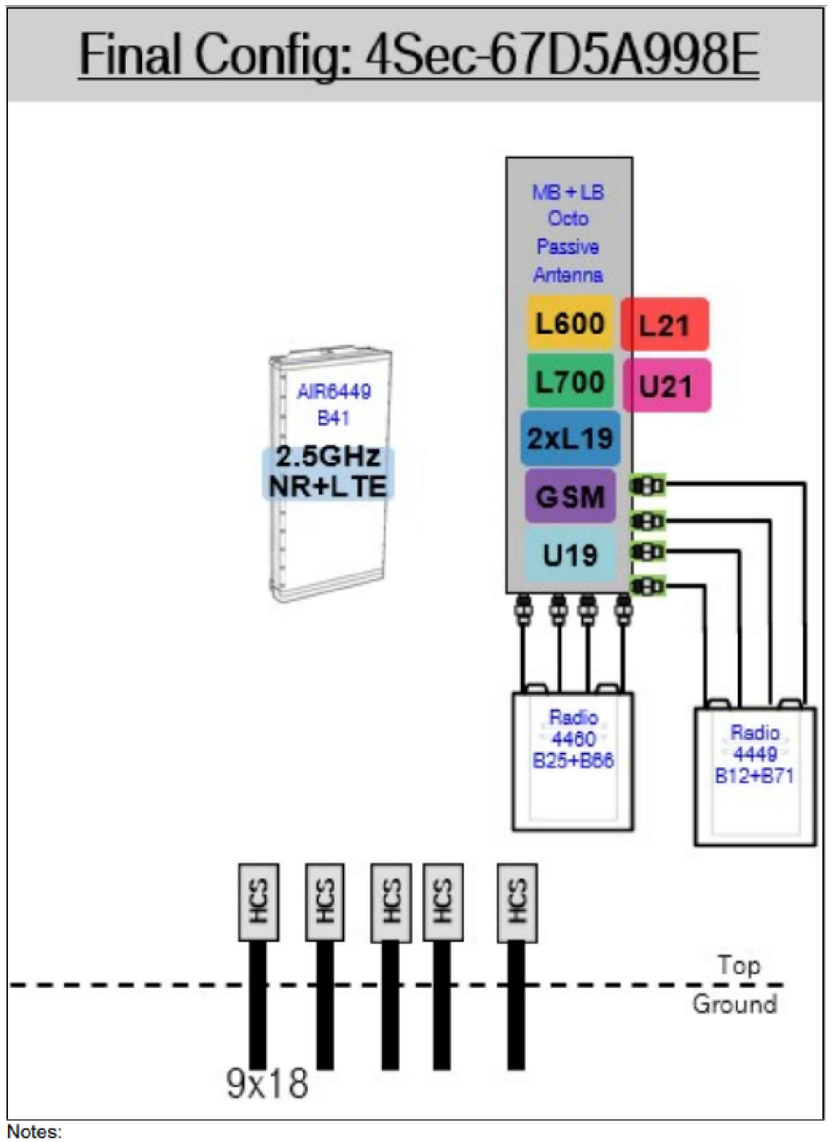
Existing : (4) 6x12,

Remove all Coax,

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

1 CABINET CONFIGURATION

Final Config: 4Sec-67D5A998E



Notes:

2 ANTENNA CONFIGURATION

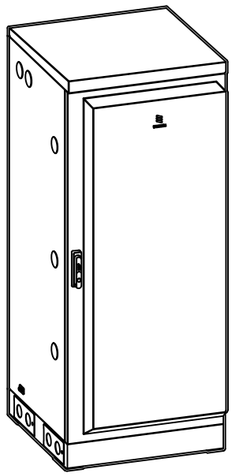
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

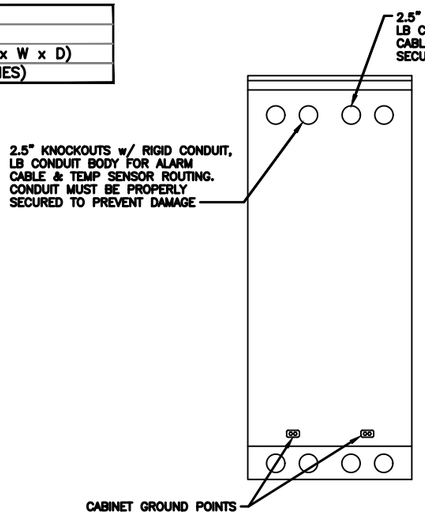
SUPPLEMENTAL

SHEET NUMBER: R-601

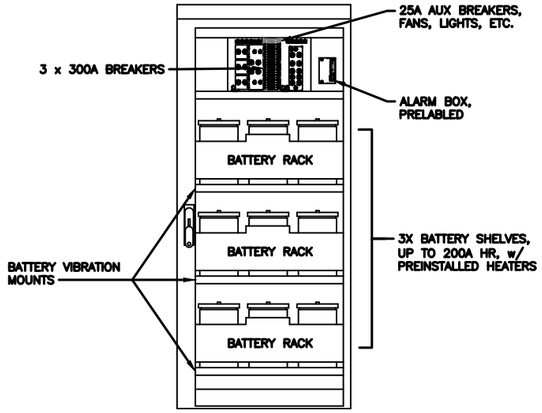
REVISION: 0

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





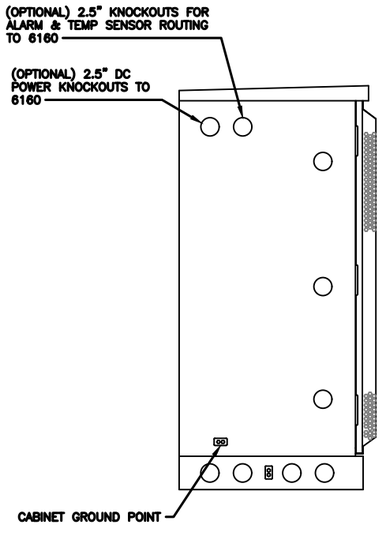
REAR VIEW



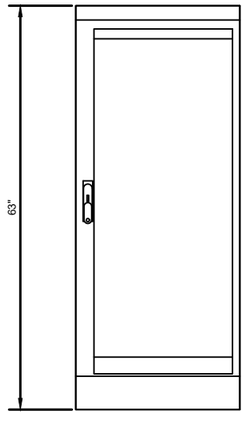
FRONT VIEW
(DOOR OPEN)

GROUNDING NOTE:

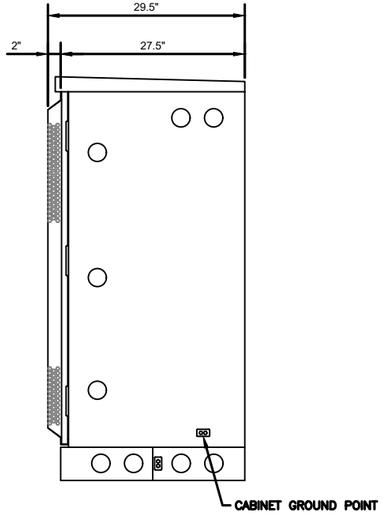
"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."



LEFT VIEW

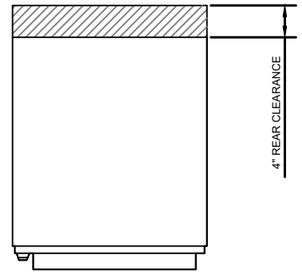


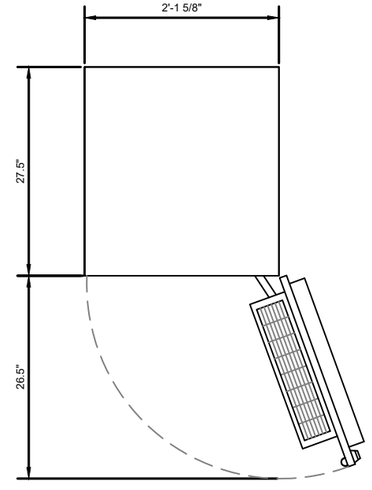
FRONT VIEW



RIGHT VIEW

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





PLAN VIEW

B160 ERICSSON SITE SUPPORT BATTERY CABINET

1 ERICSSON B160 BATTERY CABINET SPECIFICATIONS

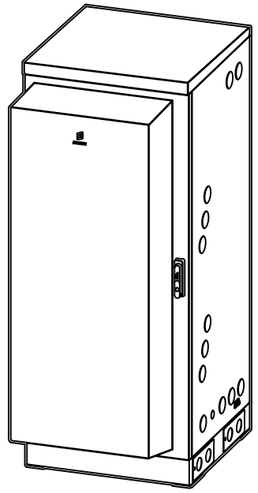
SCALE: N.T.S.

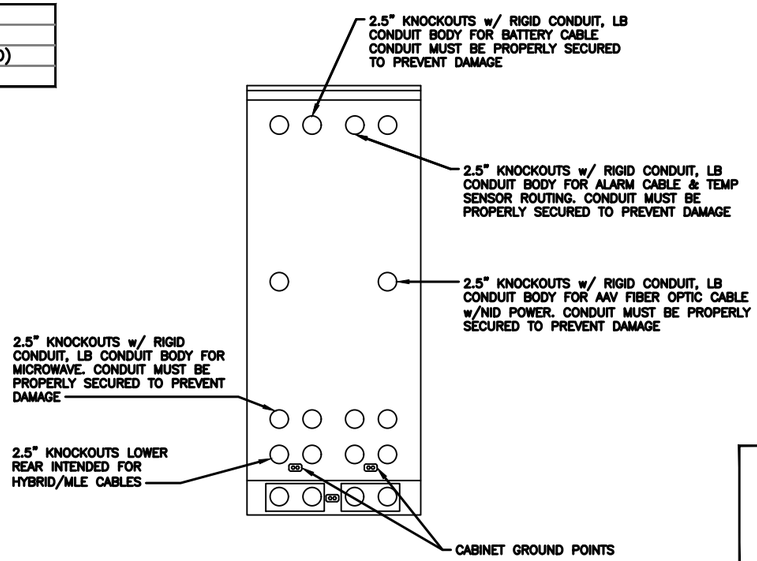
NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-602	0

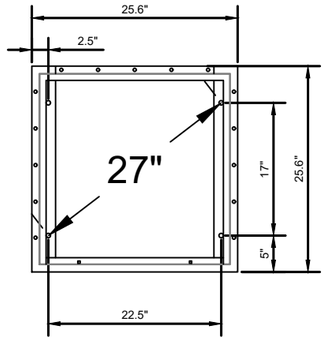
MANUFACTURER:	ERICSSON
MODEL:	6160 SITE SUPPORT CABINET
DIMENSIONS:	63" x 25.6" x 33.6" (H x W x D)
WEIGHT:	373 LBS





REAR VIEW

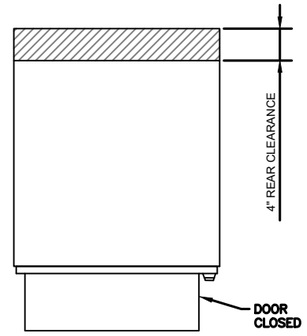
NOTE:
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING

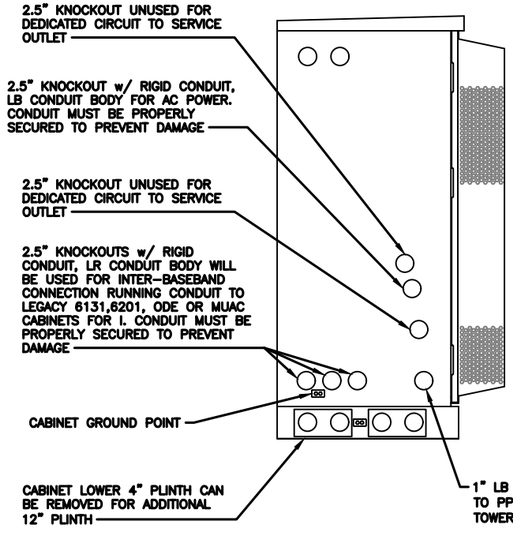


BOLT DOWN PATTERN

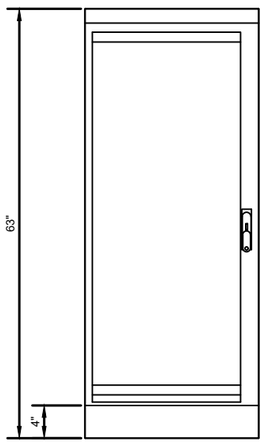
GROUNDING NOTE:

"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."

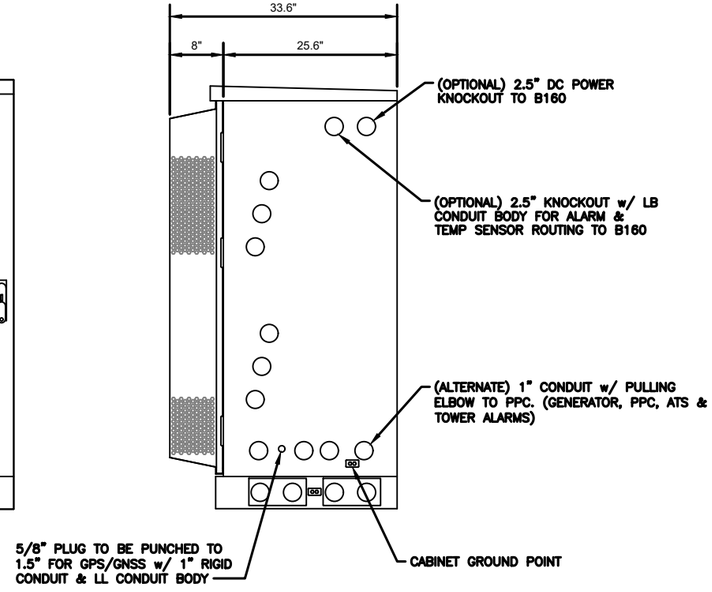




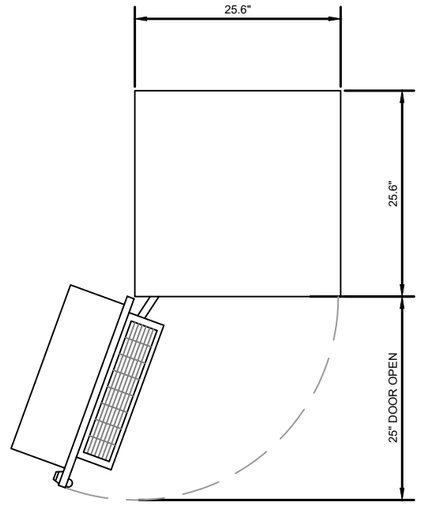
LEFT VIEW



FRONT VIEW



RIGHT VIEW



PLAN VIEW

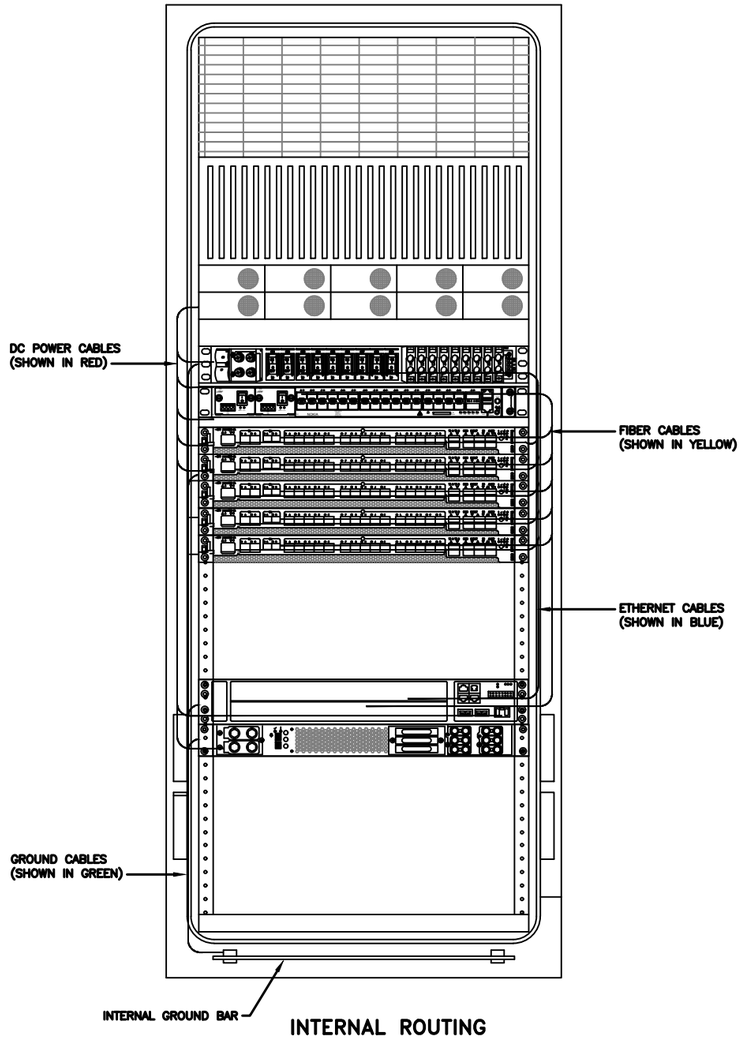
1 ERICSSON 6160 SITE SUPPORT CABINET SPECIFICATIONS

SCALE: N.T.S.

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

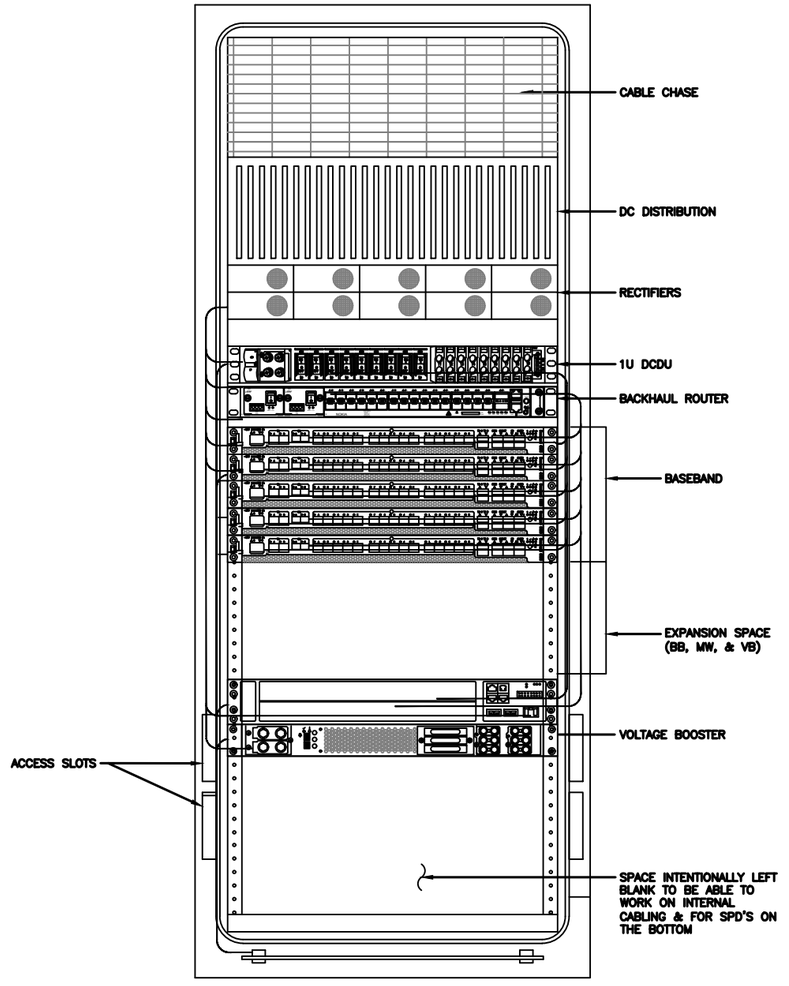
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0



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.

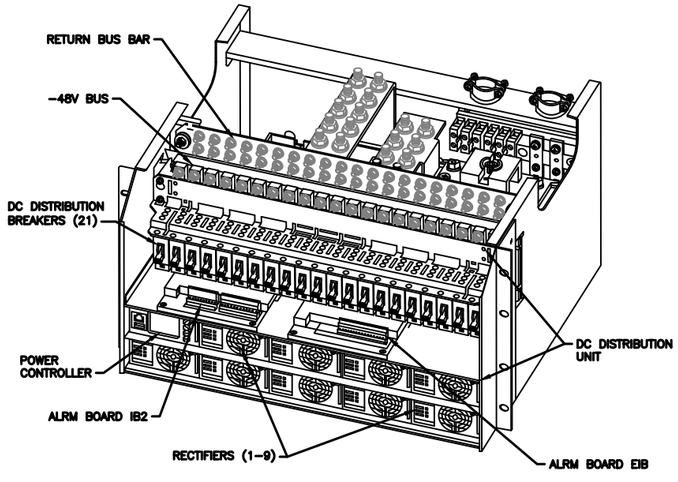
SUPPLEMENTAL

SHEET NUMBER: R-604

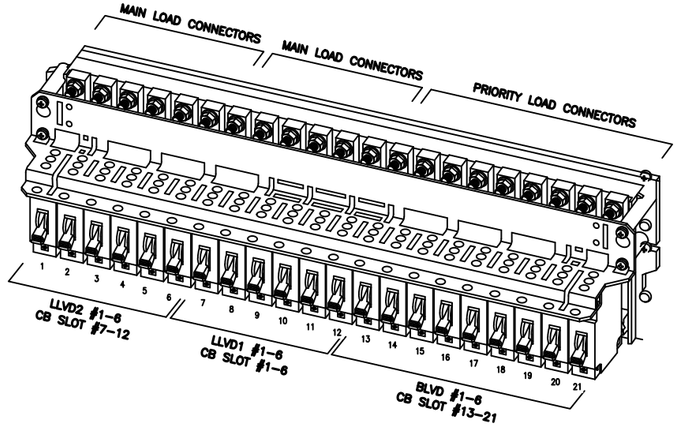
REVISION: 0

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 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.

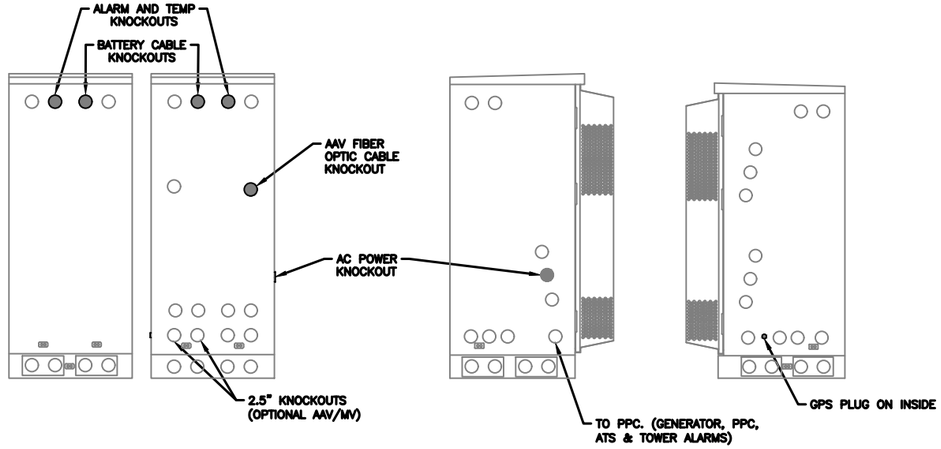
SUPPLEMENTAL

SHEET NUMBER: R-605

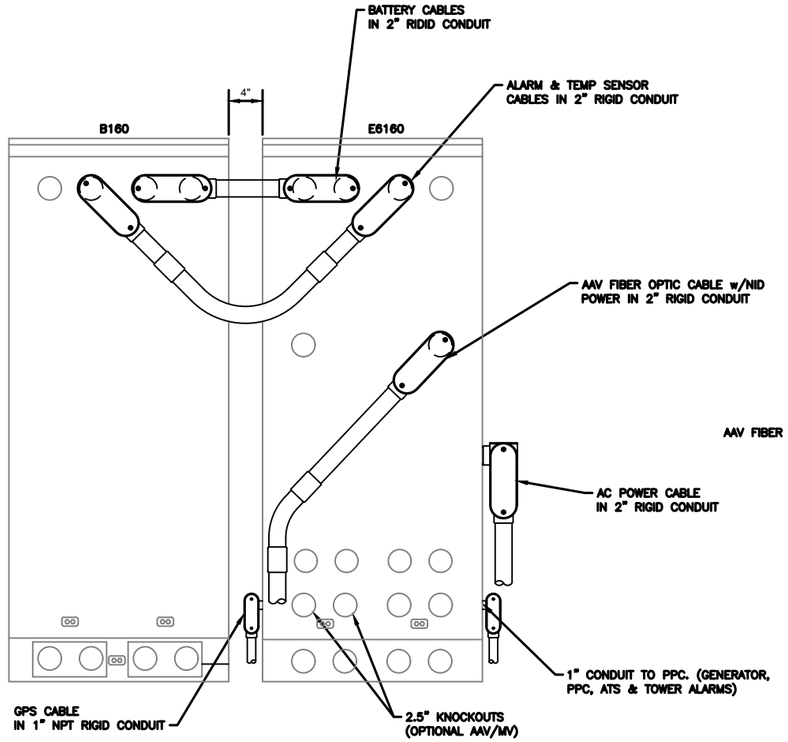
REVISION: 0

NOTE:

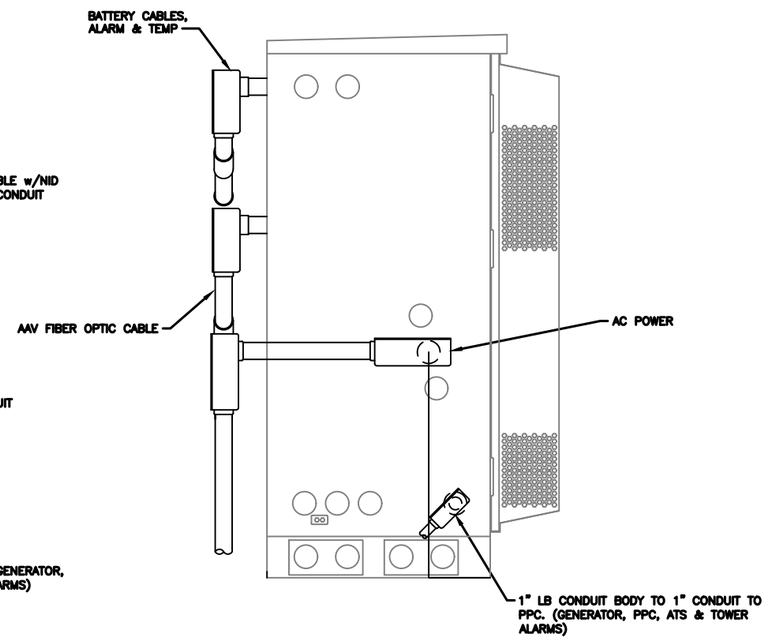
1. ALL CONDUIT AND FITTING ENTRANCES INTO CABINETS AND ENCLOSURES MUST UTILIZE MYERS OR EQUIVALENT HUBS OR SEALING WASHERS TO PREVENT WATER ENTRY/SEEPAGE INTO CABINETS AND ENCLOSURES.
2. (LIQUIDFLEX) FLEXIBLE METALLIC CONDUIT (LFMC) & ASSOCIATED FITTINGS CAN BE USED AS NEEDED BUT ONLY FOR TIGHT CONDUIT BENDS AND RUNS SUBJECT TO UL AND NEC LIMITATIONS. 6' MAX PER CONDUIT RUN.
3. POWER CONDUIT BODY ATTACHED WITH SHORT NIPPLE AND SEALING WASHER INSIDE & OUT. (FOR DOOR HOOD CLEARANCE)
4. PULLING ELBOWS MAY BE USED IN LIEU OF A CONDUIT BODIES WHEN CLEARANCE IS LIMITED.
5. ALL EXTERNAL ALARM CONDUITS ARE TOO TERMINATE AT THE PPC WITH A SINGLE 1" ALARM CONDUIT TO THE 6160.
6. (DO NOT USE CHASE NIPPLES) CONDUIT SHOULD HAVE SEALING WASHERS INSIDE AND OUT w/ LOCK NUT AND CAP.



