



April 23, 2021

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

RE: **Notice of Exempt Modification for T-Mobile  
Crown Site ID# 803175; T-Mobile Site ID# CT11783B  
167 Cocco, New Britain, CT 06051  
Latitude: 41° 41' 11.80" / Longitude: -72° 45' 27.80"**

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 161-foot mount on the existing 188-foot Monopole Tower located at 167 Cocco in New Britain, CT. The property and tower are both owned by Crown Castle. T-Mobile now intends to replace three (3) existing antennas with three (3) new antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. T-Mobile is also proposing mount modifications as shown on the enclosed mount analysis.

**Planned Modifications:**

**Tower:**

Remove and Replace:

(3) Ericsson – AIR21 KRC118023-1\_B2A\_B4P Antennas (**REMOVE**) - (3) AIR6449 B41 Antennas (**REPLACE**)

Install New:

(3) Ericsson – 4415 B25 radios  
(1) 1 5/8" hybrid cable  
(1) Site Pro support rail kit HRK14-U  
(1) Site Prop kicker support PRK-1245

Remove:

(3) TMA

**Ground:**

Install New:

(1) 6160 cabinet  
(1) B160 battery cabinet  
(2) BB6630  
(1) IXRE router

(1) PSU 4813

The Connecticut Siting Council approved of this facility's tower share capabilities via TS-VER-089-010418 on April 27, 2001. The facility was approved by the City of New Britain Building Department via a Building Permit application in November of 2000.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Erin E. Stewart, Mayor, City of New Britain and Mr. Steven P. Schiller, City Planner for the City of New Britain.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification 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 Communication 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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Richard Zajac  
Site Acquisition Specialist  
4545 East River Road, Suite 320  
West Henrietta, NY  
(585) 445-5896  
[Richard.zajac@crowncastle.com](mailto:Richard.zajac@crowncastle.com)

Melanie A. Bachman

Page 3

cc:

The Honorable Erin E. Stewart, Mayor (*via email only to [mayor@newbritainct.gov](mailto:mayor@newbritainct.gov)*)  
City of New Britain  
27 West Main Street  
New Britain, CT 06051

Steven P. Schiller, City Planner, AICP (*via email only to [steven.schiller@newbritainct.gov](mailto:steven.schiller@newbritainct.gov)*)  
City of New Britain  
27 West Main Street, Room 404  
New Britain, CT 06051

## Zajac, Richard

---

**From:** Zajac, Richard  
**Sent:** Friday, April 23, 2021 3:18 PM  
**To:** 'Mayor@NewBritainCT.gov'  
**Subject:** Connecticut Siting Council exempt modification application notification  
**Attachments:** CSC Exempt Modification Application - 167 Cocco.como.pdf

Good afternoon Mayor Stewart,  
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 167 Cocco.como in New Britain.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,  
**RICH ZAJAC**  
Site Acquisition Specialist  
T: (585) 445-5896 M: (607) 346-7212  
F: (724) 416-4461  
**CROWN CASTLE**  
4545 East River Road, Suite 320  
West Henrietta, NY 14586

## Zajac, Richard

---

**From:** Zajac, Richard  
**Sent:** Friday, April 23, 2021 3:20 PM  
**To:** steven.schiller@newbritainct.gov  
**Subject:** Connecticut Siting Council exempt modification application notification  
**Attachments:** CSC Exempt Modification Application - 167 Cocco.como.pdf

Good afternoon Mr. Schiller,  
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 167 Cocco.como in New Britain.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,  
**RICH ZAJAC**  
Site Acquisition Specialist  
T: (585) 445-5896 M: (607) 346-7212  
F: (724) 416-4461  
**CROWN CASTLE**  
4545 East River Road, Suite 320  
West Henrietta, NY 14586

# Exhibit A

## **Original Facility Approval**



# 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@po.state.ct.us](mailto:siting.council@po.state.ct.us)

Web Site: [www.state.ct.us/csc/index.htm](http://www.state.ct.us/csc/index.htm)

April 27, 2001

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

RE: **TS-VER-089-010418** - Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 167 Lester Street, New Britain.

Dear Attorney Baldwin:

At a public meeting held April 26, 2001, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated April 18, 2001.