CONDUIT LOCATIONS



REAR VIEW



SIDE VIEW

1 ERICSSON 6160/B160 CONDUIT ROUTING DETAILS

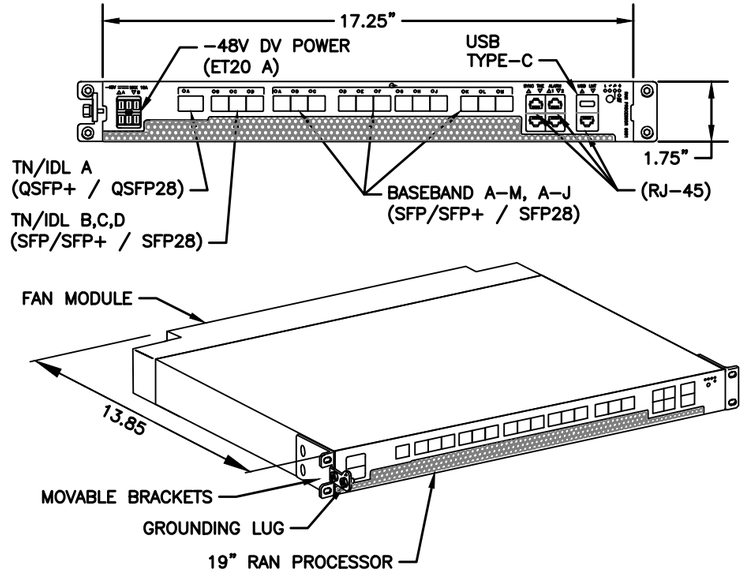
SCALE: N.T.S.

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-606	0

MANUFACTURER:	ERICSSON
MODEL:	6651 RAN PROCESSOR (KDU1370093/11)
DIMENSIONS:	1.75" x 17.25" x 13.85" (H" x W" x D")
WEIGHT:	16.53 LBS

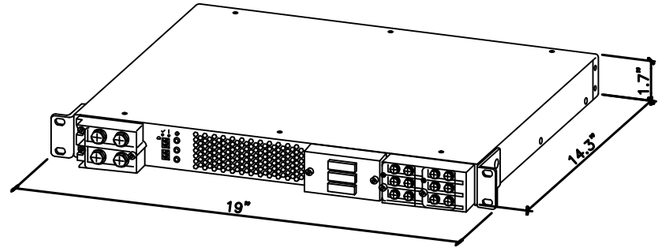


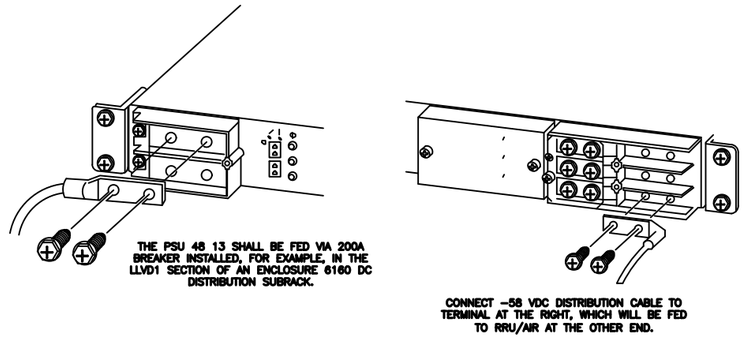
1 34553 - ERICSSON 6651 RAN PROCESSOR

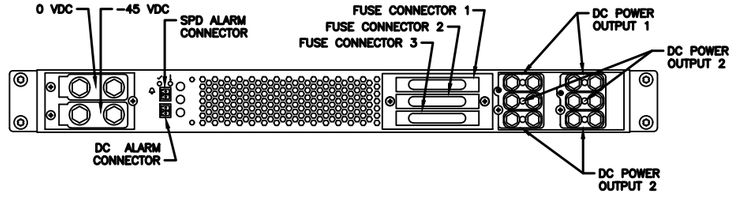
SCALE: N.T.S.

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







2 SKU# 34132 - PSU 48 13

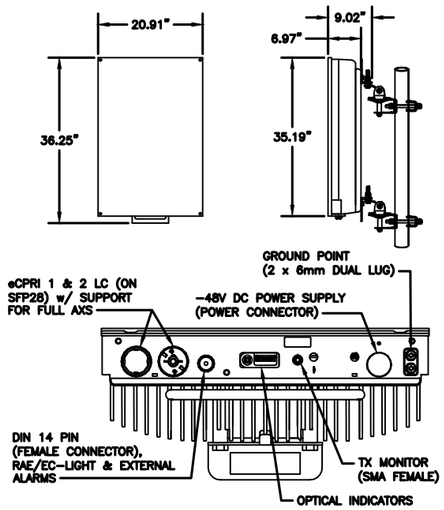
SCALE: N.T.S.

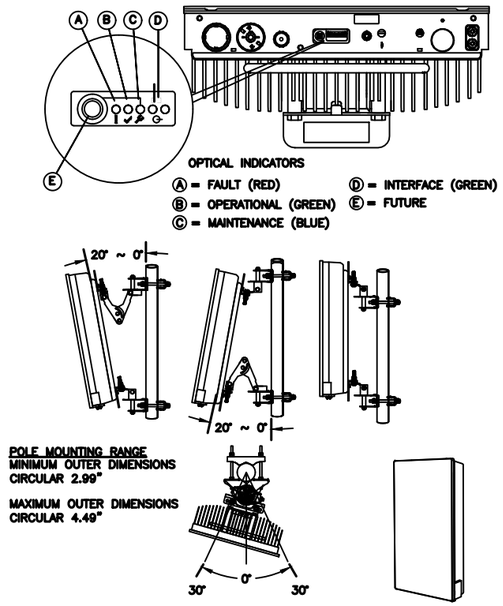
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-607	0

MANUFACTURER:	ERICSSON
MODEL:	AIR 6419 B41 (2.5GHz M-MIMO)
DIMENSIONS:	36.25" x 20.91" x 9.02" NOT TO EXCEED (H x W x D)
WEIGHT:	83 LBS (EXCLUDING MOUNTING KIT)
MOUNT WEIGHT:	13.5 LBS (SXK109 2016/1)

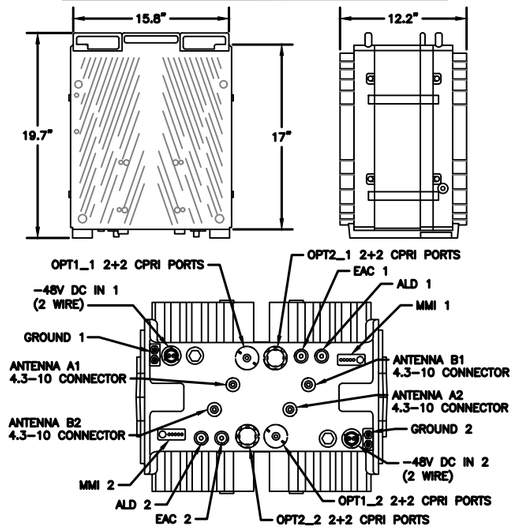




1 34552 - ERICSSON AIR 6419 BAND 41

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)



2 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:	REVISION:
R-608	0

Mount Analysis Report

ATC Site Name	:	**Goshen (Brass Mountain) CT, CT**
ATC Site Number	:	**413850**
Engineering Number	:	**14089646_C8_01**
Mount Elevation	:	**137 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTNH552A**
Carrier Site Number	:	**CTNH552A**
Site Location	:	**438 North Street** **Goshen, CT 06756-1206** **41.85633859 , -73.24159535**
County	:	**Litchfield**
Date	:	**April 12, 2022**
Max Usage	:	**63%**
Result	:	**Pass**

Prepared By:
Brittany Hucks
Structural Engineer I

Brittany Hucks

Reviewed By:

ESHA KAUSHAL MODI
STATE OF CONNECTICUT
32593
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
12 Apr 2022 04:30:07 cosign

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 137 ft.

Supporting Documents

Specifications Sheet	Site Pro 1 F4P-12W, dated August 30, 2017
Radio Frequency Data Sheet	RFDS ID #CTNH552A, dated March 7, 2022
Reference Photos	Site photos from 2021

Analysis

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

Basic Wind Speed:	114 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 1.00'' radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Hill
Crest Height (H):	228 ft
Crest Length (L):	1062 ft
Spectral Response:	Ss = 0.171, S1 = 0.054
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.

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.

A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-609	0

AMERICAN TOWER®
CORPORATION

Mount Analysis Report

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Carrier Site Name	:	**CTNH552A**
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Prepared By:
Brittany Hucks
Structural Engineer I

Brittany Hucks

Reviewed By:

Authorized by "EOR"
12 Apr 2022 04:30:07 cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

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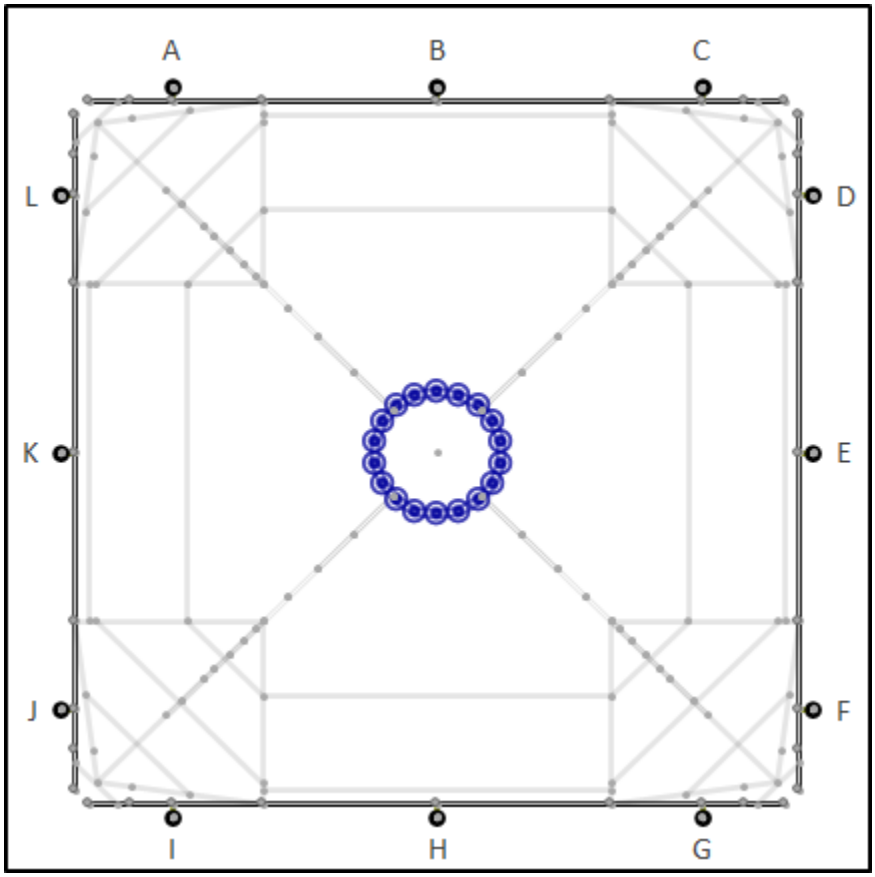
Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
137.0	138.0	4	Ericsson AIR 6419 B41
		4	RFS APXVAARR24_43-U-NA20
		4	Ericsson Radio 4449 B71 B85A
		4	Ericsson 4460 BAND 2/25

Structure Usages

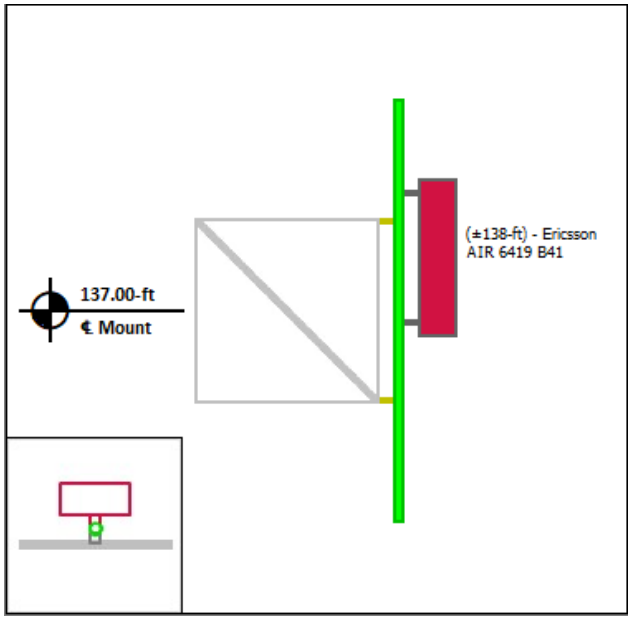
Structural Component	Controlling Usage	Pass/Fail
Horizontals	63%	Pass
Verticals	27%	Pass
Diagonals	30%	Pass
Mount Pipes	48%	Pass

Mount Layout

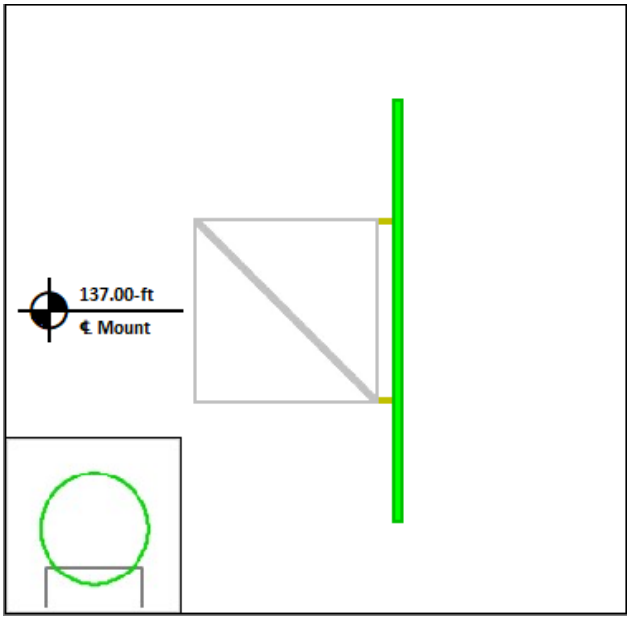


Equipment Layout

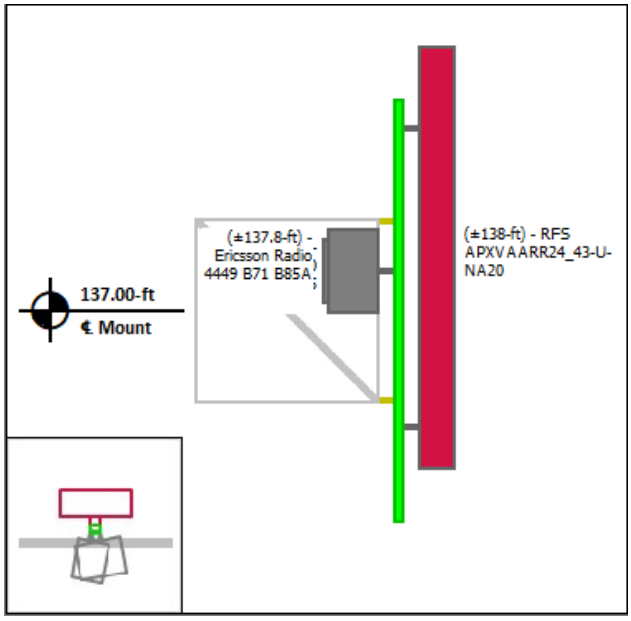
Mount Pipe A



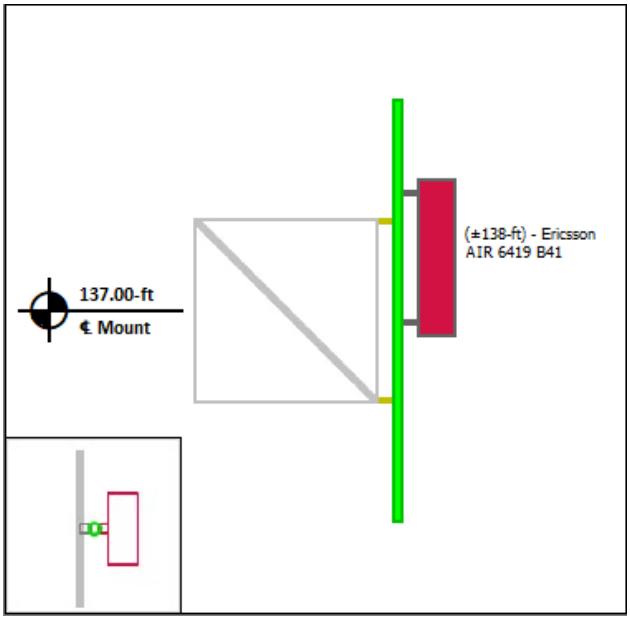
Mount Pipe B



Mount Pipe C

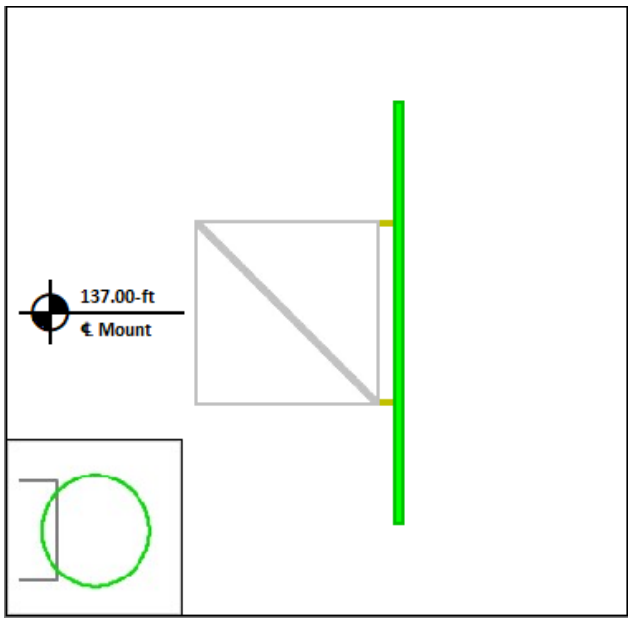


Mount Pipe D

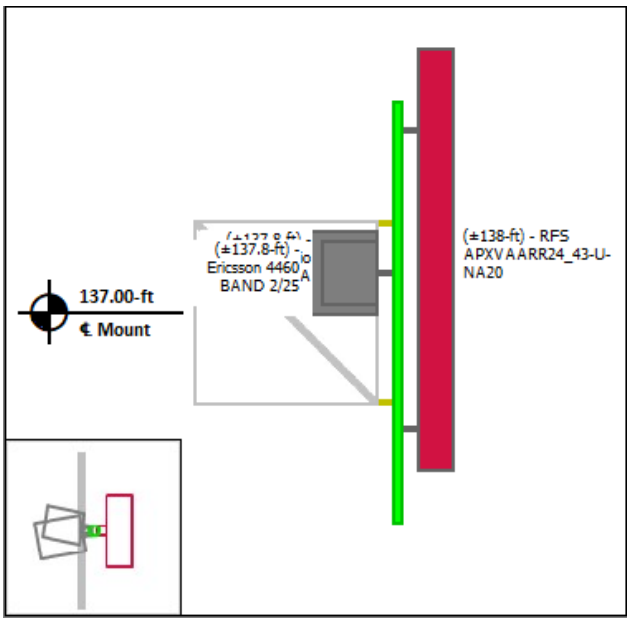


Equipment Layout Cont'd.

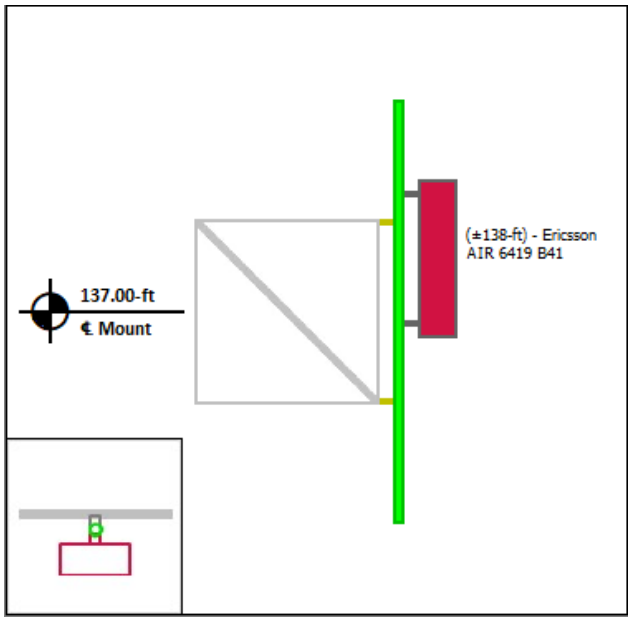
Mount Pipe E



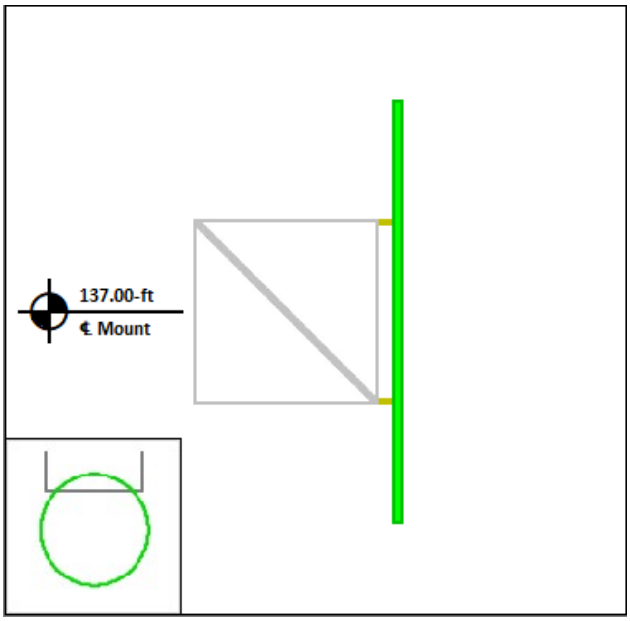
Mount Pipe F



Mount Pipe G

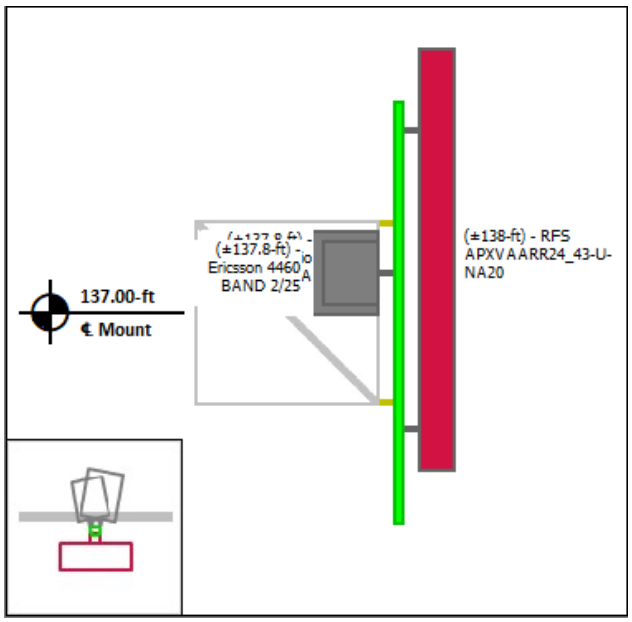


Mount Pipe H

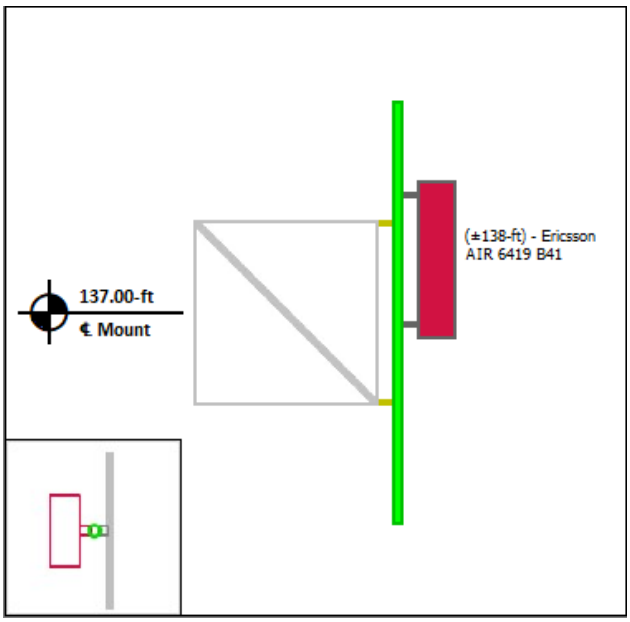


Equipment Layout Cont'd.

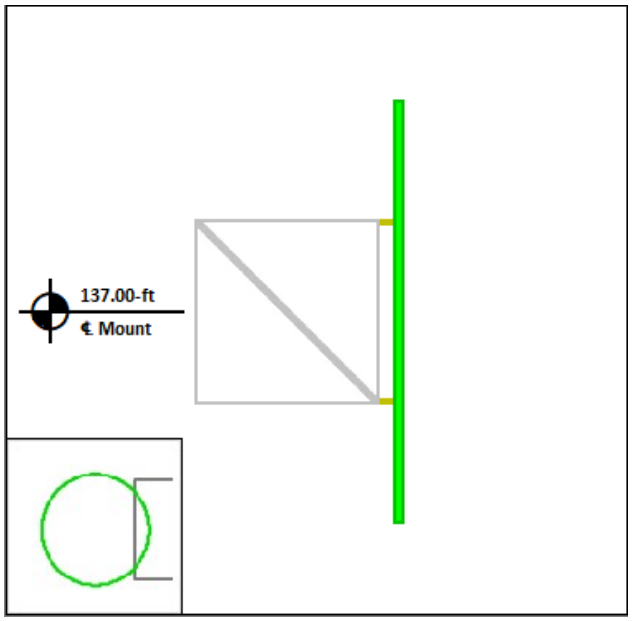
Mount Pipe I



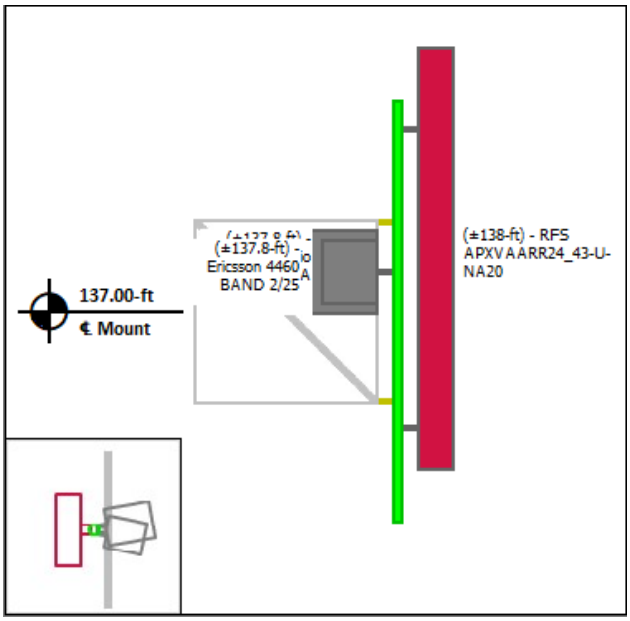
Mount Pipe J



Mount Pipe K



Mount Pipe L



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.

AMERICAN TOWER®
CORPORATION

Site Number:	*413850*
Project Number:	*14089646_C8_01*
Carrier:	*T-Mobile*
Mount Elevation:	*137 ft*
Date:	4/12/2022

Mount Analysis Force Calculations

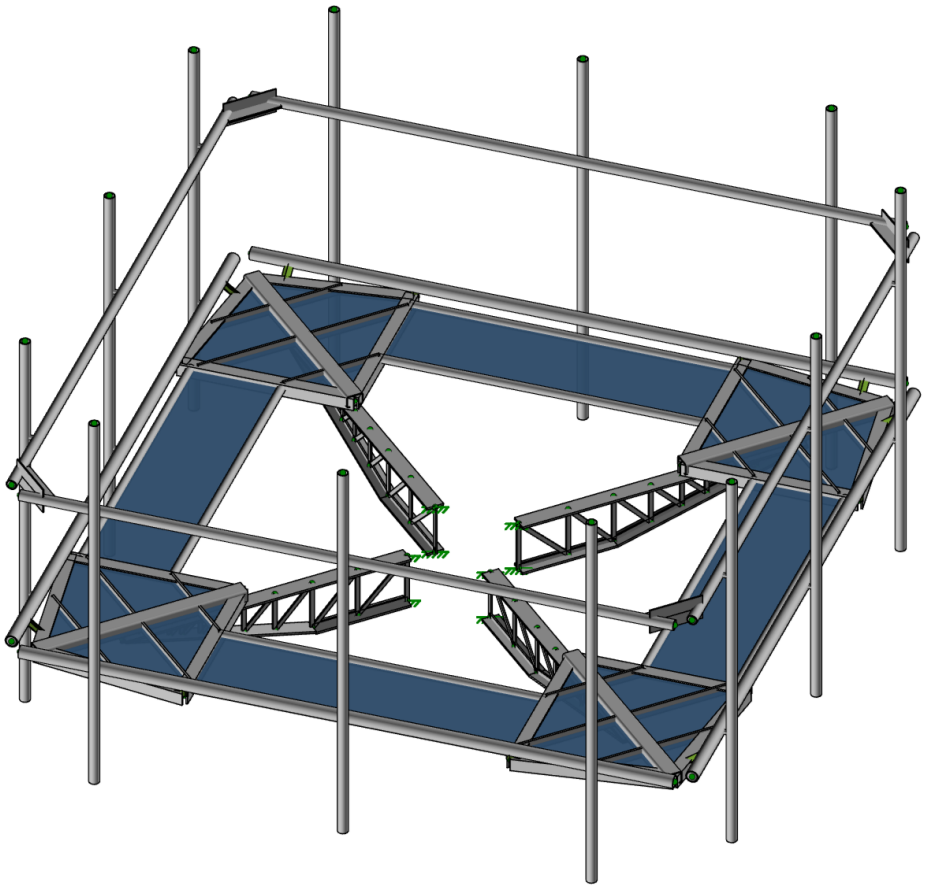
Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.08	
Topographic Factor	K_{zt}	1.32	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	0.94	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	114	mph
Velocity Pressure	q_z	42.4	psf
Height Escalation Factor	K_{iz}	1.15	
Thickness of Radial Glaze Ice	T_{iz}	1.27	in

Seismic Load Calculations			
Short Period DSRAP	S_{DS}	0.182	
1 Second DSRAP	S_{D1}	0.086	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_S	0.091	
Amplification Factor	A	1.0	
Total Weight	W	4201.2	lbs
Total Shear Force	V_S	383.1	lbs
Horizontal Seismic Load	Eh	383.1	lbs
Vertical Seismic Load	Ev	153.3	lbs

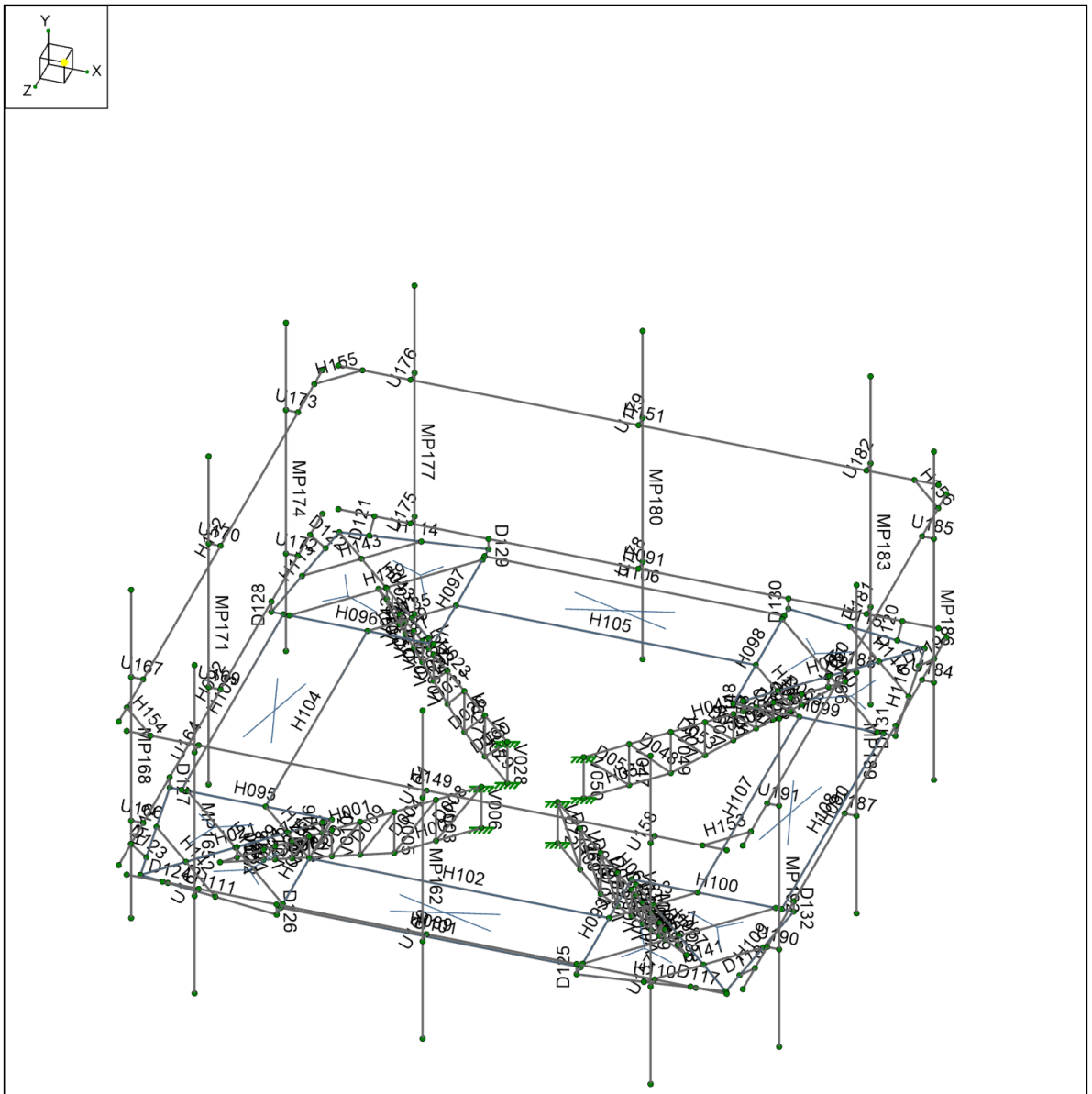
Antenna Calculations (Elevations per Application/RFDS)*

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	7.59	2.50
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.98	4.61
Ericsson Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.30	1.91
Ericsson 4460 BAND 2/25	19.6	15.7	12.1	109.0	2.56	1.98	3.36	2.70

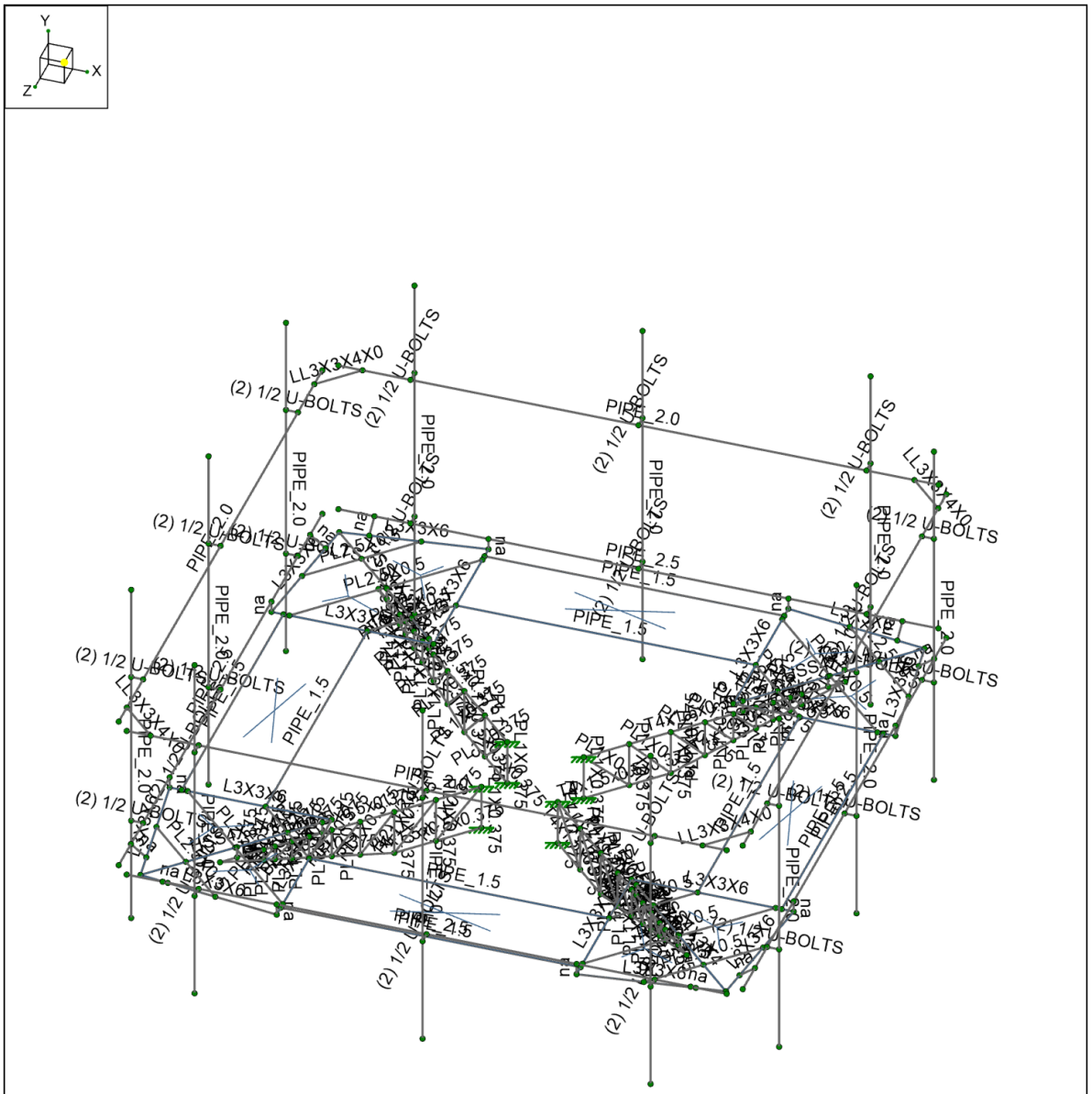
**** Equipment with EPA values N/A were not considered in the mount analysis***



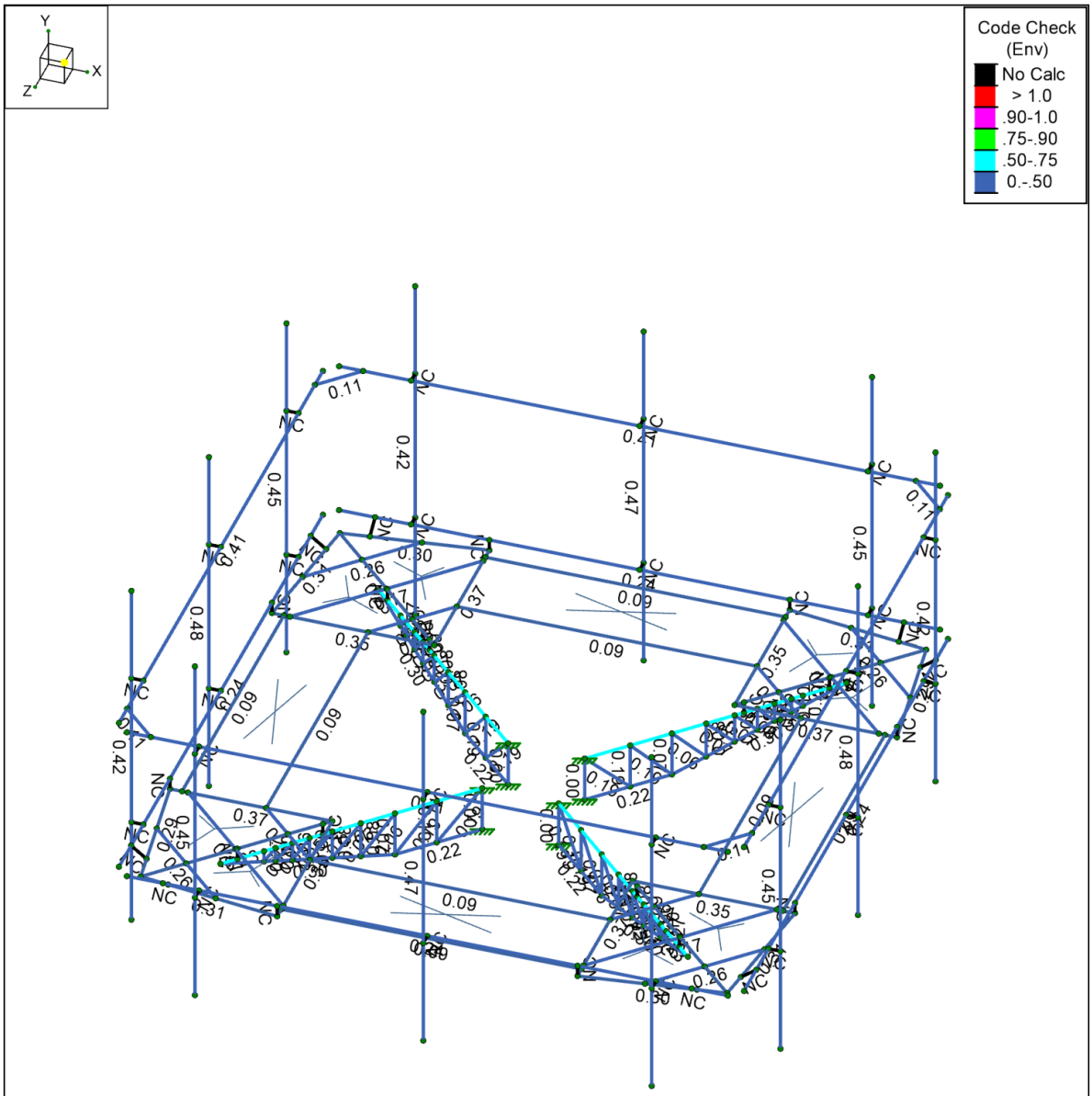
American Tower Corp.	413850, Goshen (Brass Mountain) CT	SK-3
Brittany.Hucks		Apr 12, 2022
14089646_C8_01		R3D. T-MOBILE @ 413850, Gosh…



American Tower Corp.	413850, Goshen (Brass Mountain) CT	SK-4
Brittany.Hucks		Apr 12, 2022
14089646_C8_01		R3D. T-MOBILE @ 413850, Gosh…

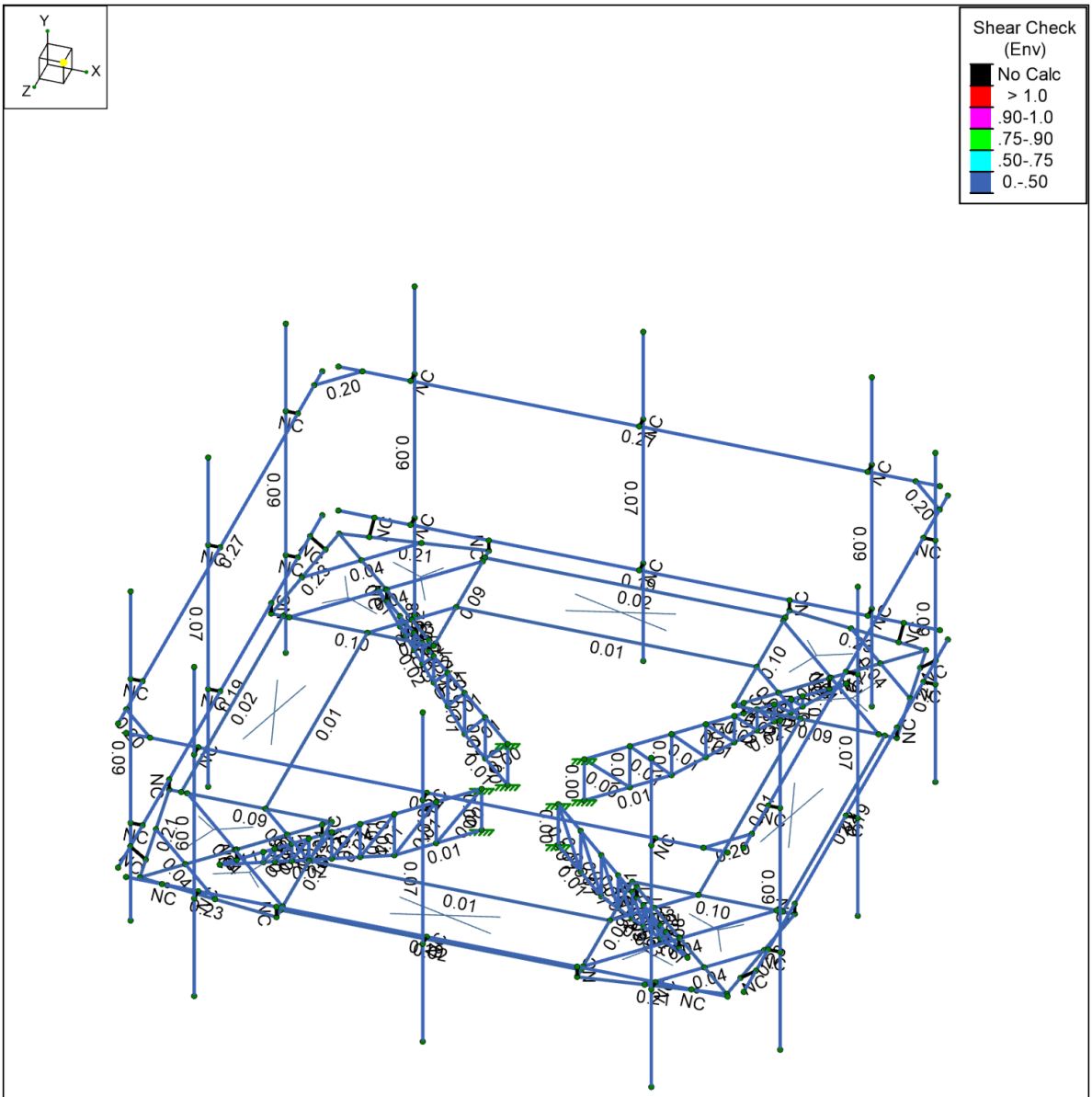


American Tower Corp.	413850, Goshen (Brass Mountain) CT	SK-5
Brittany.Hucks		Apr 12, 2022
14089646_C8_01		R3D. T-MOBILE @ 413850, Gosh…



Member Code Checks Displayed (Enveloped)

American Tower Corp.	413850, Goshen (Brass Mountain) CT	SK-6
Brittany.Hucks		Apr 12, 2022
14089646_C8_01		R3D. T-MOBILE @ 413850, Gosh…



Member Shear Checks Displayed (Enveloped)

American Tower Corp.	413850, Goshen (Brass Mountain) CT	SK-7
Brittany.Hucks		Apr 12, 2022
14089646_C8_01		R3D. T-MOBILE @ 413850, Gosh…

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Surface(Plate/Wall)
1	D	DL	-1		24		
2	Di	IL			24	144	12
3	W 0	WL			24	168	
4	W 30	WL			48	336	
5	W 60	WL			48	336	
6	W 90	WL			24	172	
7	W 120	WL			48	336	
8	W 150	WL			48	336	
9	W 180	WL			24	168	
10	W 210	WL			48	336	
11	W 240	WL			48	336	
12	W 270	WL			24	172	
13	W 300	WL			48	336	
14	W 330	WL			48	336	
15	Wi 0	WL			24	168	
16	Wi 30	WL			48	336	
17	Wi 60	WL			48	336	
18	Wi 90	WL			24	172	
19	Wi 120	WL			48	336	
20	Wi 150	WL			48	336	
21	Wi 180	WL			24	168	
22	Wi 210	WL			48	336	
23	Wi 240	WL			48	336	
24	Wi 270	WL			24	172	
25	Wi 300	WL			48	336	
26	Wi 330	WL			48	336	
27	Ws 0	WL			24	168	
28	Ws 30	WL			48	336	
29	Ws 60	WL			48	336	
30	Ws 90	WL			24	172	
31	Ws 120	WL			48	336	
32	Ws 150	WL			48	336	
33	Ws 180	WL			24	168	
34	Ws 210	WL			48	336	
35	Ws 240	WL			48	336	
36	Ws 270	WL			24	172	
37	Ws 300	WL			48	336	
38	Ws 330	WL			48	336	
39	Ev -Y	ELY				144	
40	Eh -Z	ELZ				144	
41	Eh -X	ELX				144	
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			

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
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

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
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	A992	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	A992	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
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

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
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
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