Thank you for your attention and cooperation.

Very truly yours,

  
Mortimer A. Gelston  
Chairman

MAG/RKE/laf

c: Honorable Lucian J. Pawlak, Mayor, City of New Britain  
Planning and Zoning Department, City of New Britain  
Robert Stanford, Crown Atlantic Company LLC

# ROBINSON & COLE LLP

HARTFORD • STAMFORD • GREENWICH • NEW YORK • BOSTON

LAW OFFICES  
www.rc.com

280 Trumbull Street  
Hartford, CT 06103-3597  
860-275-8200  
Fax 860-275-8299

Kenneth C. Baldwin  
860-275-8345  
kbaldwin@rc.com

April 18, 2001

*Via Hand Delivery*

Mr. Joel M. Rinebold  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: **Request of Celco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of a Tower Facility at 167 Lester Street, New Britain, Connecticut**

Dear Mr. Rinebold:

Pursuant to Connecticut General Statutes §16-50aa, as amended, Celco Partnership d/b/a Verizon Wireless ("Celco") hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared use by Celco of an existing tower located at 167 Lester Street in New Britain, Connecticut. Celco requests that the Council find that the proposed shared use of the tower satisfies the criteria stated in Connecticut General Statutes § 16-50aa and issue an order approving the proposed use.

**Background**

In November of 2000, Crown Atlantic Company LLC applied for and subsequently received a building permit for the construction of a telecommunications tower at 167 Lester Street in New Britain. The Lester Street site lies within the Town's I-2 Industrial zone. Telecommunications towers are permitted "as of right" in the I-2 zone district.

As the Council is aware from discussions in previous dockets, Crown and Verizon Wireless have entered into a build-to-suit (BTS) agreement which requires Crown to pursue tower leases and regulatory approvals for sites within search areas issued by Verizon Wireless. Tower proposals which emanate from the BTS agreement have been, and will continue to be presented to the Siting Council for approval.



# ROBINSON & COLE LLP

Joel M. Rinebold

April 18, 2001

Page 2

The Lester Street tower however, was not the result of the BTS agreement. This tower was built as one of Crown's so-called "Greenfield" projects, proposed and built on speculation much like towers being built statewide by companies such as SBA Inc. and American Tower. It was not until after the tower was approved by the City building official that Verizon Wireless expressed an interest in the New Britain site. For the Council's information, Crown has also recently been notified by AT&T Wireless that they are interested in sharing this tower. The AT&T request will be the subject of a future tower share request.

As the Council is aware, Cellco is licensed by the Federal Communications Commission (FCC) to provide cellular wireless telephone service in the State of Connecticut, which includes the area to be served by Cellco's proposed New Britain installation. Cellco and Crown have agreed to the proposed shared use of this tower pursuant to mutually acceptable terms and conditions, and Crown has authorized Cellco to act on its behalf to apply for all necessary local, state and federal permits, approvals, and authorizations which may be required for the proposed shared use of this facility.

Cellco proposes to install twelve (12) panel-type antennas at the 145-foot level on the tower. The radio transmission equipment associated with these antennas would be located in a new 12-foot by 30-foot equipment building which would be located near the base of the tower. (See attached Project Plans).

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." The shared use of the tower satisfies those criteria as follows:

**A. Technical Feasibility.** The existing tower is structurally capable of supporting the proposed Cellco antennas. The Lester Street tower was designed to accommodate a minimum of four antenna platforms, with twelve (12) antennas mounted on each platform. The proposed shared use of this tower therefore is technically feasible.

**B. Legal Feasibility.** Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the proposed shared use of an existing tower facility such as the Lester Street facility in New Britain. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50aa directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing towers facilities. Under the statutory authority vested

Joel M. Rinebold

April 18, 2001

Page 3

in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

**C. Environmental Feasibility.** The proposed shared use would have a minimal environmental effect, for the following reasons:

1. The proposed installations would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing site. In particular, the proposed installations would not increase the height of the existing tower, and would not extend the boundaries of the tower site outside the limits of the existing site compound.
2. The proposed installations would not increase the noise levels at the existing facility by six decibels or more.
3. Operation of antennas at this site would not exceed the total radio frequency (RF) electromagnetic radiation power density level adopted by the Federal Communications Commission. The "worst-case" exposure calculated for operation of this facility (i.e., calculated at the facility boundary, which represents the closest publicly accessible point within the broadcast field of the antennas), would be  $0.0325 \text{ mW/cm}^2$  (5.57% of the standard) for Cellco antennas.
4. The proposed installation, would not require any water or sanitary facilities, or generate air emissions or discharges to water or sanitary facilities, or generate air emissions or discharges to water bodies. After construction is complete the proposed installations would not generate any traffic other than periodic maintenance visits.