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
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	N202		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
158	U158	N203	N204		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
159	MP159	N205	N206		PIPE_2.0	Column	None	A53 Gr. B	Typical
160	U160	N191	N207		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
161	U161	N208	N209		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
162	MP162	N210	N211		PIPE_2.0	Column	None	A53 Gr. B	Typical
163	U163	N192	N212		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
164	U164	N213	N214		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
165	MP165	N215	N216		PIPE_2.0	Column	None	A53 Gr. B	Typical
166	U166	N193	N217		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
167	U167	N218	N219		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
168	MP168	N220	N221		PIPE_2.0	Column	None	A53 Gr. B	Typical
169	U169	N194	N222		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
170	U170	N223	N224		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
171	MP171	N225	N226		PIPE_2.0	Column	None	A53 Gr. B	Typical
172	U172	N195	N227		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
173	U173	N228	N229		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
174	MP174	N230	N231		PIPE_2.0	Column	None	A53 Gr. B	Typical
175	U175	N196	N232		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
176	U176	N233	N234		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
177	MP177	N235	N236		PIPE_2.0	Column	None	A53 Gr. B	Typical
178	U178	N197	N237		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
179	U179	N238	N239		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
180	MP180	N240	N241		PIPE_2.0	Column	None	A53 Gr. B	Typical
181	U181	N198	N242		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
182	U182	N243	N244		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
183	MP183	N245	N246		PIPE_2.0	Column	None	A53 Gr. B	Typical
184	U184	N199	N247		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
185	U185	N248	N249		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
186	MP186	N250	N251		PIPE_2.0	Column	None	A53 Gr. B	Typical
187	U187	N200	N252		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
188	U188	N253	N254		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
189	MP189	N255	N256		PIPE_2.0	Column	None	A53 Gr. B	Typical
190	U190	N201	N257		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
191	U191	N258	N259		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
192	MP192	N260	N261		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	Default		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

Member Advanced Data (Continued)

	Label	Physical	Deflection Ratio Options	Activation	Seismic DR
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	Default		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
51	H051	Yes	Default		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

Member Advanced Data (Continued)

	Label	Physical	Deflection Ratio Options	Activation	Seismic DR
69	V069	Yes	** NA **		None
70	D070	Yes	** NA **		None
71	V071	Yes	** NA **		None
72	V072	Yes	** NA **		None
73	H073	Yes	Default		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
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

Member Advanced Data (Continued)

	Label	Physical	Deflection Ratio Options	Activation	Seismic DR
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	Default		None
134	H134	Yes	Default		None
135	H135	Yes	Default		None
136	H136	Yes	Default		None
137	H137	Yes	Default		None
138	H138	Yes	Default		None
139	H139	Yes	Default		None
140	H140	Yes	Default		None
141	H141	Yes	Default		None
142	H142	Yes	Default		None
143	H143	Yes	Default		None
144	H144	Yes	Default		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
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

Member Advanced Data (Continued)

	Label	Physical	Deflection Ratio Options	Activation	Seismic DR
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

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	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
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	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

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
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	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
64	H067	T4x1.5x0.5x0.375	69	Segment	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

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
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
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	96	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	96	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	96	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	96	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	96	Segment	Segment	Lbyy	Segment	2.1	2.1	Lateral
148	U172	(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
149	U173	(2) 1/2 U-BOLTS	3			Lbyy		0.5	0.5	Lateral
150	MP174	PIPE_2.0	96	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	96	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	96	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	96	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	96	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	96	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	96	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	9659.247	6	2440.515	31	5970.958	25	2.034	25	331.701	15	0.628	24
2		min	-5879.422	24	42.921	25	-9756.669	7	-116.979	31	-348.106	9	-114.97	30
3	N005	max	2074.565	25	103.488	31	9084.506	31	0.477	25	125.015	81	-0.058	24
4		min	-9067.677	31	18.992	25	-2081.07	25	-79.021	31	-111.977	111	-77.408	30
5	N025	max	9758.814	4	2440.365	28	9702.747	3	115.06	27	333.522	24	1.786	22
6		min	-5973.047	22	43.865	22	-5922.383	21	-1.117	21	-349.893	6	-116.919	28
7	N028	max	2074.178	21	103.47	27	2086.838	21	77.433	27	124.829	112	0.608	22
8		min	-9083.905	27	19.148	21	-9068.881	27	-0.286	21	-111.822	157	-79.057	28
9	N048	max	5903.625	18	2440.325	37	9743.131	13	116.968	37	317.656	21	114.984	36
10		min	-9683.781	12	44.274	19	-5957.36	19	-1.945	19	-333.945	3	-0.745	18
11	N051	max	9066.32	37	103.486	37	2070.871	19	79.011	37	125.431	147	77.459	36
12		min	-2064.243	19	19.033	19	-9083.158	37	-0.398	19	-112.391	189	-0.324	18
13	N071	max	5971.998	16	2440.348	34	5917.345	15	1.1	15	319.932	18	116.918	34
14		min	-9757.641	10	43.931	16	-9697.004	9	-115.057	33	-336.196	12	-1.781	16
15	N074	max	9083.577	33	103.469	33	9068.737	33	-0.026	15	125.114	192	79.051	34
16		min	-2071.498	15	19.154	16	-2086.416	15	-77.392	33	-112.076	78	-0.55	16
17	Totals:	max	6696.299	16	9663.826	30	6657.147	15						
18		min	-6696.299	10	3496.369	24	-6657.15	9						

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	0.627	64.688	7	0.137	69	y	7	103648.426	106875	7631.836	830.305	1.024	H1-1b
2	D002	T4x1.5x0.5x0.375	0.3	47.539	7	0.024	35.655	y	7	55139.096	106875	7631.836	830.305	1.301	H1-1b
3	V003	PL1X0.375	0.188	12	31	0.013	0	y	9	11544.761	16875	131.836	351.562	2.276	H1-1b*
4	D004	PL1X0.375	0.187	0	31	0.006	16.279	y	111	8391.851	16875	131.836	351.562	2.128	H1-1b*
5	V005	PL1X0.375	0.071	12	12	0.011	0	y	9	11544.761	16875	131.836	351.562	2.275	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	0.222	0	31	0.012	12.219	y	9	74070.188	106875	7631.836	830.305	2.179	H1-1b
8	D008	PL1X0.375	0.186	0	31	0.003	0	y	9	7898.164	16875	131.836	351.562	1.443	H1-1b*
9	D009	PL1X0.375	0.064	0	12	0.009	13.197	y	81	10662.257	16875	131.836	351.562	2.165	H1-1b*
10	V010	PL1X0.375	0.083	0	13	0.011	0	y	10	13200.334	16875	131.836	351.562	2.289	H1-1b
11	D011	PL1X0.375	0.069	10.746	12	0.013	10.746	y	82	12446.572	16875	131.836	351.562	2.123	H1-1b*
12	V012	PL1X0.375	0.081	0	12	0.009	0	y	82	14435.8	16875	131.836	351.562	2.267	H1-1b*
13	D013	PL1X0.375	0.072	0	7	0.022	8.578	y	81	13899.502	16875	131.836	351.562	2.145	H1-1b*
14	V014	PL1X0.375	0.088	6.13	7	0.009	6.13	y	7	15283.318	16875	131.836	351.562	2.243	H1-1b
15	D015	PL1X0.375	0.051	0	7	0.023	6.695	y	81	14994.597	16875	131.836	351.562	2.264	H1-1b
16	V016	PL1X0.375	0.063	4.957	7	0.01	4.957	y	7	15816.779	16875	131.836	351.562	2.261	H1-1b
17	D017	PL1X0.375	0.049	0	6	0.019	5.878	y	81	15405.744	16875	131.836	351.562	2.159	H1-1b*
18	V018	PL1X0.375	0.1	3.783	7	0.023	3.783	y	7	16250.333	16875	131.836	351.562	2.256	H1-1b
19	D019	PL1X0.375	0.104	4.243	7	0.025	4.243	y	81	16092.888	16875	131.836	351.562	2.209	H1-1b
20	V020	PL1X0.375	0.272	3	7	0.08	3	y	7	16479.351	16875	131.836	351.562	2.222	H1-1b
21	H021	HSS4X3X4	0.231	25.25	7	0.108	25.25	z	7	90386.543	94284	8424	10287	1.708	H1-1b
22	H023	T4x1.5x0.5x0.375	0.627	64.688	4	0.137	69	y	4	103648.426	106875	7631.836	830.305	1.023	H1-1b
23	D024	T4x1.5x0.5x0.375	0.299	47.539	4	0.024	35.655	y	4	55139.096	106875	7631.836	830.305	1.308	H1-1b
24	V025	PL1X0.375	0.188	12	28	0.013	0	y	6	11544.761	16875	131.836	351.562	2.279	H1-1b*
25	D026	PL1X0.375	0.187	0	28	0.006	16.279	y	156	8391.851	16875	131.836	351.562	2.128	H1-1b*
26	V027	PL1X0.375	0.072	12	9	0.011	0	y	6	11544.761	16875	131.836	351.562	2.266	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	0.221	0	28	0.012	12.219	y	5	74070.188	106875	7631.836	830.305	2.177	H1-1b
29	D030	PL1X0.375	0.186	0	28	0.003	0	y	6	7898.164	16875	131.836	351.562	1.444	H1-1b*
30	D031	PL1X0.375	0.065	0	9	0.009	13.197	y	115	10662.257	16875	131.836	351.562	2.166	H1-1b*
31	V032	PL1X0.375	0.084	0	10	0.011	0	y	7	13200.334	16875	131.836	351.562	2.291	H1-1b
32	D033	PL1X0.375	0.07	10.746	9	0.013	10.746	y	115	12446.572	16875	131.836	351.562	2.123	H1-1b*
33	V034	PL1X0.375	0.081	0	9	0.009	0	y	115	14435.8	16875	131.836	351.562	2.251	H1-1b*
34	D035	PL1X0.375	0.072	0	3	0.022	8.578	y	114	13899.393	16875	131.836	351.562	2.142	H1-1b*
35	V036	PL1X0.375	0.088	6.13	4	0.009	6.13	y	4	15283.362	16875	131.836	351.562	2.25	H1-1b
36	D037	PL1X0.375	0.051	0	4	0.023	6.694	y	114	14994.806	16875	131.836	351.562	2.264	H1-1b
37	V038	PL1X0.375	0.063	4.957	4	0.01	4.957	y	4	15816.741	16875	131.836	351.562	2.256	H1-1b
38	D039	PL1X0.375	0.049	0	3	0.019	5.879	y	114	15405.615	16875	131.836	351.562	2.159	H1-1b*
39	V040	PL1X0.375	0.1	3.783	4	0.023	3.783	y	4	16250.333	16875	131.836	351.562	2.258	H1-1b
40	D041	PL1X0.375	0.104	4.243	4	0.025	4.243	y	114	16092.888	16875	131.836	351.562	2.209	H1-1b
41	V042	PL1X0.375	0.272	3	4	0.081	3	y	3	16479.351	16875	131.836	351.562	2.222	H1-1b
42	H043	HSS4X3X4	0.23	25.25	4	0.108	25.25	z	4	90386.543	94284	8424	10287	1.709	H1-1b
43	H045	T4x1.5x0.5x0.375	0.626	64.687	13	0.137	69	y	13	103648.426	106875	7631.836	830.305	1.024	H1-1b
44	D046	T4x1.5x0.5x0.375	0.299	47.539	13	0.024	35.655	y	13	55139.096	106875	7631.836	830.305	1.304	H1-1b
45	V047	PL1X0.375	0.188	12	37	0.013	0	y	3	11544.761	16875	131.836	351.562	2.276	H1-1b*
46	D048	PL1X0.375	0.187	0	37	0.006	16.279	y	189	8391.851	16875	131.836	351.562	2.128	H1-1b*
47	V049	PL1X0.375	0.072	12	6	0.011	0	y	3	11544.761	16875	131.836	351.562	2.274	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	0.222	0	37	0.012	12.219	y	3	74070.188	106875	7631.836	830.305	2.178	H1-1b
50	D052	PL1X0.375	0.186	0	37	0.003	16.971	y	4	7898.164	16875	131.836	351.562	1.443	H1-1b*
51	D053	PL1X0.375	0.064	0	6	0.009	13.197	y	147	10662.257	16875	131.836	351.562	2.165	H1-1b*
52	V054	PL1X0.375	0.083	9.652	6	0.011	0	y	4	13200.334	16875	131.836	351.562	2.291	H1-1b
53	D055	PL1X0.375	0.069	10.746	6	0.013	10.746	y	147	12446.474	16875	131.836	351.562	2.123	H1-1b*
54	V056	PL1X0.375	0.081	0	6	0.009	0	y	148	14435.841	16875	131.836	351.562	2.267	H1-1b*
55	D057	PL1X0.375	0.072	0	12	0.022	8.578	y	147	13899.511	16875	131.836	351.562	2.143	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
56	V058	PL1X0.375	0.088	6.13	13	0.009	6.13	y	13	15283.362	16875	131.836	351.562	2.244	H1-1b
57	D059	PL1X0.375	0.051	0	13	0.023	6.694	y	147	14994.806	16875	131.836	351.562	2.264	H1-1b
58	V060	PL1X0.375	0.063	4.957	13	0.01	4.957	y	13	15816.741	16875	131.836	351.562	2.261	H1-1b
59	D061	PL1X0.375	0.049	0	12	0.019	5.879	y	147	15405.615	16875	131.836	351.562	2.159	H1-1b*
60	V062	PL1X0.375	0.1	3.783	13	0.022	3.783	y	13	16250.333	16875	131.836	351.562	2.256	H1-1b
61	D063	PL1X0.375	0.104	4.243	13	0.025	4.243	y	147	16092.888	16875	131.836	351.562	2.209	H1-1b
62	V064	PL1X0.375	0.272	3	13	0.08	3	y	12	16479.351	16875	131.836	351.562	2.222	H1-1b
63	H065	HSS4X3X4	0.23	25.25	13	0.108	25.25	z	13	90386.543	94284	8424	10287	1.709	H1-1b
64	H067	T4x1.5x0.5x0.375	0.627	64.688	10	0.137	69	y	10	103648.426	106875	7631.836	830.305	1.023	H1-1b
65	D068	T4x1.5x0.5x0.375	0.299	47.539	10	0.024	35.655	y	10	55139.096	106875	7631.836	830.305	1.317	H1-1b
66	V069	PL1X0.375	0.188	12	34	0.013	0	y	12	11544.761	16875	131.836	351.562	2.279	H1-1b*
67	D070	PL1X0.375	0.187	0	34	0.006	16.279	y	78	8391.851	16875	131.836	351.562	2.128	H1-1b*
68	V071	PL1X0.375	0.072	12	3	0.011	0	y	12	11544.761	16875	131.836	351.562	2.266	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
70	H073	T4x1.5x0.5x0.375	0.222	0	34	0.012	12.219	y	12	74070.188	106875	7631.836	830.305	2.175	H1-1b
71	D074	PL1X0.375	0.186	0	34	0.003	16.971	y	13	7898.164	16875	131.836	351.562	1.444	H1-1b*
72	D075	PL1X0.375	0.065	0	3	0.009	13.197	y	193	10662.257	16875	131.836	351.562	2.166	H1-1b*
73	V076	PL1X0.375	0.084	0	4	0.011	0	y	13	13200.334	16875	131.836	351.562	2.291	H1-1b
74	D077	PL1X0.375	0.07	10.746	3	0.013	10.746	y	193	12446.572	16875	131.836	351.562	2.123	H1-1b*
75	V078	PL1X0.375	0.081	0	3	0.009	0	y	193	14435.8	16875	131.836	351.562	2.251	H1-1b*
76	D079	PL1X0.375	0.072	0	9	0.022	8.578	y	192	13899.393	16875	131.836	351.562	2.142	H1-1b*
77	V080	PL1X0.375	0.089	6.13	10	0.009	6.13	y	10	15283.362	16875	131.836	351.562	2.25	H1-1b
78	D081	PL1X0.375	0.051	0	10	0.023	6.694	y	192	14994.806	16875	131.836	351.562	2.264	H1-1b
79	V082	PL1X0.375	0.063	4.957	10	0.01	4.957	y	10	15816.741	16875	131.836	351.562	2.256	H1-1b
80	D083	PL1X0.375	0.049	0	9	0.019	5.879	y	192	15405.615	16875	131.836	351.562	2.159	H1-1b*
81	V084	PL1X0.375	0.1	3.783	10	0.023	3.783	y	10	16250.333	16875	131.836	351.562	2.258	H1-1b
82	D085	PL1X0.375	0.104	4.243	10	0.025	4.243	y	192	16092.888	16875	131.836	351.562	2.209	H1-1b
83	V086	PL1X0.375	0.272	3	10	0.081	3	y	9	16479.351	16875	131.836	351.562	2.222	H1-1b
84	H087	HSS4X3X4	0.23	25.25	10	0.108	25.25	z	10	90386.543	94284	8424	10287	1.711	H1-1b
85	H089	PIPE_2.5	0.243	37.5	12	0.192	37.5		3	14558.792	52164	3699	3699	1.232	H1-1b
86	H090	PIPE_2.5	0.244	112.5	3	0.192	112.5		6	14558.792	52164	3699	3699	1.231	H1-1b
87	H091	PIPE_2.5	0.244	112.5	6	0.193	112.5		9	14558.792	52164	3699	3699	1.231	H1-1b
88	H092	PIPE_2.5	0.245	112.5	9	0.191	112.5		12	14558.792	52164	3699	3699	1.231	H1-1b
89	H093	L3X3X6	0.374	40.523	13	0.093	37.569	z	12	61352.986	68364	2307.398	5322.329	1.5	H2-1
90	H094	L3X3X6	0.351	40.523	13	0.096	40.523	y	82	61352.986	68364	2307.398	5322.329	1.5	H2-1
91	H095	L3X3X6	0.374	40.523	10	0.094	37.569	z	9	61352.986	68364	2307.398	5322.329	1.5	H2-1
92	H096	L3X3X6	0.351	40.523	10	0.096	40.523	y	115	61352.986	68364	2307.398	5322.329	1.5	H2-1
93	H097	L3X3X6	0.374	40.523	7	0.093	37.569	z	6	61352.986	68364	2307.398	5322.329	1.5	H2-1
94	H098	L3X3X6	0.35	40.523	7	0.096	40.523	y	148	61352.986	68364	2307.398	5322.329	1.5	H2-1
95	H099	L3X3X6	0.374	40.523	4	0.093	37.569	z	3	61352.986	68364	2307.398	5322.329	1.5	H2-1
96	H100	L3X3X6	0.351	40.523	4	0.096	40.523	y	193	61352.986	68364	2307.398	5322.329	1.5	H2-1
97	H101	PIPE_1.5	0.091	0	75	0.019	0		95	17294.953	23593.5	1105.125	1105.125	1.064	H1-1b*
98	H102	PIPE_1.5	0.093	0	12	0.014	0		94	17294.953	23593.5	1105.125	1105.125	2.449	H1-1b
99	H103	PIPE_1.5	0.091	0	120	0.019	0		128	17294.953	23593.5	1105.125	1105.125	1.064	H1-1b*
100	H104	PIPE_1.5	0.093	0	9	0.014	0		127	17294.953	23593.5	1105.125	1105.125	2.45	H1-1b
101	H105	PIPE_1.5	0.093	0	6	0.014	0		160	17294.953	23593.5	1105.125	1105.125	2.451	H1-1b
102	H106	PIPE_1.5	0.091	0	153	0.019	0		161	17294.953	23593.5	1105.125	1105.125	1.064	H1-1b*
103	H107	PIPE_1.5	0.093	0	3	0.014	0		205	17294.953	23593.5	1105.125	1105.125	2.449	H1-1b
104	H108	PIPE_1.5	0.091	0	186	0.019	0		194	17294.953	23593.5	1105.125	1105.125	1.064	H1-1b*
105	H109	L3X3X6	0.308	36.032	10	0.232	36.032	z	10	62758.854	68364	2307.398	5322.329	1.5	H2-1
106	H110	L3X3X6	0.295	36.032	9	0.208	36.032	y	9	62758.854	68364	2307.398	5322.329	1.5	H2-1
107	H111	L3X3X6	0.308	36.032	7	0.232	36.032	z	7	62758.854	68364	2307.398	5322.329	1.5	H2-1
108	H112	L3X3X6	0.294	36.032	6	0.207	36.032	y	6	62758.854	68364	2307.398	5322.329	1.5	H2-1
109	H113	L3X3X6	0.308	36.032	4	0.232	36.032	z	4	62758.854	68364	2307.398	5322.329	1.5	H2-1
110	H114	L3X3X6	0.295	36.032	3	0.208	36.032	y	3	62758.854	68364	2307.398	5322.329	1.5	H2-1

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
111	H115	L3X3X6	0.307	36.032	13	0.231	36.032	z	13	62758.854	68364	2307.398	5322.329	1.5	H2-1
112	H116	L3X3X6	0.295	36.032	12	0.207	36.032	y	12	62758.854	68364	2307.398	5322.329	1.5	H2-1
113	H133	PL2.5X0.5	0.169	11.684	36	0.034	11.684	y	192	22608.639	40500	421.875	2109.375	1.276	H1-1b
114	H134	PL2.5X0.5	0.169	11.684	33	0.034	11.684	y	81	22608.639	40500	421.875	2109.375	1.277	H1-1b
115	H135	PL2.5X0.5	0.169	11.684	30	0.034	11.684	y	114	22608.639	40500	421.875	2109.375	1.277	H1-1b
116	H136	PL2.5X0.5	0.169	11.684	27	0.034	11.684	y	147	22608.639	40500	421.875	2109.375	1.277	H1-1b
117	H137	PL2.5X0.5	0.172	25.472	9	0.042	25.472	y	12	5365.176	40500	421.875	2109.375	1.291	H1-1b
118	H138	PL2.5X0.5	0.171	25.472	6	0.042	25.472	y	9	5365.176	40500	421.875	2109.375	1.291	H1-1b
119	H139	PL2.5X0.5	0.172	25.472	3	0.042	25.472	y	6	5365.176	40500	421.875	2109.375	1.291	H1-1b
120	H140	PL2.5X0.5	0.171	25.472	12	0.042	25.472	y	3	5365.176	40500	421.875	2109.375	1.291	H1-1b
121	H141	PL2.5X0.5	0.264	15.74	9	0.036	15.74	y	10	14051.08	40500	421.875	2109.375	1.288	H1-1b
122	H142	PL2.5X0.5	0.263	15.74	6	0.036	15.74	y	7	14051.08	40500	421.875	2109.375	1.288	H1-1b
123	H143	PL2.5X0.5	0.264	15.74	3	0.036	15.74	y	4	14051.08	40500	421.875	2109.375	1.287	H1-1b
124	H144	PL2.5X0.5	0.263	15.74	12	0.036	15.74	y	13	14051.08	40500	421.875	2109.375	1.287	H1-1b
125	H149	PIPE_2.0	0.414	132.812	3	0.275	143.75		2	6295.422	32130	1871.625	1871.625	2.086	H3-6
126	H150	PIPE_2.0	0.412	17.188	6	0.274	6.25		5	6295.422	32130	1871.625	1871.625	2.091	H3-6
127	H151	PIPE_2.0	0.414	17.188	9	0.274	6.25		8	6295.422	32130	1871.625	1871.625	2.089	H3-6
128	H152	PIPE_2.0	0.413	17.187	12	0.274	6.25		11	6295.422	32130	1871.625	1871.625	2.094	H3-6
129	H153	LL3X3X4X0	0.108	12.728	10	0.201	12.728	z	6	77774.564	93312	6480	4910.906	1.116	H1-1b
130	H154	LL3X3X4X0	0.108	12.728	7	0.202	12.728	z	3	77774.564	93312	6480	4910.906	1.116	H1-1b
131	H155	LL3X3X4X0	0.108	12.728	4	0.201	12.728	z	12	77774.564	93312	6480	4910.906	1.116	H1-1b
132	H156	LL3X3X4X0	0.108	12.728	13	0.202	12.728	z	9	77774.564	93312	6480	4910.906	1.116	H1-1b
133	MP159	PIPE_2.0	0.42	67	12	0.087	67		4	16811.605	32130	1871.625	1871.625	3	H1-1b
134	MP162	PIPE_2.0	0.472	67	12	0.067	67		7	16811.605	32130	1871.625	1871.625	3	H1-1b
135	MP165	PIPE_2.0	0.452	67	4	0.091	67		2	16811.605	32130	1871.625	1871.625	2.376	H1-1b
136	MP168	PIPE_2.0	0.423	67	9	0.088	67		13	16811.605	32130	1871.625	1871.625	3	H1-1b
137	MP171	PIPE_2.0	0.476	67	9	0.066	67		4	16811.605	32130	1871.625	1871.625	2.605	H1-1b
138	MP174	PIPE_2.0	0.453	67	13	0.089	67		11	16811.605	32130	1871.625	1871.625	2.214	H1-1b
139	MP177	PIPE_2.0	0.42	67	6	0.087	67		10	16811.605	32130	1871.625	1871.625	2.293	H1-1b
140	MP180	PIPE_2.0	0.475	67	6	0.066	67		13	16811.605	32130	1871.625	1871.625	2.344	H1-1b
141	MP183	PIPE_2.0	0.453	67	10	0.089	67		8	16811.605	32130	1871.625	1871.625	2.465	H1-1b
142	MP186	PIPE_2.0	0.422	67	3	0.087	67		7	16811.605	32130	1871.625	1871.625	2.171	H1-1b
143	MP189	PIPE_2.0	0.475	67	3	0.066	67		10	16811.605	32130	1871.625	1871.625	1.679	H1-1b
144	MP192	PIPE_2.0	0.453	67	7	0.089	67		5	16811.605	32130	1871.625	1871.625	2.042	H1-1b

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**164 ft Monopole**
ATC Site Name	:	**Goshen (Brass Mountain) CT,CT**
ATC Site Number	:	**413850**
Engineering Number	:	**14089646_C3_03**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**CTNH552A**
Carrier Site Number	:	**CTNH552A**
Site Location	:	**438 North Street** **Goshen, CT 06756-1206** **41.8563, -73.2416**
County	:	**Litchfield**
Date	:	**April 18, 2022**
Max Usage	:	**86%**
Result	:	**Pass**

Prepared By:

Adam Mclaine
Engineer Intern

Adam Mclaine

Reviewed By:

Authorized by "EOR"
19 Apr 2022 04:20:30 cosign

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 164 ft Monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	EEI Project #15244, dated February 6, 2008
Foundation Drawing	EEI Project #15244, dated January 23, 2008
Geotechnical Report	JGI Project #J2075429, dated January 17, 2008
Modifications	ATC Project #OAA742307_C6_07, dated March 1, 2019
Mount Analysis	ATC Project #14089646_C8_01, dated April 12, 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:	114 mph (3-second gust)
Basic Wind Speed w/ Ice:	40 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Crest Height (H):	228 ft
Crest Length (L):	1062 ft
Spectral Response:	Ss = 0.17, S_1 = 0.05
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
176.4	1	Decibel ASPF701	Flush	(2) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (3) 2" conduit	AT&T MOBILITY
170.8	1	Generic 10' Dipole	Sector Frame		
166.5	3	Ericsson RRUS 4449 B5, B12			
164.5	2	Raycap DC6-48-60-18-8C			
164.2	1	Raycap DC6-48-60-0-8C-EV			
160.0	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	6	KMW EPBQ-654L8H8-L2			
150.0	3	Nokia AirScale RRH 4T4R B5 160W AHCA	T-Arm with Platform	(2) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	VERIZON WIRELESS
	1	RFS DB-C1-12C-24AB-0Z			
149.1	3	Generic 74" x 8" Panel			
149.0	3	Alcatel-Lucent B25 RRH4x30			
	3	Alcatel-Lucent B13 RRH4x30-4R			
	6	Amphenol Antel LPA-80080-6CF-EDIN-2			
	6	Commscope JAHH-65B-R3B			
	1	VZW Unused Reserve (12448.41 sqin)			
141.7	3	Alcatel-Lucent B66A RRH 4x45			
139.7	1	Ericsson Radio 4449 B12,B71			
139.3	1	Ericsson Radio 4449 B12,B71			
139.2	2	Ericsson Radio 4449 B12,B71			
138.0	4	RFS APXVAARR24_43-U-NA20	Square Platform with Handrails	(4) 1 1/4" (1.25"-31.8mm) Fiber	T-MOBILE

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
138.0	8	Ericsson Radio 4449 B12,B71	-	(1) 1/2" Coax	T-MOBILE
	4	Ericsson AIR 32 B2A/B66A			
	1	RFS SC2-W100AB			

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
138.0	4	Ericsson Radio 4449 B71 B85A	Square Platform with Handrails	(2) 1.99" (50.7mm) Hybrid	T-MOBILE
	4	Ericsson 4460 BAND 2/25			
	4	Ericsson AIR 6419 B41			

[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	43%	Pass
Shaft	86%	Pass
Base Plate	20%	Pass
Flange Plate	16%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4026.6	50%
Shear (Kips)	34.6	21%
Axial (Kips)	47.4	12%

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) (°)
138.0	Ericsson Radio 4449 B71 B85A	T-MOBILE	2.018	1.760
	Ericsson AIR 6419 B41			
	Ericsson 4460 BAND 2/25			

***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.

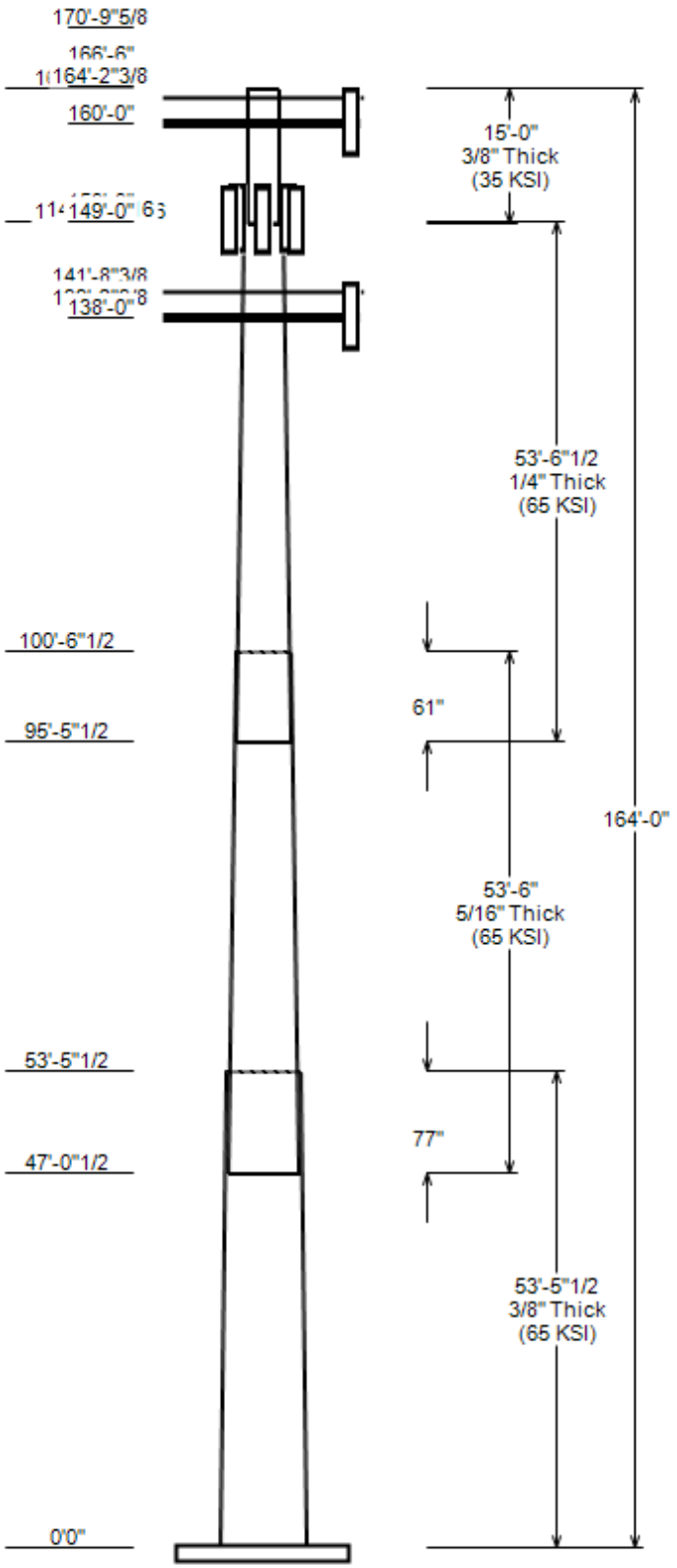
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with 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 :	413850, Goshen (Brass Mountain) CT	Height :	164 ft
Client :	T-MOBILE	Base Width :	57
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Nominal Wind: 114 mph wind with no ice **Topo Category:** 0

Ice Wind: 40 mph wind with 1" radial **Topo Method:** Method 2

Base Elev (ft): 0.00 **Taper :** 0.22900(In/ft) **Topo Feature:** Hill

Structure Class: II **Exposure :** B **S_s :** 0.171 **S_1** : 0.054

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	53.460	44.76	57.00	0.375		0.000	18 Sides	65
2	53.500	34.60	46.85	0.312	Slip Joint	77.000	18 Sides	65
3	53.540	24.00	36.26	0.250	Slip Joint	61.000	18 Sides	65
4	15.000	20.00	20.00	0.375	Butt Joint	0.000	Round	35

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
176.4	176.4	1	Decibel ASPF701
170.8	170.8	1	Generic 10' Dipole
166.5	166.5	3	Ericsson RRUS 4449 B5, B12
164.5	164.5	2	Raycap DC6-48-60-18-8C
164.2	164.2	1	Raycap DC6-48-60-0-8C-EV
160.0	160.0	3	Ericsson RRUS 8843 B2, B66A
160.0	160.0	3	Ericsson RRUS 4478 B14
160.0	160.0	3	Generic Round Sector Frame
160.0	160.0	6	KMW EPBQ-654L8H8-L2
150.0	150.0	3	Nokia AirScale RRH 4T4R B5 160
150.0	150.0	1	RFS DB-C1-12C-24AB-0Z
149.1	149.1	3	Generic 74" x 8" Panel
149.0	149.9	3	Alcatel-Lucent B25 RRH4x30
149.0	150.9	3	Alcatel-Lucent B13 RRH4x30-4R
149.0	149.0	6	Amphenol Antel LPA-80080-6CF-E
149.0	149.0	6	Commscope JAHH-65B-R3B
149.0	149.0	1	VZW Unused Reserve (12448.41 s
148.9	148.9	3	T-Arm with Working Platform an
141.7	141.7	3	Alcatel-Lucent B66A RRH 4x45
139.7	139.7	1	Ericsson Radio 4449 B12,B71
139.3	139.3	1	Ericsson Radio 4449 B12,B71
139.2	139.2	2	Ericsson Radio 4449 B12,B71
138.0	138.0	4	Ericsson Radio 4449 B71 B85A
138.0	138.0	4	Ericsson 4460 BAND 2/25
138.0	138.0	4	Ericsson AIR 6419 B41
138.0	138.0	4	RFS APXVAARR24_43-U-NA20
138.0	138.0	1	Generic Square Platform with H

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	160.0	2" conduit	No
0.0	160.0	0.78" (19.7mm) 8 AWG 6	No
0.0	160.0	0.39" (10mm) Fiber Trunk	No
0.0	150.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	149.0	1 5/8" Coax	No
0.0	138.0	1.99" (50.7mm) Hybrid	No
0.0	138.0	1 1/4" (1.25"- 31.8mm) Fiber	No

LOAD CASES

1.2D + 1.0W	114 mph wind with no ice
0.9D + 1.0W	114 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	40 mph wind with 1" radial ice

JOB INFORMATION			
Asset :	413850, Goshen (Brass Mountain) CT	Height :	164 ft
Client :	T-MOBILE	Base Width :	57
Code :	ANSI/TIA-222-H	Shape :	18 Sides

1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	4026.59	34.57	47.44
0.9D + 1.0W	3969.84	34.55	35.57
1.2D + 1.0Di + 1.0Wi	809.36	6.89	66.96
1.2D + 1.0Ev + 1.0Eh	164.74	1.19	47.36
0.9D - 1.0Ev + 1.0Eh	161.87	1.19	33.07
1.0D + 1.0W	990.65	8.56	39.58

DISH DEFLECTIONS

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

ANALYSIS PARAMETERS

Location:	Litchfield County,CT	**Height:**	164 ft
Type and Shape:	Custom, Round	**Base Diameter:**	57.00 in
Manufacturer:	EEI	**Top Diameter:**	20.00 in
K_d (non-service):	0.95	**Taper:**	0.2290 in/ft
K_e:	0.94	**Rotation:**	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	**Design Wind Speed w/o Ice:**	114 mph
Risk Category:	II	**Design Wind Speed w/Ice:**	40 mph
Topo Factor Procedure:	Method 2	**Operational Wind Speed:**	60 mph
		Design Ice Thickness:	1.00 in
		HMSL:	1599.00 ft
Crest Height(H):	228 ft	**Distance from Apex (x):**	0 ft
Crest Length(L):	1062 ft	**Upwind/Downwind:**	Upwind
Feature:	Hill		

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			**Period Based on Rayleigh Method (sec):**	2.72
T_L (sec):	6	**P:**	1	**C_s:**	0.030
S_s:	0.171	**S_1:**	0.054	**C_s Max:**	0.030
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.182	**S_{d1}:**	0.086		

LOAD CASES

1.2D + 1.0W	114 mph wind with no ice
0.9D + 1.0W	114 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	40 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	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 (in^2)	Bottom Ix (in^4)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in^2)	Top Ix (in^4)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.46	0.3750	65		0.00	10,935	57.00	0.000	67.40	27,302.4	25.39	152.00	44.76	53.46	52.82	13,146.7	19.63	119.35	0.2290
2-18	53.50	0.3125	65	Slip	77.00	7,297	46.85	47.040	46.16	12,631.7	25.03	149.93	34.60	100.54	34.01	5,051.5	18.11	110.72	0.2290
3-18	53.54	0.2500	65	Slip	61.00	4,320	36.26	95.460	28.58	4,683.0	24.17	145.06	24.00	149.00	18.85	1,343.7	15.52	96.02	0.2290
								149.00								1,113.9			
4-R	15.00	0.3750	35	Butt	0.00	1,180	20.00	0	23.12	1,113.9	0.00	53.33	20.00	164.00	23.12		0.00	53.33	0.0000

Shaft Weight 23,732

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
176.40	Decibel ASPF701	1	1.00	0.000	27.00	6.096	1.00	136.45	10.895	1.00
170.80	Generic 10' Dipole	1	0.90	0.000	30.00	3.760	1.00	111.24	8.128	1.00
166.50	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	118.02	2.649	0.50
164.50	Raycap DC6-48-60-18-8C	2	0.80	0.000	16.00	2.030	0.70	58.47	2.584	0.70
164.20	Raycap DC6-48-60-0-8C-EV	1	0.80	0.000	16.00	1.020	1.00	49.04	1.432	1.00
160.00	Ericsson RRUS 8843 B2, B66A	3	0.80	0.000	72.00	1.639	0.50	116.71	2.255	0.50
160.00	KMW EPBQ-654L8H8-L2	6	0.80	0.000	86.00	18.089	0.61	322.89	20.782	0.61
160.00	Generic Round Sector Frame	3	0.75	0.000	300.00	14.400	0.75	568.29	26.473	0.75
160.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.40	2.021	0.67	104.16	2.709	0.67
150.00	Nokia AirScale RRH 4T4R B5 160	3	0.80	0.000	35.30	1.286	0.50	63.97	1.835	0.50
150.00	RFS DB-C1-12C-24AB-0Z	1	0.80	0.000	32.00	4.056	1.00	124.66	5.051	1.00
149.10	Generic 74" x 8" Panel	3	0.80	0.000	40.00	6.060	0.68	122.87	7.855	0.68
149.00	Amphenol Antel LPA-80080-6CF-E	6	0.80	0.000	21.00	8.628	0.62	143.55	10.622	0.62
149.00	Commscope JAHH-65B-R3B	6	0.80	0.000	60.60	9.113	0.69	208.10	11.136	0.69
149.00	VZW Unused Reserve (12448.41 s	1	0.80	0.000	923.10	86.447	0.90	1391.97	130.356	0.90
149.00	Alcatel-Lucent B13 RRH4x30-4R	3	0.80	1.900	57.80	2.140	0.67	108.09	2.868	0.67
149.00	Alcatel-Lucent B25 RRH4x30	3	0.80	0.900	53.00	2.120	0.67	97.01	2.844	0.67
148.90	T-Arm with Working Platform an	3	0.75	0.000	400.00	14.400	0.75	603.15	21.713	0.75
141.70	Alcatel-Lucent B66A RRH 4x45	3	0.80	0.000	67.00	2.580	0.67	118.84	3.403	0.67
139.70	Ericsson Radio 4449 B12,B71	1	0.80	0.000	74.00	1.639	1.00	114.80	2.254	1.00
139.30	Ericsson Radio 4449 B12,B71	1	0.80	0.000	74.00	1.639	1.00	114.80	2.254	1.00
139.20	Ericsson Radio 4449 B12,B71	2	0.80	0.000	74.00	1.639	0.50	114.80	2.254	0.50
138.00	Ericsson Radio 4449 B71 B85A	4	0.75	0.000	75.00	1.650	0.50	118.82	2.269	0.50
138.00	Generic Square Platform with H	1	1.00	0.000	3790.00	49.300	1.00	7022.03	111.362	1.00
138.00	RFS APXVAARR24_43-U-NA20	4	0.75	0.000	127.90	20.243	0.63	413.95	22.945	0.63
138.00	Ericsson AIR 6419 B41	4	0.75	0.000	83.30	6.322	0.63	193.58	7.554	0.63
138.00	Ericsson 4460 BAND 2/25	4	0.75	0.000	109.00	2.564	0.67	173.40	3.332	0.67
Totals	Num Loadings: 27	76			11,199.00			23,121.10		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

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	160.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	160.00	3	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	160.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	VERIZON WIREL
0.00	149.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
0.00	138.00	4	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	0	0	0	0	0	N	T-MOBILE
0.00	138.00	2	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE

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)
0.00		0.3750	57.000	67.395	27,302.40	25.39	152.00	71.5	943.4	0.0	0.0
5.00		0.3750	55.855	66.033	25,679.40	24.85	148.95	72.2	905.5	0.0	1,135.1
10.00		0.3750	54.710	64.670	24,122.10	24.31	145.89	72.8	868.4	0.0	1,111.9
15.00		0.3750	53.565	63.307	22,629.00	23.78	142.84	73.4	832.1	0.0	1,088.7
20.00		0.3750	52.420	61.944	21,198.90	23.24	139.79	74.1	796.5	0.0	1,065.5
25.00		0.3750	51.275	60.582	19,830.30	22.70	136.73	74.7	761.7	0.0	1,042.3
30.00		0.3750	50.130	59.219	18,521.90	22.16	133.68	75.3	727.7	0.0	1,019.1
35.00		0.3750	48.985	57.856	17,272.40	21.62	130.63	76	694.5	0.0	995.9
40.00		0.3750	47.840	56.493	16,080.40	21.08	127.57	76.6	662.0	0.0	972.8
45.00		0.3750	46.695	55.130	14,944.50	20.55	124.52	77.2	630.4	0.0	949.6
47.04	Bot - Section 2	0.3750	46.227	54.573	14,496.10	20.33	123.27	77.5	617.6	0.0	381.4
50.00		0.3750	45.550	53.768	13,863.40	20.01	121.47	77.9	599.5	0.0	1,006.0
53.46	Top - Section 1	0.3125	45.383	44.702	11,472.60	24.20	145.22	72.9	497.9	0.0	1,158.4
55.00		0.3125	45.030	44.353	11,205.40	24.00	144.10	73.2	490.1	0.0	233.3
60.00		0.3125	43.885	43.217	10,366.50	23.35	140.43	73.9	465.3	0.0	744.9
65.00		0.3125	42.740	42.081	9,570.50	22.71	136.77	74.7	441.0	0.0	725.6
70.00		0.3125	41.595	40.946	8,816.40	22.06	133.10	75.5	417.5	0.0	706.3
75.00		0.3125	40.450	39.810	8,103.00	21.41	129.44	76.2	394.6	0.0	687.0
80.00		0.3125	39.305	38.674	7,429.10	20.77	125.78	77	372.3	0.0	667.7
85.00		0.3125	38.160	37.539	6,793.70	20.12	122.11	77.7	350.7	0.0	648.3
90.00		0.3125	37.015	36.403	6,195.60	19.47	118.45	78.5	329.7	0.0	629.0
95.00		0.3125	35.870	35.267	5,633.60	18.83	114.78	79.3	309.3	0.0	609.7
95.46	Bot - Section 3	0.3125	35.765	35.163	5,583.70	18.77	114.45	79.3	307.5	0.0	55.1
100.00		0.3125	34.725	34.132	5,106.70	18.18	111.12	80	289.7	0.0	970.3
100.54	Top - Section 2	0.2500	35.101	27.653	4,243.40	23.35	140.40	73.9	238.1	0.0	114.2
105.00		0.2500	34.080	26.843	3,881.40	22.63	136.32	74.8	224.3	0.0	413.2
110.00		0.2500	32.935	25.935	3,500.50	21.82	131.74	75.7	209.3	0.0	449.0
115.00		0.2500	31.790	25.026	3,145.40	21.01	127.16	76.7	194.9	0.0	433.5
120.00		0.2500	30.645	24.118	2,815.10	20.20	122.58	77.6	180.9	0.0	418.1
125.00		0.2500	29.500	23.209	2,508.80	19.40	118.00	78.6	167.5	0.0	402.6
130.00		0.2500	28.355	22.301	2,225.50	18.59	113.42	79.5	154.6	0.0	387.1
135.00		0.2500	27.210	21.392	1,964.50	17.78	108.84	80.5	142.2	0.0	371.7
138.00		0.2500	26.523	20.847	1,818.10	17.30	106.09	81.1	135.0	0.0	215.6
139.20		0.2500	26.248	20.629	1,761.60	17.10	104.99	81.3	132.2	0.0	84.7
139.30		0.2500	26.225	20.611	1,757.00	17.09	104.90	81.3	132.0	0.0	7.0
139.70		0.2500	26.134	20.538	1,738.50	17.02	104.53	81.4	131.0	0.0	28.0
140.00		0.2500	26.065	20.483	1,724.60	16.97	104.26	81.4	130.3	0.0	20.9
141.70		0.2500	25.676	20.175	1,647.80	16.70	102.70	81.8	126.4	0.0	117.6
145.00		0.2500	24.920	19.575	1,505.20	16.17	99.68	82.4	119.0	0.0	223.2
148.90		0.2500	24.027	18.866	1,347.60	15.54	96.11	82.6	110.5	0.0	255.1
149.00	Top - Section 3	0.2500	24.004	18.848	1,343.70	15.52	96.02	82.6	110.3	0.0	6.4
149.00	Bot - Section 4	0.3750	20.000	23.120	1,113.90	0.00	53.33	35	111.4	144.4	
149.10		0.3750	20.000	23.120	1,113.90	0.00	53.33	35	111.4	144.4	7.9
150.00		0.3750	20.000	23.120	1,113.90	0.00	53.33	35	111.4	144.4	70.8
155.00		0.3750	20.000	23.120	1,113.90	0.00	53.33	35	111.4	144.4	393.4
160.00		0.3750	20.000	23.120	1,113.90	0.00	53.33	35	111.4	144.4	393.4
164.00		0.3750	20.000	23.120	1,113.90	0.00	53.33	35	111.4	144.4	314.7
									Totals:		23,732.0

Load Case: 1.2D + 1.0W 114 mph wind with no ice 27 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	-47.44	-34.57	0.00	-4,026.6	0.00	4,026.59	4,339.10	1,182.79	6,049.18	5,061.68	0	0	0.807
5.00	-45.78	-33.96	0.00	-3,853.7	0.00	3,853.74	4,289.00	1,158.87	5,807.04	4,901.40	0.11	-0.21	0.798
10.00	-44.14	-33.37	0.00	-3,683.9	0.00	3,683.94	4,237.33	1,134.96	5,569.84	4,741.75	0.44	-0.41	0.788
15.00	-42.53	-32.81	0.00	-3,517.1	0.00	3,517.08	4,184.12	1,111.04	5,337.59	4,582.86	0.99	-0.63	0.778
20.00	-40.96	-32.26	0.00	-3,353.0	0.00	3,353.04	4,129.35	1,087.12	5,110.29	4,424.83	1.76	-0.84	0.769
25.00	-39.41	-31.74	0.00	-3,191.7	0.00	3,191.74	4,073.03	1,063.21	4,887.93	4,267.77	2.76	-1.06	0.758
30.00	-37.89	-31.22	0.00	-3,033.1	0.00	3,033.06	4,015.16	1,039.29	4,670.52	4,111.80	3.99	-1.29	0.748
35.00	-36.41	-30.70	0.00	-2,877.0	0.00	2,876.96	3,955.73	1,015.37	4,458.06	3,957.02	5.46	-1.51	0.737
40.00	-34.95	-30.18	0.00	-2,723.4	0.00	2,723.45	3,894.75	991.46	4,250.54	3,803.54	7.16	-1.74	0.726
45.00	-33.56	-29.79	0.00	-2,572.6	0.00	2,572.55	3,832.21	967.54	4,047.96	3,651.49	9.12	-1.98	0.714
47.04	-32.97	-29.53	0.00	-2,511.7	0.00	2,511.67	3,806.21	957.76	3,966.60	3,589.78	9.98	-2.08	0.709
50.00	-31.59	-29.17	0.00	-2,424.4	0.00	2,424.36	3,768.12	943.62	3,850.33	3,500.95	11.31	-2.22	0.702
53.46	-30.03	-28.86	0.00	-2,323.4	0.00	2,323.43	2,934.59	784.53	3,193.60	2,723.89	12.98	-2.39	0.865
55.00	-29.62	-28.54	0.00	-2,279.0	0.00	2,278.98	2,920.97	778.39	3,143.83	2,689.88	13.77	-2.46	0.859
60.00	-28.43	-28.03	0.00	-2,136.3	0.00	2,136.28	2,875.73	758.46	2,984.91	2,579.95	16.5	-2.74	0.839
65.00	-27.27	-27.52	0.00	-1,996.1	0.00	1,996.13	2,828.94	738.53	2,830.11	2,470.80	19.52	-3.03	0.819
70.00	-26.14	-27.01	0.00	-1,858.5	0.00	1,858.54	2,780.60	718.60	2,679.43	2,362.56	22.85	-3.31	0.797
75.00	-25.03	-26.51	0.00	-1,723.5	0.00	1,723.48	2,730.70	698.66	2,532.88	2,255.33	26.47	-3.6	0.775
80.00	-23.95	-26.02	0.00	-1,590.9	0.00	1,590.93	2,679.25	678.73	2,390.45	2,149.22	30.4	-3.89	0.751
85.00	-22.90	-25.53	0.00	-1,460.8	0.00	1,460.85	2,626.25	658.80	2,252.14	2,044.35	34.63	-4.19	0.725
90.00	-21.87	-25.04	0.00	-1,333.2	0.00	1,333.23	2,571.69	638.87	2,117.95	1,940.82	39.17	-4.48	0.697
95.00	-20.91	-24.74	0.00	-1,208.0	0.00	1,208.02	2,515.58	618.94	1,987.88	1,838.75	44.01	-4.77	0.667
95.46	-20.79	-24.54	0.00	-1,196.6	0.00	1,196.64	2,510.34	617.11	1,976.12	1,829.44	44.48	-4.8	0.664
100.00	-19.42	-24.21	0.00	-1,085.2	0.00	1,085.24	2,457.92	599.01	1,861.93	1,738.25	49.16	-5.06	0.634
100.54	-19.23	-24.00	0.00	-1,072.1	0.00	1,072.08	1,840.23	485.31	1,527.62	1,320.48	49.74	-5.1	0.825
105.00	-18.49	-23.58	0.00	-965.1	0.00	965.11	1,806.79	471.10	1,439.47	1,258.25	54.61	-5.35	0.780
110.00	-17.68	-23.14	0.00	-847.2	0.00	847.22	1,767.81	455.15	1,343.69	1,189.13	60.39	-5.68	0.725
115.00	-16.91	-22.71	0.00	-731.5	0.00	731.51	1,727.28	439.21	1,251.21	1,120.85	66.51	-6	0.665
120.00	-16.16	-22.28	0.00	-618.0	0.00	617.97	1,685.19	423.26	1,162.02	1,053.53	72.95	-6.31	0.599
125.00	-15.44	-21.86	0.00	-506.6	0.00	506.56	1,641.55	407.32	1,076.13	987.27	79.7	-6.59	0.525
130.00	-14.75	-21.44	0.00	-397.3	0.00	397.28	1,596.35	391.37	993.54	922.19	86.73	-6.85	0.443
135.00	-14.10	-21.09	0.00	-290.1	0.00	290.09	1,549.60	375.43	914.25	858.39	94.01	-7.07	0.350
138.00	-7.96	-15.13	0.00	-226.8	0.00	226.83	1,520.81	365.86	868.25	820.78	98.48	-7.18	0.283
139.20	-7.66	-14.98	0.00	-208.7	0.00	208.67	1,509.13	362.04	850.19	805.88	100.29	-7.22	0.266
139.30	-7.57	-14.89	0.00	-207.2	0.00	207.17	1,508.16	361.72	848.69	804.64	100.44	-7.23	0.264
139.70	-7.45	-14.79	0.00	-201.2	0.00	201.21	1,504.24	360.44	842.72	799.69	101.04	-7.24	0.258
140.00	-7.42	-14.72	0.00	-196.8	0.00	196.78	1,501.30	359.48	838.25	795.99	101.49	-7.25	0.254
141.70	-7.02	-14.30	0.00	-171.8	0.00	171.76	1,484.52	354.06	813.16	775.11	104.08	-7.3	0.228
145.00	-6.68	-14.00	0.00	-124.6	0.00	124.58	1,451.45	343.54	765.55	735.10	109.14	-7.38	0.176
148.90	-5.00	-12.50	0.00	-70.0	0.00	69.97	1,401.67	331.10	711.13	683.93	115.19	-7.46	0.107
149.00	-3.67	-6.43	0.00	-68.3	0.00	68.27	1,400.32	330.78	709.76	682.61	115.35	-7.46	0.103
149.00	-3.67	-6.43	0.00	-68.3	0.00	68.27	728.28	218.49	376.97	379.17	115.35	-7.46	0.186
149.10	-3.58	-5.93	0.00	-67.6	0.00	67.62	728.28	218.49	376.97	379.17	115.5	-7.46	0.184
150.00	-3.36	-5.54	0.00	-62.3	0.00	62.29	728.28	218.49	376.97	379.17	116.91	-7.47	0.170
155.00	-2.83	-5.24	0.00	-34.6	0.00	34.59	728.28	218.49	376.97	379.17	124.75	-7.54	0.096
160.00	-0.65	-0.86	0.00	-8.4	0.00	8.42	728.28	218.49	376.97	379.17	132.64	-7.56	0.023
164.00	0.00	-0.77	0.00	-5.0	0.00	4.96	728.28	218.49	376.97	379.17	138.96	-7.57	0.013