The proposed use of this facility would therefore have a minimal environmental effect, and is environmentally feasible.

**E. Economic Feasibility.** As previously mentioned, Crown and Cellco have entered into a mutual agreement to share the use of the tower on terms agreeable to the parties. The proposed tower sharing is therefore economically feasible.

**F. Public Safety Concerns.** As stated above, the proposed tower will be structurally capable of supporting the Cellco antennas. Cellco is not aware of any public safety concerns relative to the proposed sharing of the existing tower. In fact, the provision of new or improved

Joel M. Rinebold  
April 18, 2001  
Page 4

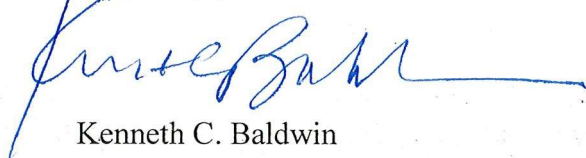
phone service through shared use of the existing tower is expected to enhance the safety and welfare of area residents.

**Conclusion**

For the reasons discussed above, the proposed shared use of the existing tower off Lester Street in New Britain, Connecticut satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of towers in Connecticut. The Applicant therefore requests that the Siting Council issue an order approving the proposed shared use.

Thank you for your consideration of this matter.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Kenneth C. Baldwin", with a long horizontal flourish extending to the right.

Kenneth C. Baldwin

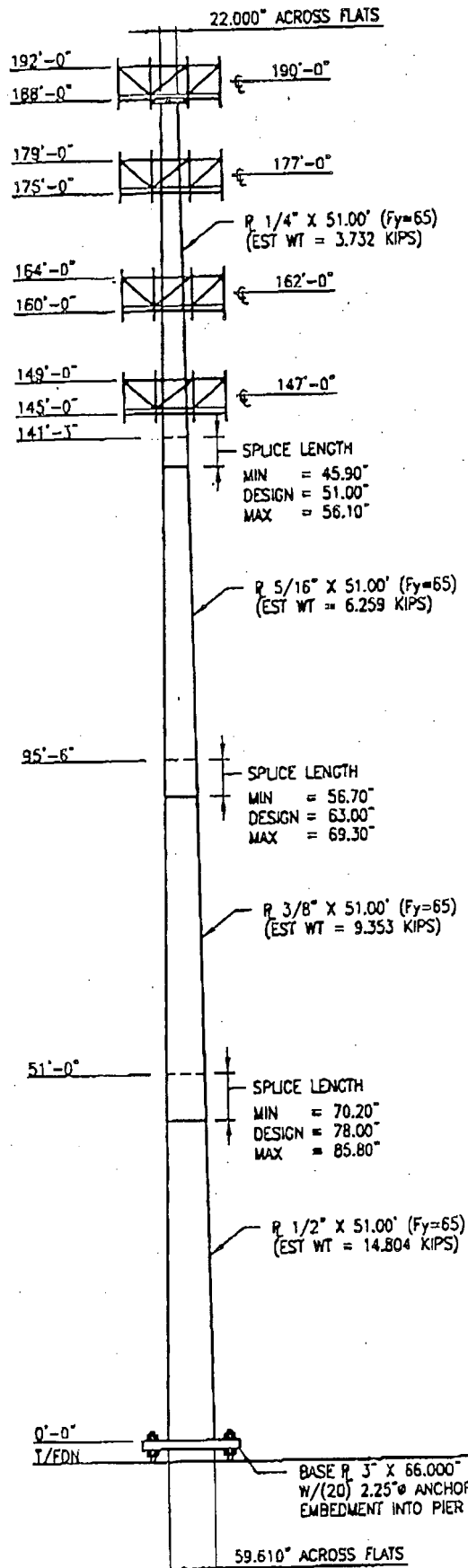
KCB/kmd  
Attachments

# SUMMIT MANUFACTURING, LLC

225 KIWANIS BOULEVARD, WEST HAZLETON, PA 18201  
 PHONE: (888) 847-6537 E-MAIL: SUMMITCA@EPIX.NET  
 FAX: (888) 460-6885 WWW.SUMMITMFGLLC.COM