Load Case: 0.9D + 1.0W 114 mph wind with no ice 27 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	-35.57	-34.55	0.00	-3,969.8	0.00	3,969.84	4,339.10	1,182.79	6,049.18	5,061.68	0	0	0.793
5.00	-34.29	-33.90	0.00	-3,797.1	0.00	3,797.10	4,289.00	1,158.87	5,807.04	4,901.40	0.11	-0.2	0.784
10.00	-33.03	-33.27	0.00	-3,627.6	0.00	3,627.63	4,237.33	1,134.96	5,569.84	4,741.75	0.43	-0.41	0.774
15.00	-31.80	-32.66	0.00	-3,461.3	0.00	3,461.30	4,184.12	1,111.04	5,337.59	4,582.86	0.97	-0.62	0.764
20.00	-30.59	-32.08	0.00	-3,298.0	0.00	3,297.99	4,129.35	1,087.12	5,110.29	4,424.83	1.73	-0.83	0.754
25.00	-29.41	-31.52	0.00	-3,137.6	0.00	3,137.58	4,073.03	1,063.21	4,887.93	4,267.77	2.72	-1.05	0.743
30.00	-28.25	-30.97	0.00	-2,980.0	0.00	2,979.98	4,015.16	1,039.29	4,670.52	4,111.80	3.93	-1.26	0.733
35.00	-27.11	-30.43	0.00	-2,825.1	0.00	2,825.11	3,955.73	1,015.37	4,458.06	3,957.02	5.37	-1.49	0.722
40.00	-25.99	-29.87	0.00	-2,673.0	0.00	2,672.99	3,894.75	991.46	4,250.54	3,803.54	7.05	-1.71	0.710
45.00	-24.93	-29.47	0.00	-2,523.6	0.00	2,523.62	3,832.21	967.54	4,047.96	3,651.49	8.97	-1.94	0.699
47.04	-24.48	-29.20	0.00	-2,463.4	0.00	2,463.40	3,806.21	957.76	3,966.60	3,589.78	9.82	-2.04	0.694
50.00	-23.43	-28.82	0.00	-2,377.1	0.00	2,377.07	3,768.12	943.62	3,850.33	3,500.95	11.13	-2.18	0.686
53.46	-22.25	-28.52	0.00	-2,277.3	0.00	2,277.34	2,934.59	784.53	3,193.60	2,723.89	12.78	-2.35	0.845
55.00	-21.93	-28.17	0.00	-2,233.4	0.00	2,233.42	2,920.97	778.39	3,143.83	2,689.88	13.54	-2.42	0.839
60.00	-21.01	-27.63	0.00	-2,092.6	0.00	2,092.56	2,875.73	758.46	2,984.91	2,579.95	16.23	-2.7	0.820
65.00	-20.12	-27.10	0.00	-1,954.4	0.00	1,954.39	2,828.94	738.53	2,830.11	2,470.80	19.2	-2.97	0.799
70.00	-19.25	-26.57	0.00	-1,818.9	0.00	1,818.89	2,780.60	718.60	2,679.43	2,362.56	22.46	-3.25	0.778
75.00	-18.40	-26.05	0.00	-1,686.0	0.00	1,686.02	2,730.70	698.66	2,532.88	2,255.33	26.02	-3.54	0.756
80.00	-17.57	-25.54	0.00	-1,555.8	0.00	1,555.77	2,679.25	678.73	2,390.45	2,149.22	29.88	-3.82	0.732
85.00	-16.76	-25.03	0.00	-1,428.1	0.00	1,428.07	2,626.25	658.80	2,252.14	2,044.35	34.03	-4.11	0.706
90.00	-15.97	-24.54	0.00	-1,302.9	0.00	1,302.91	2,571.69	638.87	2,117.95	1,940.82	38.48	-4.39	0.679
95.00	-15.25	-24.24	0.00	-1,180.2	0.00	1,180.23	2,515.58	618.94	1,987.88	1,838.75	43.23	-4.68	0.649
95.46	-15.15	-24.02	0.00	-1,169.1	0.00	1,169.08	2,510.34	617.11	1,976.12	1,829.44	43.68	-4.71	0.647
100.00	-14.11	-23.71	0.00	-1,060.0	0.00	1,060.02	2,457.92	599.01	1,861.93	1,738.25	48.28	-4.96	0.617
100.54	-13.96	-23.49	0.00	-1,047.1	0.00	1,047.14	1,840.23	485.31	1,527.62	1,320.48	48.85	-5	0.803
105.00	-13.39	-23.06	0.00	-942.4	0.00	942.45	1,806.79	471.10	1,439.47	1,258.25	53.62	-5.25	0.759
110.00	-12.77	-22.61	0.00	-827.2	0.00	827.16	1,767.81	455.15	1,343.69	1,189.13	59.29	-5.57	0.705
115.00	-12.17	-22.17	0.00	-714.1	0.00	714.13	1,727.28	439.21	1,251.21	1,120.85	65.28	-5.88	0.647
120.00	-11.60	-21.73	0.00	-603.3	0.00	603.30	1,685.19	423.26	1,162.02	1,053.53	71.59	-6.18	0.582
125.00	-11.05	-21.31	0.00	-494.6	0.00	494.64	1,641.55	407.32	1,076.13	987.27	78.2	-6.46	0.510
130.00	-10.52	-20.89	0.00	-388.1	0.00	388.10	1,596.35	391.37	993.54	922.19	85.09	-6.71	0.430
135.00	-10.04	-20.55	0.00	-283.7	0.00	283.66	1,549.60	375.43	914.25	858.39	92.22	-6.92	0.340
138.00	-5.57	-14.81	0.00	-222.0	0.00	222.02	1,520.81	365.86	868.25	820.78	96.6	-7.03	0.276
139.20	-5.35	-14.67	0.00	-204.2	0.00	204.25	1,509.13	362.04	850.19	805.88	98.37	-7.07	0.259
139.30	-5.28	-14.58	0.00	-202.8	0.00	202.79	1,508.16	361.72	848.69	804.64	98.52	-7.08	0.257
139.70	-5.19	-14.49	0.00	-197.0	0.00	196.95	1,504.24	360.44	842.72	799.69	99.11	-7.09	0.251
140.00	-5.17	-14.41	0.00	-192.6	0.00	192.61	1,501.30	359.48	838.25	795.99	99.55	-7.1	0.247
141.70	-4.88	-14.00	0.00	-168.1	0.00	168.11	1,484.52	354.06	813.16	775.11	102.08	-7.15	0.222
145.00	-4.63	-13.72	0.00	-121.9	0.00	121.90	1,451.45	343.54	765.55	735.10	107.04	-7.23	0.171
148.90	-3.40	-12.28	0.00	-68.4	0.00	68.40	1,401.67	331.10	711.13	683.93	112.97	-7.3	0.104
149.00	-2.58	-6.28	0.00	-66.7	0.00	66.72	1,400.32	330.78	709.76	682.61	113.12	-7.3	0.100
149.00	-2.58	-6.28	0.00	-66.7	0.00	66.72	728.28	218.49	376.97	379.17	113.12	-7.3	0.180
149.10	-2.52	-5.78	0.00	-66.1	0.00	66.09	728.28	218.49	376.97	379.17	113.27	-7.3	0.178
150.00	-2.37	-5.40	0.00	-60.9	0.00	60.89	728.28	218.49	376.97	379.17	114.65	-7.32	0.164
155.00	-1.98	-5.12	0.00	-33.9	0.00	33.89	728.28	218.49	376.97	379.17	122.33	-7.38	0.093
160.00	-0.47	-0.84	0.00	-8.3	0.00	8.31	728.28	218.49	376.97	379.17	130.05	-7.41	0.023
164.00	0.00	-0.77	0.00	-5.0	0.00	4.96	728.28	218.49	376.97	379.17	136.24	-7.41	0.013

Load Case: 1.2D + 1.0Di + 1.0Wi		40 mph wind with 1" radial ice			26 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	-66.96	-6.89	0.00	-809.4	0.00	809.36	4,339.10	1,182.79	6,049.18	5,061.68	0	0	0.175
5.00	-65.06	-6.78	0.00	-774.9	0.00	774.89	4,289.00	1,158.87	5,807.04	4,901.40	0.02	-0.04	0.173
10.00	-63.16	-6.67	0.00	-741.0	0.00	741.00	4,237.33	1,134.96	5,569.84	4,741.75	0.09	-0.08	0.171
15.00	-61.27	-6.56	0.00	-707.7	0.00	707.67	4,184.12	1,111.04	5,337.59	4,582.86	0.2	-0.13	0.169
20.00	-59.41	-6.46	0.00	-674.9	0.00	674.88	4,129.35	1,087.12	5,110.29	4,424.83	0.35	-0.17	0.167
25.00	-57.58	-6.36	0.00	-642.6	0.00	642.60	4,073.03	1,063.21	4,887.93	4,267.77	0.55	-0.21	0.165
30.00	-55.79	-6.26	0.00	-610.8	0.00	610.82	4,015.16	1,039.29	4,670.52	4,111.80	0.8	-0.26	0.162
35.00	-54.02	-6.16	0.00	-579.5	0.00	579.53	3,955.73	1,015.37	4,458.06	3,957.02	1.1	-0.3	0.160
40.00	-52.29	-6.06	0.00	-548.7	0.00	548.74	3,894.75	991.46	4,250.54	3,803.54	1.44	-0.35	0.158
45.00	-50.59	-5.98	0.00	-518.4	0.00	518.45	3,832.21	967.54	4,047.96	3,651.49	1.83	-0.4	0.155
47.04	-49.91	-5.93	0.00	-506.2	0.00	506.22	3,806.21	957.76	3,966.60	3,589.78	2.01	-0.42	0.154
50.00	-48.37	-5.86	0.00	-488.7	0.00	488.68	3,768.12	943.62	3,850.33	3,500.95	2.28	-0.45	0.152
53.46	-46.60	-5.80	0.00	-468.4	0.00	468.40	2,934.59	784.53	3,193.60	2,723.89	2.61	-0.48	0.188
55.00	-46.15	-5.74	0.00	-459.5	0.00	459.46	2,920.97	778.39	3,143.83	2,689.88	2.77	-0.5	0.187
60.00	-44.71	-5.64	0.00	-430.8	0.00	430.75	2,875.73	758.46	2,984.91	2,579.95	3.32	-0.55	0.183
65.00	-43.31	-5.55	0.00	-402.5	0.00	402.53	2,828.94	738.53	2,830.11	2,470.80	3.93	-0.61	0.178
70.00	-41.94	-5.45	0.00	-374.8	0.00	374.80	2,780.60	718.60	2,679.43	2,362.56	4.6	-0.67	0.174
75.00	-40.59	-5.35	0.00	-347.6	0.00	347.56	2,730.70	698.66	2,532.88	2,255.33	5.33	-0.73	0.169
80.00	-39.28	-5.26	0.00	-320.8	0.00	320.80	2,679.25	678.73	2,390.45	2,149.22	6.12	-0.78	0.164
85.00	-38.01	-5.16	0.00	-294.5	0.00	294.52	2,626.25	658.80	2,252.14	2,044.35	6.98	-0.84	0.159
90.00	-36.76	-5.07	0.00	-268.7	0.00	268.72	2,571.69	638.87	2,117.95	1,940.82	7.89	-0.9	0.153
95.00	-35.55	-5.00	0.00	-243.4	0.00	243.39	2,515.58	618.94	1,987.88	1,838.75	8.87	-0.96	0.147
95.46	-35.44	-4.97	0.00	-241.1	0.00	241.09	2,510.34	617.11	1,976.12	1,829.44	8.96	-0.97	0.146
100.00	-33.84	-4.90	0.00	-218.5	0.00	218.54	2,457.92	599.01	1,861.93	1,738.25	9.91	-1.02	0.140
100.54	-33.65	-4.86	0.00	-215.9	0.00	215.88	1,840.23	485.31	1,527.62	1,320.48	10.02	-1.03	0.182
105.00	-32.74	-4.78	0.00	-194.2	0.00	194.22	1,806.79	471.10	1,439.47	1,258.25	11.01	-1.08	0.173
110.00	-31.74	-4.69	0.00	-170.3	0.00	170.34	1,767.81	455.15	1,343.69	1,189.13	12.17	-1.14	0.161
115.00	-30.77	-4.61	0.00	-146.9	0.00	146.88	1,727.28	439.21	1,251.21	1,120.85	13.41	-1.21	0.149
120.00	-29.83	-4.52	0.00	-123.8	0.00	123.85	1,685.19	423.26	1,162.02	1,053.53	14.71	-1.27	0.135
125.00	-28.92	-4.43	0.00	-101.2	0.00	101.25	1,641.55	407.32	1,076.13	987.27	16.07	-1.33	0.120
130.00	-28.03	-4.35	0.00	-79.1	0.00	79.08	1,596.35	391.37	993.54	922.19	17.49	-1.38	0.103
135.00	-27.17	-4.27	0.00	-57.4	0.00	57.35	1,549.60	375.43	914.25	858.39	18.95	-1.42	0.084
138.00	-16.04	-2.93	0.00	-44.5	0.00	44.54	1,520.81	365.86	868.25	820.78	19.86	-1.44	0.065
139.20	-15.61	-2.90	0.00	-41.0	0.00	41.03	1,509.13	362.04	850.19	805.88	20.22	-1.45	0.061
139.30	-15.48	-2.88	0.00	-40.7	0.00	40.74	1,508.16	361.72	848.69	804.64	20.25	-1.45	0.061
139.70	-15.29	-2.86	0.00	-39.6	0.00	39.58	1,504.24	360.44	842.72	799.69	20.37	-1.46	0.060
140.00	-15.25	-2.85	0.00	-38.7	0.00	38.72	1,501.30	359.48	838.25	795.99	20.46	-1.46	0.059
141.70	-14.62	-2.76	0.00	-33.9	0.00	33.89	1,484.52	354.06	813.16	775.11	20.98	-1.47	0.054
145.00	-14.13	-2.69	0.00	-24.8	0.00	24.77	1,451.45	343.54	765.55	735.10	22.01	-1.48	0.043
148.90	-11.63	-2.39	0.00	-14.3	0.00	14.27	1,401.67	331.10	711.13	683.93	23.22	-1.5	0.029
149.00	-7.65	-1.30	0.00	-14.0	0.00	13.95	1,400.32	330.78	709.76	682.61	23.26	-1.5	0.026
149.00	-7.65	-1.30	0.00	-14.0	0.00	13.95	728.28	218.49	376.97	379.17	23.26	-1.5	0.047
149.10	-7.29	-1.21	0.00	-13.8	0.00	13.82	728.28	218.49	376.97	379.17	23.29	-1.5	0.046
150.00	-6.85	-1.12	0.00	-12.7	0.00	12.74	728.28	218.49	376.97	379.17	23.57	-1.5	0.043
155.00	-6.13	-1.04	0.00	-7.1	0.00	7.13	728.28	218.49	376.97	379.17	25.15	-1.52	0.027
160.00	-1.25	-0.20	0.00	-1.9	0.00	1.94	728.28	218.49	376.97	379.17	26.74	-1.52	0.007
164.00	0.00	-0.17	0.00	-1.1	0.00	1.12	728.28	218.49	376.97	379.17	28.02	-1.52	0.003

Load Case: 1.0D + 1.0W 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	-39.58	-8.56	0.00	-990.6	0.00	990.65	4,339.10	1,182.79	6,049.18	5,061.68	0	0	0.205
5.00	-38.29	-8.40	0.00	-947.8	0.00	947.84	4,289.00	1,158.87	5,807.04	4,901.40	0.03	-0.05	0.202
10.00	-37.02	-8.25	0.00	-905.8	0.00	905.81	4,237.33	1,134.96	5,569.84	4,741.75	0.11	-0.1	0.200
15.00	-35.77	-8.11	0.00	-864.6	0.00	864.55	4,184.12	1,111.04	5,337.59	4,582.86	0.24	-0.15	0.197
20.00	-34.54	-7.97	0.00	-824.0	0.00	824.02	4,129.35	1,087.12	5,110.29	4,424.83	0.43	-0.21	0.195
25.00	-33.34	-7.83	0.00	-784.2	0.00	784.19	4,073.03	1,063.21	4,887.93	4,267.77	0.68	-0.26	0.192
30.00	-32.16	-7.70	0.00	-745.0	0.00	745.04	4,015.16	1,039.29	4,670.52	4,111.80	0.98	-0.32	0.189
35.00	-31.00	-7.57	0.00	-706.6	0.00	706.55	3,955.73	1,015.37	4,458.06	3,957.02	1.34	-0.37	0.186
40.00	-29.87	-7.43	0.00	-668.7	0.00	668.72	3,894.75	991.46	4,250.54	3,803.54	1.76	-0.43	0.184
45.00	-28.76	-7.33	0.00	-631.6	0.00	631.56	3,832.21	967.54	4,047.96	3,651.49	2.24	-0.49	0.181
47.04	-28.31	-7.27	0.00	-616.6	0.00	616.57	3,806.21	957.76	3,966.60	3,589.78	2.45	-0.51	0.179
50.00	-27.21	-7.18	0.00	-595.1	0.00	595.09	3,768.12	943.62	3,850.33	3,500.95	2.78	-0.55	0.177
53.46	-25.95	-7.10	0.00	-570.2	0.00	570.25	2,934.59	784.53	3,193.60	2,723.89	3.19	-0.59	0.218
55.00	-25.66	-7.02	0.00	-559.3	0.00	559.32	2,920.97	778.39	3,143.83	2,689.88	3.38	-0.61	0.217
60.00	-24.76	-6.89	0.00	-524.2	0.00	524.23	2,875.73	758.46	2,984.91	2,579.95	4.06	-0.67	0.212
65.00	-23.87	-6.76	0.00	-489.8	0.00	489.78	2,828.94	738.53	2,830.11	2,470.80	4.8	-0.74	0.207
70.00	-23.00	-6.63	0.00	-456.0	0.00	455.99	2,780.60	718.60	2,679.43	2,362.56	5.62	-0.81	0.201
75.00	-22.16	-6.51	0.00	-422.8	0.00	422.82	2,730.70	698.66	2,532.88	2,255.33	6.51	-0.88	0.196
80.00	-21.33	-6.38	0.00	-390.3	0.00	390.29	2,679.25	678.73	2,390.45	2,149.22	7.47	-0.96	0.190
85.00	-20.52	-6.26	0.00	-358.4	0.00	358.38	2,626.25	658.80	2,252.14	2,044.35	8.51	-1.03	0.183
90.00	-19.73	-6.14	0.00	-327.1	0.00	327.08	2,571.69	638.87	2,117.95	1,940.82	9.63	-1.1	0.176
95.00	-18.97	-6.07	0.00	-296.4	0.00	296.38	2,515.58	618.94	1,987.88	1,838.75	10.82	-1.17	0.169
95.46	-18.90	-6.02	0.00	-293.6	0.00	293.59	2,510.34	617.11	1,976.12	1,829.44	10.93	-1.18	0.168
100.00	-17.78	-5.94	0.00	-266.3	0.00	266.28	2,457.92	599.01	1,861.93	1,738.25	12.08	-1.24	0.161
100.54	-17.65	-5.89	0.00	-263.0	0.00	263.05	1,840.23	485.31	1,527.62	1,320.48	12.22	-1.25	0.209
105.00	-17.10	-5.78	0.00	-236.8	0.00	236.82	1,806.79	471.10	1,439.47	1,258.25	13.42	-1.31	0.198
110.00	-16.49	-5.67	0.00	-207.9	0.00	207.92	1,767.81	455.15	1,343.69	1,189.13	14.84	-1.4	0.184
115.00	-15.90	-5.57	0.00	-179.6	0.00	179.55	1,727.28	439.21	1,251.21	1,120.85	16.35	-1.47	0.170
120.00	-15.32	-5.46	0.00	-151.7	0.00	151.72	1,685.19	423.26	1,162.02	1,053.53	17.93	-1.55	0.153
125.00	-14.76	-5.36	0.00	-124.4	0.00	124.41	1,641.55	407.32	1,076.13	987.27	19.59	-1.62	0.135
130.00	-14.22	-5.26	0.00	-97.6	0.00	97.62	1,596.35	391.37	993.54	922.19	21.32	-1.68	0.115
135.00	-13.69	-5.17	0.00	-71.3	0.00	71.34	1,549.60	375.43	914.25	858.39	23.11	-1.74	0.092
138.00	-8.05	-3.72	0.00	-55.8	0.00	55.82	1,520.81	365.86	868.25	820.78	24.21	-1.76	0.073
139.20	-7.79	-3.69	0.00	-51.4	0.00	51.36	1,509.13	362.04	850.19	805.88	24.66	-1.77	0.069
139.30	-7.71	-3.67	0.00	-51.0	0.00	50.99	1,508.16	361.72	848.69	804.64	24.69	-1.77	0.069
139.70	-7.60	-3.64	0.00	-49.5	0.00	49.52	1,504.24	360.44	842.72	799.69	24.84	-1.78	0.067
140.00	-7.57	-3.62	0.00	-48.4	0.00	48.43	1,501.30	359.48	838.25	795.99	24.96	-1.78	0.066
141.70	-7.22	-3.52	0.00	-42.3	0.00	42.27	1,484.52	354.06	813.16	775.11	25.59	-1.79	0.059
145.00	-6.92	-3.45	0.00	-30.6	0.00	30.65	1,451.45	343.54	765.55	735.10	26.84	-1.81	0.047
148.90	-5.39	-3.08	0.00	-17.2	0.00	17.20	1,401.67	331.10	711.13	683.93	28.33	-1.83	0.029
149.00	-3.68	-1.58	0.00	-16.8	0.00	16.78	1,400.32	330.78	709.76	682.61	28.37	-1.83	0.027
149.00	-3.68	-1.58	0.00	-16.8	0.00	16.78	728.28	218.49	376.97	379.17	28.37	-1.83	0.049
149.10	-3.56	-1.46	0.00	-16.6	0.00	16.62	728.28	218.49	376.97	379.17	28.4	-1.83	0.049
150.00	-3.33	-1.36	0.00	-15.3	0.00	15.31	728.28	218.49	376.97	379.17	28.75	-1.84	0.045
155.00	-2.87	-1.29	0.00	-8.5	0.00	8.51	728.28	218.49	376.97	379.17	30.68	-1.85	0.026
160.00	-0.63	-0.21	0.00	-2.1	0.00	2.07	728.28	218.49	376.97	379.17	32.62	-1.86	0.006
164.00	0.00	-0.19	0.00	-1.2	0.00	1.23	728.28	218.49	376.97	379.17	34.18	-1.86	0.003

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.171
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
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}):	0.182
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
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):	2.720
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	39.590 k
Seismic Base Shear (E):	1.190 k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
45	162	315	8,259	0.020	24	389
44	157.5	466	11,570	0.028	33	577
43	152.5	466	10,847	0.026	31	577
42	149.55	87	1,942	0.005	6	107
41	149.05	10	214	0.000	1	12
40	148.95	9	193	0.000	1	11
39	146.95	344	7,424	0.018	21	425
38	143.35	298	6,129	0.015	17	369
37	140.85	156	3,100	0.007	9	193
36	139.85	28	543	0.001	2	34
35	139.5	37	722	0.002	2	46
34	139.25	9	180	0.000	1	11
33	138.6	112	2,151	0.005	6	138
32	136.5	308	5,736	0.014	16	381
31	132.5	525	9,225	0.022	26	650
30	127.5	541	8,793	0.021	25	669
29	122.5	556	8,349	0.020	24	688
28	117.5	572	7,895	0.019	23	707
27	112.5	587	7,433	0.018	21	726
26	107.5	603	6,965	0.017	20	745
25	102.7717	550	5,812	0.014	17	680
24	100.2717	131	1,316	0.003	4	162
23	97.73	1,110	10,601	0.026	30	1,372
22	95.23	69	628	0.002	2	86
21	92.5	763	6,532	0.016	19	944
20	87.5	783	5,993	0.014	17	968
19	82.5	802	5,459	0.013	16	992
18	77.5	821	4,934	0.012	14	1,016
17	72.5	841	4,419	0.011	13	1,040
16	67.5	860	3,919	0.009	11	1,063
15	62.5	879	3,435	0.008	10	1,087
14	57.5	899	2,971	0.007	8	1,111
13	54.23	281	825	0.002	2	347
12	51.73	1,265	3,385	0.008	10	1,564

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
11	48.5217	1,097	2,583	0.006	7	1,356
10	46.0217	444	941	0.002	3	549
9	42.5	1,103	1,993	0.005	6	1,364
8	37.5	1,127	1,584	0.004	5	1,393
7	32.5	1,150	1,214	0.003	3	1,422
6	27.5	1,173	887	0.002	3	1,450
5	22.5	1,196	606	0.002	2	1,479
4	17.5	1,219	373	0.001	1	1,508
3	12.5	1,242	194	0.000	1	1,536
2	7.5	1,266	71	0.000	0	1,565
1	2.5	1,289	8	0.000	0	1,594
Decibel ASPF701	164	27	726	0.002	2	33
Generic 10' Dipole	164	30	807	0.002	2	37
Ericsson RRUS 4449 B5, B12	164	213	5,729	0.014	16	263
Raycap DC6-48-60-18-8C	164	32	861	0.002	2	40
Raycap DC6-48-60-0-8C-EV	164	16	430	0.001	1	20
Ericsson RRUS 8843 B2, B66A	160	216	5,530	0.013	16	267
Ericsson RRUS 4478 B14	160	178	4,562	0.011	13	220
Generic Round Sector Frame	160	900	23,040	0.055	66	1,113
KMW EPBQ-654L8H8-L2	160	516	13,210	0.032	38	638
Nokia AirScale RRH 4T4R B5 160W AHCA	150	106	2,383	0.006	7	131
RFS DB-C1-12C-24AB-0Z	150	32	720	0.002	2	40
Generic 74" x 8" Panel	149.1	120	2,668	0.006	8	148
Alcatel-Lucent B25 RRH4x30	149	159	3,530	0.008	10	197
Alcatel-Lucent B13 RRH4x30-4R	149	173	3,850	0.009	11	214
Amphenol Antel LPA-80080-6CF-EDIN-2	149	126	2,797	0.007	8	156
Commscope JAHH-65B-R3B	149	364	8,072	0.019	23	450
VZW Unused Reserve (12448.41 sqin)	149	923	20,494	0.049	58	1,141
T-Arm with Working Platform and Modifications	148.9	1,200	26,605	0.064	76	1,484
Alcatel-Lucent B66A RRH 4x45	141.7	201	4,036	0.010	12	249
Ericsson Radio 4449 B12,B71	139.7	74	1,444	0.004	4	91
Ericsson Radio 4449 B12,B71	139.3	74	1,436	0.003	4	91
Ericsson Radio 4449 B12,B71	139.2	148	2,868	0.007	8	183
Ericsson Radio 4449 B71 B85A	138	300	5,713	0.014	16	371
Ericsson 4460 BAND 2/25	138	436	8,303	0.020	24	539
Ericsson AIR 6419 B41	138	333	6,345	0.015	18	412
RFS APXVAARR24_43-U-NA20	138	512	9,743	0.023	28	633
Generic Square Platform with Handrails	138	3,790	72,177	0.173	206	4,686
		39,589	416,432	1.000	1,188	48,951

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
45	162	315	8,259	0.020	24	272
44	157.5	466	11,570	0.028	33	403
43	152.5	466	10,847	0.026	31	403
42	149.55	87	1,942	0.005	6	75
41	149.05	10	214	0.000	1	8
40	148.95	9	193	0.000	1	8
39	146.95	344	7,424	0.018	21	297
38	143.35	298	6,129	0.015	17	258
37	140.85	156	3,100	0.007	9	135
36	139.85	28	543	0.001	2	24
35	139.5	37	722	0.002	2	32
34	139.25	9	180	0.000	1	8
33	138.6	112	2,151	0.005	6	97
32	136.5	308	5,736	0.014	16	266
31	132.5	525	9,225	0.022	26	454
30	127.5	541	8,793	0.021	25	467
29	122.5	556	8,349	0.020	24	480
28	117.5	572	7,895	0.019	23	494
27	112.5	587	7,433	0.018	21	507

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
26	107.5	603	6,965	0.017	20	520
25	102.7717	550	5,812	0.014	17	475
24	100.2717	131	1,316	0.003	4	113
23	97.73	1,110	10,601	0.026	30	958
22	95.23	69	628	0.002	2	60
21	92.5	763	6,532	0.016	19	659
20	87.5	783	5,993	0.014	17	676
19	82.5	802	5,459	0.013	16	693
18	77.5	821	4,934	0.012	14	709
17	72.5	841	4,419	0.011	13	726
16	67.5	860	3,919	0.009	11	743
15	62.5	879	3,435	0.008	10	759
14	57.5	899	2,971	0.007	8	776
13	54.23	281	825	0.002	2	242
12	51.73	1,265	3,385	0.008	10	1,092
11	48.5217	1,097	2,583	0.006	7	947
10	46.0217	444	941	0.002	3	384
9	42.5	1,103	1,993	0.005	6	953
8	37.5	1,127	1,584	0.004	5	973
7	32.5	1,150	1,214	0.003	3	993
6	27.5	1,173	887	0.002	3	1,013
5	22.5	1,196	606	0.002	2	1,033
4	17.5	1,219	373	0.001	1	1,053
3	12.5	1,242	194	0.000	1	1,073
2	7.5	1,266	71	0.000	0	1,093
1	2.5	1,289	8	0.000	0	1,113
Decibel ASPF701	164	27	726	0.002	2	23
Generic 10' Dipole	164	30	807	0.002	2	26
Ericsson RRUS 4449 B5, B12	164	213	5,729	0.014	16	184
Raycap DC6-48-60-18-8C	164	32	861	0.002	2	28
Raycap DC6-48-60-0-8C-EV	164	16	430	0.001	1	14
Ericsson RRUS 8843 B2, B66A	160	216	5,530	0.013	16	187
Ericsson RRUS 4478 B14	160	178	4,562	0.011	13	154
Generic Round Sector Frame	160	900	23,040	0.055	66	777
KMW EPBQ-654L8H8-L2	160	516	13,210	0.032	38	446
Nokia AirScale RRH 4T4R B5 160W AHCA	150	106	2,383	0.006	7	91
RFS DB-C1-12C-24AB-0Z	150	32	720	0.002	2	28
Generic 74" x 8" Panel	149.1	120	2,668	0.006	8	104
Alcatel-Lucent B25 RRH4x30	149	159	3,530	0.008	10	137
Alcatel-Lucent B13 RRH4x30-4R	149	173	3,850	0.009	11	150
Amphenol Antel LPA-80080-6CF-EDIN-2	149	126	2,797	0.007	8	109
Commscope JAHH-65B-R3B	149	364	8,072	0.019	23	314
VZW Unused Reserve (12448.41 sqin)	149	923	20,494	0.049	58	797
T-Arm with Working Platform and Modifications	148.9	1,200	26,605	0.064	76	1,036
Alcatel-Lucent B66A RRH 4x45	141.7	201	4,036	0.010	12	174
Ericsson Radio 4449 B12,B71	139.7	74	1,444	0.004	4	64
Ericsson Radio 4449 B12,B71	139.3	74	1,436	0.003	4	64
Ericsson Radio 4449 B12,B71	139.2	148	2,868	0.007	8	128
Ericsson Radio 4449 B71 B85A	138	300	5,713	0.014	16	259
Ericsson 4460 BAND 2/25	138	436	8,303	0.020	24	376
Ericsson AIR 6419 B41	138	333	6,345	0.015	18	288
RFS APXVAARR24_43-U-NA20	138	512	9,743	0.023	28	442
Generic Square Platform with Handrails	138	3,790	72,177	0.173	206	3,273
		39,589	416,432	1.000	1,188	34,186

1.2D + 1.0Ev + 1.0Eh **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	-47.36	-1.19	0.00	-164.74	0.00	164.74	4,339.10	1,182.79	6,049	5,061.68	0.00	0.00	0.04
5.00	-45.79	-1.20	0.00	-158.79	0.00	158.79	4,289.00	1,158.87	5,807	4,901.40	0.00	-0.01	0.04
10.00	-44.26	-1.20	0.00	-152.80	0.00	152.80	4,237.33	1,134.96	5,570	4,741.75	0.02	-0.02	0.04
15.00	-42.75	-1.21	0.00	-146.79	0.00	146.79	4,184.12	1,111.04	5,338	4,582.86	0.04	-0.03	0.04

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
20.00	-41.27	-1.21	0.00	-140.75	0.00	140.75	4,129.35	1,087.12	5,110	4,424.83	0.07	-0.03	0.04
25.00	-39.82	-1.21	0.00	-134.69	0.00	134.69	4,073.03	1,063.21	4,888	4,267.77	0.11	-0.04	0.04
30.00	-38.40	-1.22	0.00	-128.62	0.00	128.62	4,015.16	1,039.29	4,671	4,111.80	0.17	-0.05	0.04
35.00	-37.00	-1.22	0.00	-122.54	0.00	122.54	3,955.73	1,015.37	4,458	3,957.02	0.23	-0.06	0.04
40.00	-35.64	-1.22	0.00	-116.46	0.00	116.46	3,894.75	991.46	4,251	3,803.54	0.30	-0.07	0.04
45.00	-35.09	-1.22	0.00	-110.38	0.00	110.38	3,832.21	967.54	4,048	3,651.49	0.38	-0.08	0.04
47.04	-33.73	-1.21	0.00	-107.89	0.00	107.89	3,806.21	957.76	3,967	3,589.78	0.42	-0.09	0.04
50.00	-32.17	-1.20	0.00	-104.31	0.00	104.31	3,768.12	943.62	3,850	3,500.95	0.47	-0.09	0.04
53.46	-31.82	-1.20	0.00	-100.15	0.00	100.15	2,934.59	784.53	3,194	2,723.89	0.54	-0.10	0.05
55.00	-30.71	-1.20	0.00	-98.30	0.00	98.30	2,920.97	778.39	3,144	2,689.88	0.58	-0.10	0.05
60.00	-29.62	-1.19	0.00	-92.33	0.00	92.33	2,875.73	758.46	2,985	2,579.95	0.69	-0.12	0.05
65.00	-28.56	-1.18	0.00	-86.37	0.00	86.37	2,828.94	738.53	2,830	2,470.80	0.82	-0.13	0.05
70.00	-27.52	-1.17	0.00	-80.46	0.00	80.46	2,780.60	718.60	2,679	2,362.56	0.96	-0.14	0.04
75.00	-26.50	-1.16	0.00	-74.59	0.00	74.59	2,730.70	698.66	2,533	2,255.33	1.12	-0.15	0.04
80.00	-25.51	-1.15	0.00	-68.78	0.00	68.78	2,679.25	678.73	2,390	2,149.22	1.28	-0.17	0.04
85.00	-24.54	-1.14	0.00	-63.03	0.00	63.03	2,626.25	658.80	2,252	2,044.35	1.46	-0.18	0.04
90.00	-23.60	-1.12	0.00	-57.35	0.00	57.35	2,571.69	638.87	2,118	1,940.82	1.66	-0.19	0.04
95.00	-23.51	-1.12	0.00	-51.76	0.00	51.76	2,515.58	618.94	1,988	1,838.75	1.86	-0.20	0.04
95.46	-22.14	-1.09	0.00	-51.24	0.00	51.24	2,510.34	617.11	1,976	1,829.44	1.88	-0.20	0.04
100.00	-21.98	-1.09	0.00	-46.31	0.00	46.31	2,457.92	599.01	1,862	1,738.25	2.08	-0.22	0.04
100.54	-21.30	-1.07	0.00	-45.72	0.00	45.72	1,840.23	485.31	1,528	1,320.48	2.11	-0.22	0.05
105.00	-20.55	-1.05	0.00	-40.95	0.00	40.95	1,806.79	471.10	1,439	1,258.25	2.32	-0.23	0.04
110.00	-19.83	-1.03	0.00	-35.70	0.00	35.70	1,767.81	455.15	1,344	1,189.13	2.56	-0.24	0.04
115.00	-19.12	-1.01	0.00	-30.55	0.00	30.55	1,727.28	439.21	1,251	1,120.85	2.83	-0.26	0.04
120.00	-18.43	-0.99	0.00	-25.50	0.00	25.50	1,685.19	423.26	1,162	1,053.53	3.10	-0.27	0.04
125.00	-17.76	-0.96	0.00	-20.57	0.00	20.57	1,641.55	407.32	1,076	987.27	3.39	-0.28	0.03
130.00	-17.11	-0.93	0.00	-15.76	0.00	15.76	1,596.35	391.37	994	922.19	3.69	-0.29	0.03
135.00	-16.73	-0.92	0.00	-11.09	0.00	11.09	1,549.60	375.43	914	858.39	4.00	-0.30	0.02
138.00	-9.95	-0.59	0.00	-8.33	0.00	8.33	1,520.81	365.86	868	820.78	4.19	-0.30	0.02
139.20	-9.76	-0.58	0.00	-7.63	0.00	7.63	1,509.13	362.04	850	805.88	4.26	-0.30	0.02
139.30	-9.62	-0.57	0.00	-7.57	0.00	7.57	1,508.16	361.72	849	804.64	4.27	-0.31	0.02
139.70	-9.50	-0.56	0.00	-7.35	0.00	7.35	1,504.24	360.44	843	799.69	4.30	-0.31	0.02
140.00	-9.30	-0.55	0.00	-7.18	0.00	7.18	1,501.30	359.48	838	795.99	4.31	-0.31	0.02
141.70	-8.69	-0.52	0.00	-6.24	0.00	6.24	1,484.52	354.06	813	775.11	4.42	-0.31	0.01
145.00	-8.26	-0.50	0.00	-4.52	0.00	4.52	1,451.45	343.54	766	735.10	4.64	-0.31	0.01
148.90	-6.77	-0.41	0.00	-2.57	0.00	2.57	1,401.67	331.10	711	683.93	4.89	-0.31	0.01
149.00	-4.60	-0.29	0.00	-2.53	0.00	2.53	1,400.32	330.78	710	682.61	4.90	-0.31	0.01
149.00	-4.60	-0.29	0.00	-2.53	0.00	2.53	728.28	218.49	377	379.17	4.90	-0.31	0.01
149.10	-4.34	-0.28	0.00	-2.50	0.00	2.50	728.28	218.49	377	379.17	4.91	-0.31	0.01
150.00	-3.60	-0.23	0.00	-2.25	0.00	2.25	728.28	218.49	377	379.17	4.96	-0.31	0.01
155.00	-3.02	-0.20	0.00	-1.09	0.00	1.09	728.28	218.49	377	379.17	5.30	-0.32	0.01
160.00	-0.39	-0.03	0.00	-0.11	0.00	0.11	728.28	218.49	377	379.17	5.63	-0.32	0.00
164.00	0.00	-0.02	0.00	0.00	0.00	0.00	728.28	218.49	377	379.17	5.89	-0.32	0.00

0.9D - 1.0Ev + 1.0Eh **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	-33.07	-1.19	0.00	-161.87	0.00	161.87	4,339.10	1,182.79	6,049	5,061.68	0.00	0.00	0.04
5.00	-31.98	-1.19	0.00	-155.92	0.00	155.92	4,289.00	1,158.87	5,807	4,901.40	0.00	-0.01	0.04
10.00	-30.91	-1.20	0.00	-149.96	0.00	149.96	4,237.33	1,134.96	5,570	4,741.75	0.02	-0.02	0.04
15.00	-29.85	-1.20	0.00	-143.97	0.00	143.97	4,184.12	1,111.04	5,338	4,582.86	0.04	-0.03	0.04
20.00	-28.82	-1.20	0.00	-137.97	0.00	137.97	4,129.35	1,087.12	5,110	4,424.83	0.07	-0.03	0.04
25.00	-27.81	-1.20	0.00	-131.95	0.00	131.95	4,073.03	1,063.21	4,888	4,267.77	0.11	-0.04	0.04
30.00	-26.81	-1.20	0.00	-125.93	0.00	125.93	4,015.16	1,039.29	4,671	4,111.80	0.16	-0.05	0.04
35.00	-25.84	-1.20	0.00	-119.91	0.00	119.91	3,955.73	1,015.37	4,458	3,957.02	0.22	-0.06	0.04
40.00	-24.89	-1.20	0.00	-113.90	0.00	113.90	3,894.75	991.46	4,251	3,803.54	0.29	-0.07	0.04
45.00	-24.50	-1.20	0.00	-107.89	0.00	107.89	3,832.21	967.54	4,048	3,651.49	0.37	-0.08	0.04
47.04	-23.56	-1.19	0.00	-105.44	0.00	105.44	3,806.21	957.76	3,967	3,589.78	0.41	-0.09	0.04
50.00	-22.47	-1.18	0.00	-101.91	0.00	101.91	3,768.12	943.62	3,850	3,500.95	0.46	-0.09	0.04
53.46	-22.22	-1.18	0.00	-97.81	0.00	97.81	2,934.59	784.53	3,194	2,723.89	0.53	-0.10	0.04
55.00	-21.45	-1.18	0.00	-95.99	0.00	95.99	2,920.97	778.39	3,144	2,689.88	0.57	-0.10	0.04
60.00	-20.69	-1.17	0.00	-90.10	0.00	90.10	2,875.73	758.46	2,985	2,579.95	0.68	-0.11	0.04
65.00	-19.94	-1.16	0.00	-84.25	0.00	84.25	2,828.94	738.53	2,830	2,470.80	0.80	-0.13	0.04
70.00	-19.22	-1.15	0.00	-78.45	0.00	78.45	2,780.60	718.60	2,679	2,362.56	0.94	-0.14	0.04
75.00	-18.51	-1.14	0.00	-72.69	0.00	72.69	2,730.70	698.66	2,533	2,255.33	1.09	-0.15	0.04
80.00	-17.82	-1.13	0.00	-66.99	0.00	66.99	2,679.25	678.73	2,390	2,149.22	1.26	-0.16	0.04

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
85.00	-17.14	-1.11	0.00	-61.36	0.00	61.36	2,626.25	658.80	2,252	2,044.35	1.43	-0.17	0.04
90.00	-16.48	-1.09	0.00	-55.81	0.00	55.81	2,571.69	638.87	2,118	1,940.82	1.62	-0.19	0.04
95.00	-16.42	-1.09	0.00	-50.34	0.00	50.34	2,515.58	618.94	1,988	1,838.75	1.82	-0.20	0.03
95.46	-15.46	-1.06	0.00	-49.84	0.00	49.84	2,510.34	617.11	1,976	1,829.44	1.84	-0.20	0.03
100.00	-15.35	-1.06	0.00	-45.02	0.00	45.02	2,457.92	599.01	1,862	1,738.25	2.04	-0.21	0.03
100.54	-14.87	-1.04	0.00	-44.45	0.00	44.45	1,840.23	485.31	1,528	1,320.48	2.06	-0.21	0.04
105.00	-14.35	-1.02	0.00	-39.80	0.00	39.80	1,806.79	471.10	1,439	1,258.25	2.27	-0.22	0.04
110.00	-13.85	-1.00	0.00	-34.69	0.00	34.69	1,767.81	455.15	1,344	1,189.13	2.51	-0.24	0.04
115.00	-13.35	-0.98	0.00	-29.67	0.00	29.67	1,727.28	439.21	1,251	1,120.85	2.76	-0.25	0.03
120.00	-12.87	-0.96	0.00	-24.76	0.00	24.76	1,685.19	423.26	1,162	1,053.53	3.03	-0.26	0.03
125.00	-12.40	-0.93	0.00	-19.97	0.00	19.97	1,641.55	407.32	1,076	987.27	3.31	-0.27	0.03
130.00	-11.95	-0.91	0.00	-15.30	0.00	15.30	1,596.35	391.37	994	922.19	3.60	-0.28	0.02
135.00	-11.68	-0.89	0.00	-10.77	0.00	10.77	1,549.60	375.43	914	858.39	3.91	-0.29	0.02
138.00	-6.95	-0.57	0.00	-8.10	0.00	8.10	1,520.81	365.86	868	820.78	4.09	-0.30	0.01
139.20	-6.82	-0.56	0.00	-7.42	0.00	7.42	1,509.13	362.04	850	805.88	4.17	-0.30	0.01
139.30	-6.72	-0.55	0.00	-7.36	0.00	7.36	1,508.16	361.72	849	804.64	4.17	-0.30	0.01
139.70	-6.63	-0.55	0.00	-7.14	0.00	7.14	1,504.24	360.44	843	799.69	4.20	-0.30	0.01
140.00	-6.50	-0.54	0.00	-6.98	0.00	6.98	1,501.30	359.48	838	795.99	4.22	-0.30	0.01
141.70	-6.07	-0.51	0.00	-6.06	0.00	6.06	1,484.52	354.06	813	775.11	4.32	-0.30	0.01
145.00	-5.77	-0.48	0.00	-4.39	0.00	4.39	1,451.45	343.54	766	735.10	4.53	-0.30	0.01
148.90	-4.73	-0.40	0.00	-2.50	0.00	2.50	1,401.67	331.10	711	683.93	4.78	-0.31	0.01
149.00	-3.21	-0.28	0.00	-2.46	0.00	2.46	1,400.32	330.78	710	682.61	4.79	-0.31	0.01
149.00	-3.21	-0.28	0.00	-2.46	0.00	2.46	728.28	218.49	377	379.17	4.79	-0.31	0.01
149.10	-3.03	-0.27	0.00	-2.43	0.00	2.43	728.28	218.49	377	379.17	4.79	-0.31	0.01
150.00	-2.51	-0.23	0.00	-2.19	0.00	2.19	728.28	218.49	377	379.17	4.85	-0.31	0.01
155.00	-2.11	-0.19	0.00	-1.06	0.00	1.06	728.28	218.49	377	379.17	5.17	-0.31	0.01
160.00	-0.27	-0.03	0.00	-0.10	0.00	0.10	728.28	218.49	377	379.17	5.50	-0.31	0.00
164.00	0.00	-0.02	0.00	0.00	0.00	0.00	728.28	218.49	377	379.17	5.75	-0.31	0.00

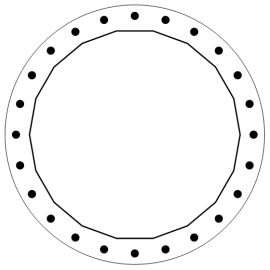
ANALYSIS SUMMARY

	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	34.57	0.00	47.44	0.00	0.00	4026.59	53.46	0.86
0.9D + 1.0W	34.55	0.00	35.57	0.00	0.00	3969.84	53.46	0.84
1.2D + 1.0Di + 1.0Wi	6.89	0.00	66.96	0.00	0.00	809.36	53.46	0.19
1.2D + 1.0Ev + 1.0Eh	1.22	0.00	47.36	0.00	0.00	164.74	53.46	0.05
0.9D - 1.0Ev + 1.0Eh	1.20	0.00	33.07	0.00	0.00	161.87	53.46	0.04
1.0D + 1.0W	8.56	0.00	39.58	0.00	0.00	990.65	53.46	0.22

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 17588)

Diameter:	71	in
Shape:	Round	
Thickness:	3	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	d	
Clear Distance	4.5	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	38	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 18016]	Radial	24	2.25	65	A615-75	75	100	-	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (24) 2.25"ø [ID 18016]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.262	31.39	8.41	-12.186	483.111	-97.16	2.08
2	0.524	28.15	16.25	-4.340	62.025	-97.16	2.23
3	0.785	22.98	22.98	3.801	47.756	105.07	2.24
4	1.047	16.25	28.15	11.683	444.128	105.07	2.09
5	1.309	8.41	31.39	18.769	1144.933	105.07	1.80
6	1.571	0.00	32.50	24.576	1962.392	105.07	1.39
7	1.833	-8.41	31.39	28.708	2677.466	105.07	0.88
8	2.094	-16.25	28.15	30.884	3098.552	105.07	0.31
9	2.356	-22.98	22.98	30.955	3112.821	105.07	0.28
10	2.618	-28.15	16.25	28.917	2716.449	105.07	0.84
11	2.880	-31.39	8.41	24.907	2015.644	105.07	1.36
12	3.142	-32.50	0.00	19.201	1198.185	105.07	1.78
13	3.403	-31.39	-8.41	12.186	483.111	105.07	2.08
14	3.665	-28.15	-16.25	4.340	62.025	105.07	2.23
15	3.927	-22.98	-22.98	-3.801	47.756	-97.16	2.24
16	4.189	-16.25	-28.15	-11.683	444.128	-97.16	2.09
17	4.451	-8.41	-31.39	-18.769	1144.933	-97.16	1.80
18	4.712	0.00	-32.50	-24.576	1962.392	-97.16	1.39
19	4.974	8.41	-31.39	-28.708	2677.466	-97.16	0.88
20	5.236	16.25	-28.15	-30.884	3098.552	-97.16	0.31
21	5.498	22.98	-22.98	-30.955	3112.821	-97.16	0.28
22	5.760	28.15	-16.25	-28.917	2716.449	-97.16	0.84
23	6.021	31.39	-8.41	-24.907	2015.644	-97.16	1.36
24	6.283	32.50	0.00	-19.201	1198.185	-97.16	1.78

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	57"ø x 0.375" (18 Sides)	4026.6	47.44	34.57	1.000
Bolt Group	Original (24) 2.25"ø	4026.6	-	34.57	1.000
	TOTALS	**4026.59**	**47.44**	**34.57**	

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	57"ø x 0.375" (18 Sides)	66.3716	-	-	26604.78	-
Bolt Group	Original (24) 2.25"ø	3.9761	3.2477	0.8393	37926.92	4.5

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	57.12	in
Point-to-Point Diameter:	58.01	in
Flat Width:	10.073	in
Flat Radians:	0.349	rad

PLATE PROPERTIES

Neutral Axis:	38	°
Bend Line Lower Limit:	1.712	rad
Bend Line Upper Limit:	2.739	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	37.602	0.00	84.605	673.1	4568.7	0.147
Corner	36.228	0.00	81.513	497.9	4401.7	0.113
Circumferential	45.727	0.00	102.886	1097.0	5555.8	0.197

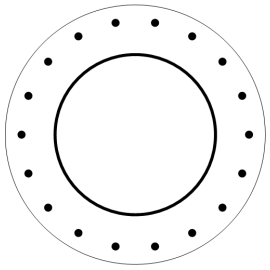
PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity ϕPn (k)	Ratio
Original	24	2.25	105.0	2.2	243.6	0.431

UPPER FLANGE PLATE ANALYSIS @ 149 FT

PLATE PARAMETERS (ID# 17589)

Diameter:	32	in
Shape:	Round	
Thickness:	1.5	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Pole Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	70	°



FLANGE BOLT PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 18017]	Radial	18	1	28	A325	92	120	-	-

FLANGE BOLT GEOMETRY AND APPLIED LOADS --- ORIGINAL (18) 1"ø [ID 18017]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in^4)	Axial Load (k)	Shear Load (k)
1	0.349	13.16	4.79	-10.246	63.619	-4.91	0.36
2	0.698	10.72	9.00	-6.688	27.120	-4.91	0.48
3	1.047	7.00	12.12	-2.323	3.297	-4.91	0.55
4	1.396	2.43	13.79	2.323	3.297	5.73	0.55
5	1.745	-2.43	13.79	6.688	27.120	5.73	0.48
6	2.094	-7.00	12.12	10.246	63.619	5.73	0.36
7	2.443	-10.72	9.00	12.568	95.715	5.73	0.19
8	2.793	-13.16	4.79	13.375	108.391	5.73	0.00
9	3.142	-14.00	0.00	12.568	95.715	5.73	0.19
10	3.491	-13.16	-4.79	10.246	63.619	5.73	0.36
11	3.840	-10.72	-9.00	6.688	27.120	5.73	0.48
12	4.189	-7.00	-12.12	2.323	3.297	5.73	0.55
13	4.538	-2.43	-13.79	-2.323	3.297	-4.91	0.55
14	4.887	2.43	-13.79	-6.688	27.120	-4.91	0.48
15	5.236	7.00	-12.12	-10.246	63.619	-4.91	0.36
16	5.585	10.72	-9.00	-12.568	95.715	-4.91	0.19
17	5.934	13.16	-4.79	-13.375	108.391	-4.91	0.00
18	6.283	14.00	0.00	-12.568	95.715	-4.91	0.19

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	20"ø x 0.375" (Round)	68.3	3.67	6.43	1.000
Bolt Group	Original (18) 1"ø	68.3	-	6.43	1.000
	TOTALS	**68.27**	**3.67**	**6.43**	

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	20"ø x 0.375" (Round)	23.1199	-	-	1114.14	-
Bolt Group	Original (18) 1"ø	0.7854	0.6057	0.0292	975.79	8.0

EXTERNAL UPPER FLANGE PLATE BEND LINE ANALYSIS @ 149 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	20.12	in
Point-to-Point Diameter:	20.12	in
Flat Width:	0.176	in
Flat Radians:	0.017	rad

PLATE PROPERTIES

Neutral Axis:	70	°
Bend Line Lower Limit:	2.168	rad
Bend Line Upper Limit:	3.417	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	21.672	0.00	12.190	58.2	548.6	0.106
Corner	21.672	0.00	12.190	58.2	548.6	0.106
Circumferential	26.107	0.00	14.685	102.8	660.8	0.156

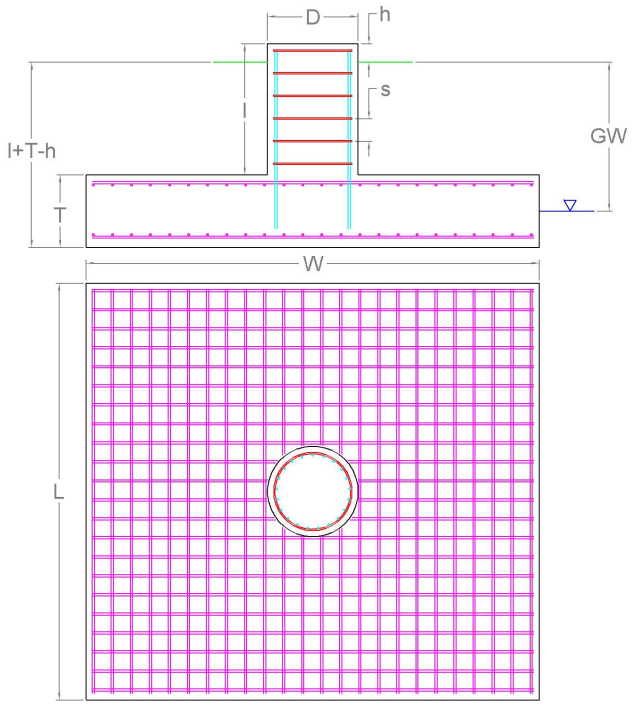
PLASTIC FLANGE BOLT ANALYSIS

Class	Group Quantity	Bolt Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity ϕPn (k)	Ratio
Original	18	1	5.7	0.5	54.5	0.105

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

Foundation & Tower Parameters			
Ignore Mat Rebar?		N	
Ignore Pier Rebar?		N	
Foundation has Pier(s)?		Y	
Pier Shape		Round	
Pier Diameter	*D*	7.9	ft
Pier Height Above Ground	*h*	1	ft
Pier Length	*l*	3	ft
Mat Base Depth	*l+T-h*	5	ft
Mat Length	*L*	28	ft
Mat Width	*W*	28	ft
Mat Thickness	*T*	3	ft
Unit Weight of Concrete		150	pcf
Tower Eccentricity	ecc	0	ft
Tower Face Width	FW	4.75	ft
Tower Leg Count		1	

Reactions		
Moment, M_u	4,026.59	k-ft
Shear, V_u	34.57	k
Axial, P_u	47.44	k
Uplift, T_u	0	k
Tower Weight	47.44	k
Tower Dead Load Factor	0.9	



Soil Parameters			
Water Table Depth [BGL]	*GW*	-	ft
Unit Weight of Soil		160	pcf
Unit Weight of Soil [Submerged]		97.6	pcf
Shear Friction Coefficient		0.5	
Ultimate Bearing Pressure		16,000	psf
Bearing Pressure Type		Net	
Conical Failure Angle		15	°
Capacity Increase (Transient Loads)		1.00	
Soil Strength Reduction Factor, ϕ_s		0.75	
Dead Load Factor		1.2	

Soil Capacities		
Design Moment, M_u	4,234.01	k-ft
Nominal Moment Capacity, $\phi_m M_n$	8,557.83	k-ft
$M_u / \phi_s M_n$	49.5%	
Net Bearing Pressure	1,563	k
Nominal Bearing Capacity, $\phi_b P_n$	12,600	k
Bearing Pressure Controlling Load Direction	Diagonal to Pad Edge	
$P_u / \phi_s P_n$	12.4%	
Ultimate Friction Resistance	324.79	k
Ultimate Passive Pressure Resistance	47.04	k
Nominal Shear Capacity, $\phi_s V_n$	278.87	k
$V_u / \phi_s V_n$	12.0%	

Mat Reinforcement Parameters		
Concrete Compressive Strength, f'_c	4,000	psi
Mat Rebar Quantity [Lower]	48	
Mat Rebar Size # [Lower]	8	
Mat Single Rebar Area [Lower]	0.79	in^2
Mat Rebar Quantity [Upper]	28	
Mat Rebar Size # [Upper]	8	
Mat Single Rebar Area [Upper]	0.79	in^2
Mat Rebar Yield Strength, F_y	60	ksi
Mat Clear Cover	3	in
Bending Reduction Factor, ϕ_B	0.9	
Shear Reduction Factor, ϕ_V	0.75	
Compression Reduction Factor, ϕ_C	0.65	
Steel Elastic Modulus	29,000	ksi

Mat Reinforcement Capacities		
Compression Zone Factor, β_1	0.85	
Lower Reinforcement Spacing	7.01	in
Upper Reinforcement Spacing	12.2	in
One Way Design Shear, V_u	141.12	k
One Way Shear Capacity, ϕV_c	1,020.02	k
One Way Shear Controlling Load Direction	Parallel to Pad Edge	
$V_u / \phi V_c$	**13.8%**	
Punching Design Shear Stress, v_u	39.49	psi
Punching Shear Capacity, $\phi_c V_n$	189.74	psi
$v_u / \phi_c V_n$	**20.8%**	
Moment Transfer Effective Flexural Width, $_f$	16.9	in
Neutral Axis Depth	2.06	In
Moment Transfer Flexural Capacity, $\phi M_{sc,f}$	39,738.28	k-in
$\gamma_f M_{sc} / \phi M_{sc,f}$	**0.0%**	
Flexure Due to Soil Pressure, M_u	1,481.4	k-ft
Lower Steel Mat Moment Capacity, ϕM_n	5,316.05	k-ft
Flexural Steel Controlling Load Direction	Parallel to Pad Edge	
$M_u / \phi M_n$	**27.9%**	
Flexure Due to Uplift, M_u	1,088.81	k-ft
Upper Steel Mat Moment Capacity, ϕM_n	3,136.13	k-ft
$M_u / \phi M_n$	**34.7%**	

Pier Reinforcement Parameters			
Concrete Compressive Strength (f'_c)		4,000	psi
Pier Rebar Quantity		34	
Pier Rebar Size #		8	
Pier Single Rebar Area		0.79	in^2
Pier Rebar Yield Strength (F_y)		60	ksi
Tie Rebar Size #		4	
Tie Rebar Area (Single)		0.2	in^2
Tie Rebar Spacing	*s*	6	in
Tie Rebar Yield Strength (F_y)		60	ksi
Rebar Cage Diameter		86.8	in

Pier Reinforcement Capacities		
Design Moment (M_u)	4,130.3	k-ft
Nominal Moment Capacity ($\phi_B M_n$)	5,130.44	k-ft
$M_u / \phi_B M_n$	**80.5%**	
Design Shear (V_u)	34.57	k
Nominal Shear Capacity ($\phi_V V_n$)	899.39	k
$V_u / \phi_V V_n$	**3.8%**	
Design Compression (P_u)	47.44	k
Nominal Compression Capacity ($\phi_P P_n$)	12,456.42	k
$P_u / \phi_P P_n$	**0.4%**	
Pier Reinforcement Ratio	0	-
$M_u / \phi_B M_n + T_u / \phi_T T_n$	**80.5%**	

RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Section 1 - Site Information

Site ID: CTNH552A
Status: Final
Version: 2
Project Type: Anchor
Approved: 3/7/2022 8:57:08 AM
Approved By: Pratik.Patil30@T-Mobile.com
Last Modified: 3/7/2022 8:57:08 AM
Last Modified By: Pratik.Patil30@T-Mobile.com

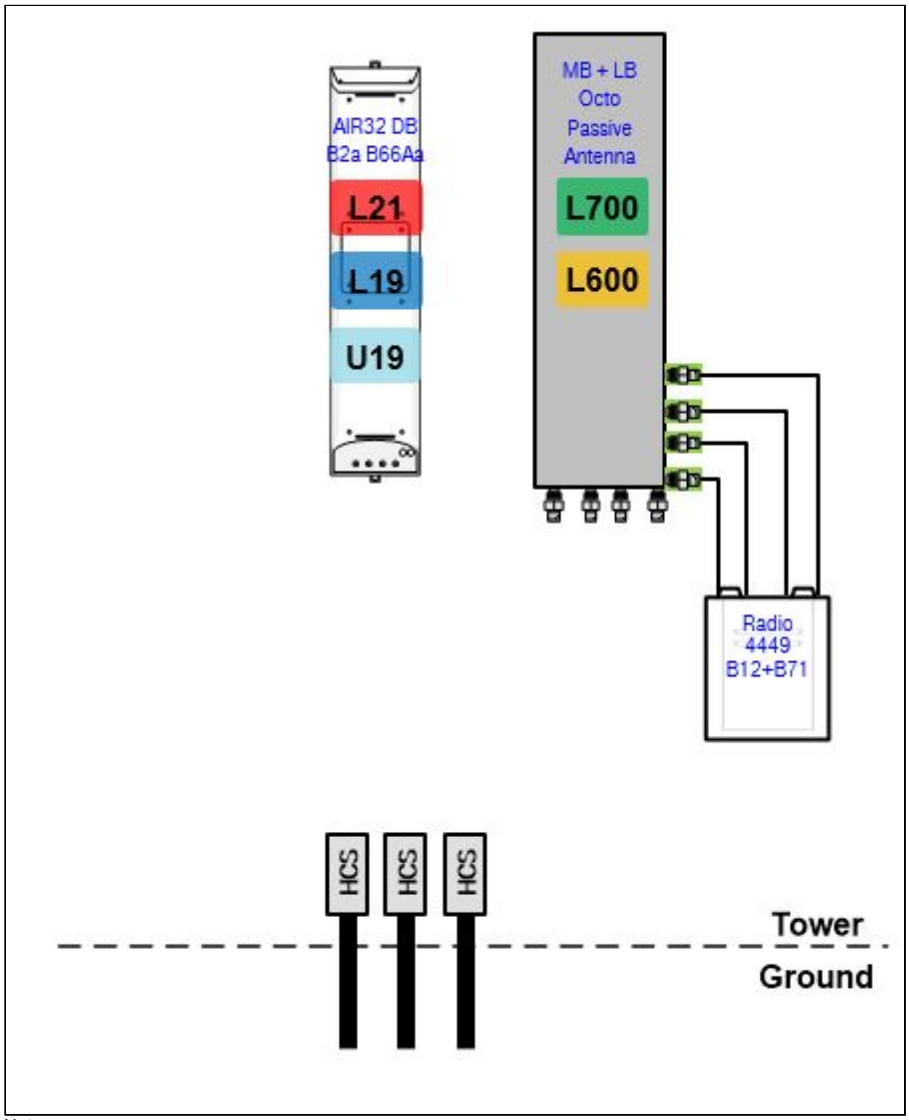
Site Name: CTNH552A
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2022
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: American Tower

Latitude: 41.85632000
Longitude: -73.24157000
Address: 442 North St
City, State: Goshen, CT
Region: NORTHEAST

RAN Template: 4Sec-67D5D998E MUAC			AL Template: 4Sec-67D5998E_1xAIR+1OP	
Sector Count: 4	**Antenna Count:** 8	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 8

Section 2 - Existing Template Images

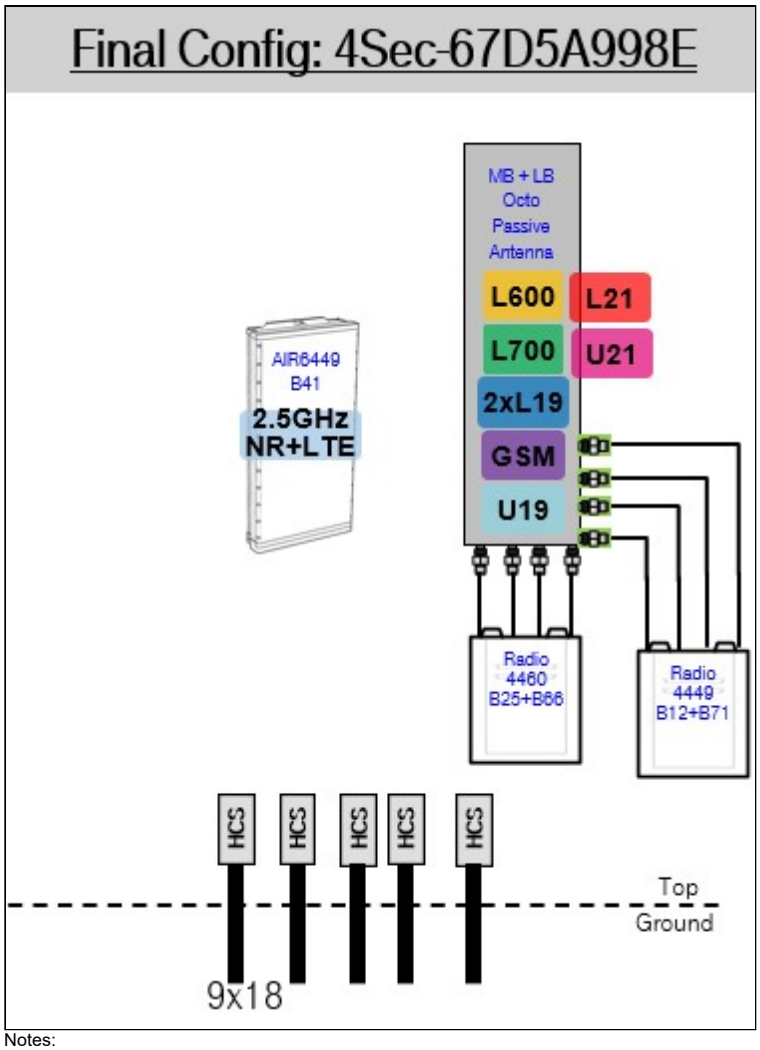
4Sec-67D97DB_1xAIR+1OP.JPG



Notes:

Section 3 - Proposed Template Images

4Sec-67D5A998E.jpg



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 4Sec-67D97DB

Enclosure	1	2
Enclosure Type	RBS 6102 MU AC	Ancillary Equipment (Ericsson)
Baseband	DUW30: U1900; BB 6630: L2100, L1900; BB 6630: L700, L600, N600	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* **(x 4)**

Proposed RAN Equipment

Template: 4Sec-67D5D998E MUAC

Enclosure	1	2	3	4
Enclosure Type	Ancillary Equipment (Ericsson)	RBS 6102 MU AC	Enclosure 6160 AC V1	B160
Baseband		DUW30: U1900; BB 6630: L2100, L1900; BB 6630: L700, L600, N600	RP 6651: N2500, L2500	
Hybrid Cable System	Ericsson 6x12 HCS *Select Length & AWG* **(x 4)**		PSU 4813 vR4A (Kit) **(x 2)** Ericsson Hybrid Trunk 6/24 4AWG 60m **(x 2)**	
Transport System			CSR IXRe V2 (Gen2)	

RAN Scope of Work:

Remove and return all cabinet radios from existing base station cabinet.

Upgrade 6102 breaker to 125A.(to be confirmed)

Add 150A Breaker for 6160.

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 : (4) 6x12,

Remove all Coax,

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

RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Section 6 - A&L Equipment

Existing Template: 4Sec-67D97DB_1xAIR+1OP
Proposed Template: 4Sec-67D5998E_1xAIR+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2			
Antenna Model	Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)				RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	70				70			
M. Tilt								
Height	138				138			
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2100	L2100	U1900 L1900	U1900 L1900	L700 L600 N600	L700 L600 N600		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2		2	2		
Cables	Fiber Jumper - 15 ft.		SHARED Fiber Jumper - 15 ft.		Coax Jumper **(x2)**	SHARED Coax Jumper **(x2)**		
TMAs								
Diplexers / Combiners								
Radio					Radio 4449 B71+B85 (At Antenna)			
Sector Equipment								

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1		2			
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	70		70			
M. Tilt	0		0			
Height	138		138			
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	N2500 L2500	N2500 L2500	L700 L600 N600	L700 L600 N600	L2100 L1900 U1900	L2100 L1900 U1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs						
Diplexers / Combiners						
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

There will be two antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Replace AIR32 with (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U1900 to Position 2 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:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2			
Antenna Model	Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)				RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	160				160			
M. Tilt								
Height	138				138			
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2100	L2100	U1900 L1900	U1900 L1900	L700 L600 N600	L700 L600 N600		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2		2	2		
Cables	Fiber Jumper - 15 ft.		SHARED Fiber Jumper - 15 ft.		Coax Jumper **(x2)**	SHARED Coax Jumper **(x2)**		
TMAs								
Diplexers / Combiners								
Radio					Radio 4449 B71+B85 (At Antenna)			
Sector Equipment								

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1		2			
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	160		160			
M. Tilt	0		0			
Height	138		138			
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L2100 L1900 U1900	L2100 L1900 U1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs						
Diplexers / Combiners						
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

There will be two antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Replace AIR32 with (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U1900 to Position 2 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:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2			
Antenna Model	Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)				RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	250				250			
M. Tilt								
Height	138				138			
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2100	L2100	U1900 L1900	U1900 L1900	L700 L600 N600	L700 L600 N600		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2		2	2		
Cables	Fiber Jumper - 15 ft.		SHARED Fiber Jumper - 15 ft.		Coax Jumper **(x2)**	SHARED Coax Jumper **(x2)**		
TMAs								
Diplexers / Combiners								
Radio					Radio 4449 B71+B85 (At Antenna)			
Sector Equipment								

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1		2			
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	250		250			
M. Tilt	0		0			
Height	138		138			
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L2100 L1900 U1900	L2100 L1900 U1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs						
Diplexers / Combiners						
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

There will be two antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Replace AIR32 with (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U1900 to Position 2 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:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 4 (Existing) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1				2			
Antenna Model	Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)				RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	340				340			
M. Tilt								
Height	138				138			
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L2100	L2100	U1900 L1900	U1900 L1900	L700 L600 N600	L700 L600 N600		
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2		2	2		
Cables	Fiber Jumper - 15 ft.		SHARED Fiber Jumper - 15 ft.		Coax Jumper **(x2)**	SHARED Coax Jumper **(x2)**		
TMAs								
Diplexers / Combiners								
Radio					Radio 4449 B71+B85 (At Antenna)			
Sector Equipment								

Unconnected Equipment:

Scope of Work:

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

RAN Template:	A&L Template:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Sector 4 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1		2			
Antenna Model	AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)			
Azimuth	340		340			
M. Tilt	0		0			
Height	138		138			
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600	L2100 L1900 U1900	L2100 L1900 U1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Fiber Jumper **(x2)**	Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)** Fiber Jumper
TMAs						
Diplexers / Combiners						
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

There will be two antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Replace AIR32 with (1) AIR6419 B41 for L2500 and N2500 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and U1900 to Position 2 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:
4Sec-67D5D998E MUAC	4Sec-67D5998E_1xAIR+1OP

CTNH552A_Anchor_2

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

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

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

T-Mobile Existing Facility

Site ID: CTNH552A

438 North Street
Goshen, Connecticut 06756

May 10, 2022

EBI Project Number: 6222002984

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.10%**

May 10, 2022

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

Emissions Analysis for Site: CTNH552A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **438 North Street** in **Goshen, 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 438 North Street in Goshen, 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) 2 UMTS 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 Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C, the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector D. 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 138 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.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C	Sector:	D
Antenna #:	1	Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	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	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd
Height (AGL):	138 feet	Height (AGL):	138 feet	Height (AGL):	138 feet	Height (AGL):	138 feet
Channel Count:	4	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	Total TX Power (W):	240.00 Watts
ERP (W):	31,011.95	ERP (W):	31,011.95	ERP (W):	31,011.95	ERP (W):	31,011.95
Antenna A1 MPE %:	**6.40%**	Antenna B1 MPE %:	**6.40%**	Antenna C1 MPE %:	**6.40%**	Antenna D1 MPE %:	**6.40%**
Antenna #:	2	Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	138 feet	Height (AGL):	138 feet	Height (AGL):	138 feet	Height (AGL):	138 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	500.00 Watts	Total TX Power (W):	500.00 Watts	Total TX Power (W):	500.00 Watts	Total TX Power (W):	500.00 Watts
ERP (W):	15,848.33	ERP (W):	15,848.33	ERP (W):	15,848.33	ERP (W):	15,848.33
Antenna A2 MPE %:	**4.43%**	Antenna B2 MPE %:	**4.43%**	Antenna C2 MPE %:	**4.43%**	Antenna D2 MPE %:	**4.43%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	10.83%
Verizon	1.27%
AT&T	7%
Site Total MPE % :	19.10%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.83%
T-Mobile Sector B Total:	10.83%
T-Mobile Sector C Total:	10.83%
T-Mobile Sector D Total:	10.83%
Site Total MPE % :	19.10%

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 2500 MHz LTE 1C & 2C Traffic	1	9619.47	138.0	19.85	2500 MHz LTE 1C & 2C Traffic	1000	1.98%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	717.84	138.0	1.48	2500 MHz LTE 1C & 2C Broadcast	1000	0.15%
T-Mobile 2500 MHz NR Traffic	1	19238.94	138.0	39.70	2500 MHz NR Traffic	1000	3.97%
T-Mobile 2500 MHz NR Broadcast	1	1435.69	138.0	2.96	2500 MHz NR Broadcast	1000	0.30%
T-Mobile 600 MHz LTE	2	591.73	138.0	2.44	600 MHz LTE	400	0.61%
T-Mobile 600 MHz NR	1	1577.94	138.0	3.26	600 MHz NR	400	0.81%
T-Mobile 700 MHz LTE	2	648.82	138.0	2.68	700 MHz LTE	467	0.57%
T-Mobile 1900 MHz UMTS	2	1101.85	138.0	4.55	1900 MHz UMTS	1000	0.45%
T-Mobile 1900 MHz LTE	2	2203.69	138.0	9.09	1900 MHz LTE	1000	0.91%
T-Mobile 2100 MHz LTE	2	2589.11	138.0	10.68	2100 MHz LTE	1000	1.07%
						Total:	**10.83%**

• 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:	10.83%
Sector B:	10.83%
Sector C:	10.83%
Sector D:	10.83%
T-Mobile Maximum MPE % (Sector A):	10.83%
Site Total:	19.10%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.10%** 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.