PAUL J. FORD & COMPANY  
 STRUCTURAL ENGINEERS  
 250 East Broad Street, Suite 500, Columbus, Ohio 43215  
 (614) 221-6679 Fax: (614) 221-0166 www.PJFweb.com



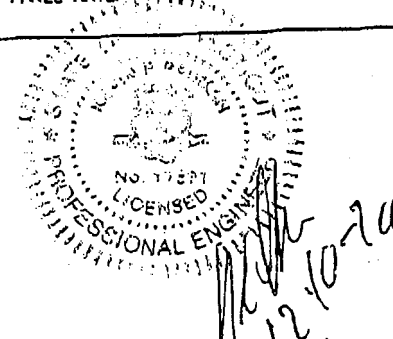
JOB DATA			
Page 1 of 3	Job No.	29200-1787	
By MFP / KJS	Design No.	SUMMIT JOB #12481	
Chk'd By	Date	12-11-2000	
	Rev. No.	Rev. Date	
Pole	190-FT EXPRESS POLE		
Site	NEW BRITAIN III., HARTFORD CO., CT		
Owner	CROWN CASTLE		
Ref. No.			
Design	85 MPH / 74 MH + 1/2" ICE ACCORDING TO TIA/EIA-222-F 1996		

LOAD CASES			
CASE 1	85 MPH WITH NO ICE	DESIGN WIND	
CASE 2	74 MPH WITH 1/2" RADIAL ICE	REDUCED WIND WITH ICE	
CASE 3	50 MPH WITH NO ICE	OPERATIONAL WIND	

POLE SPECIFICATIONS	
Pole Shape Type:	18-SIDED POLYGON
Taper:	0.210027 IN/FT
Shaft Steel:	ASTM A607 GRADE 65
Base PL Steel:	ASTM A572 GRADE 50 (50 KSI)
Anchor Bolts:	2 1/4" Ø x 8'-0" LONG #18J ASTM A615 GRADE 75

ANTENNA LIST		
No.	Elev.	Description
-	TOP	5/8" LIGHTNING ROD
1-12	TOP	(12) 1-FT X 5-FT X 3-IN PANEL ANTENNA
-	TOP	14" PLATFORM
13-24	177.00	(12) 1-FT X 5-FT X 3-IN PANEL ANTENNA
-	177.00	14" PLATFORM
25-36	162.00	(12) 1-FT X 5-FT X 3-IN PANEL ANTENNA
-	162.00	14" PLATFORM
37-48	147.00	(12) 1-FT X 5-FT X 3-IN PANEL ANTENNA
-	147.00	14" PLATFORM

STEP BOLTS FULL HEIGHT.  
 ANTENNA FEED LINES RUN INSIDE OF POLE.



Elevation	85 MPH WIND		50 MPH WIND	
	Lateral Deflection (Inches)	Rotation (sway) (degrees)	Lateral Deflection (Inches)	Rotation (sway) (degrees)
TOP	158.6	7.772	54.7	2.689

SHAFT SECTION DATA					
Shaft Section	Section Length (feet)	Plate Thickness (in.)	Lap Splice (in.)	Diameter Across Flats (inches)	
				Top	Bottom
1	51.00	0.2500	51.00	22.000	32.711
2	51.00	0.3125	63.00	31.319	42.030
3	51.00	0.3750	78.00	40.302	51.014
4	51.00	0.5000		48.899	59.610

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES

### FOUNDATION DESIGN BASE REACTIONS

MOMENT = 4650 ft-kips  
 SHEAR = 34.5 kips  
 AXIAL = 44.0 kips

# MANUFACTURING LLC.

5 BOULEVARD,  
88) 847-6537  
5) 460-6885

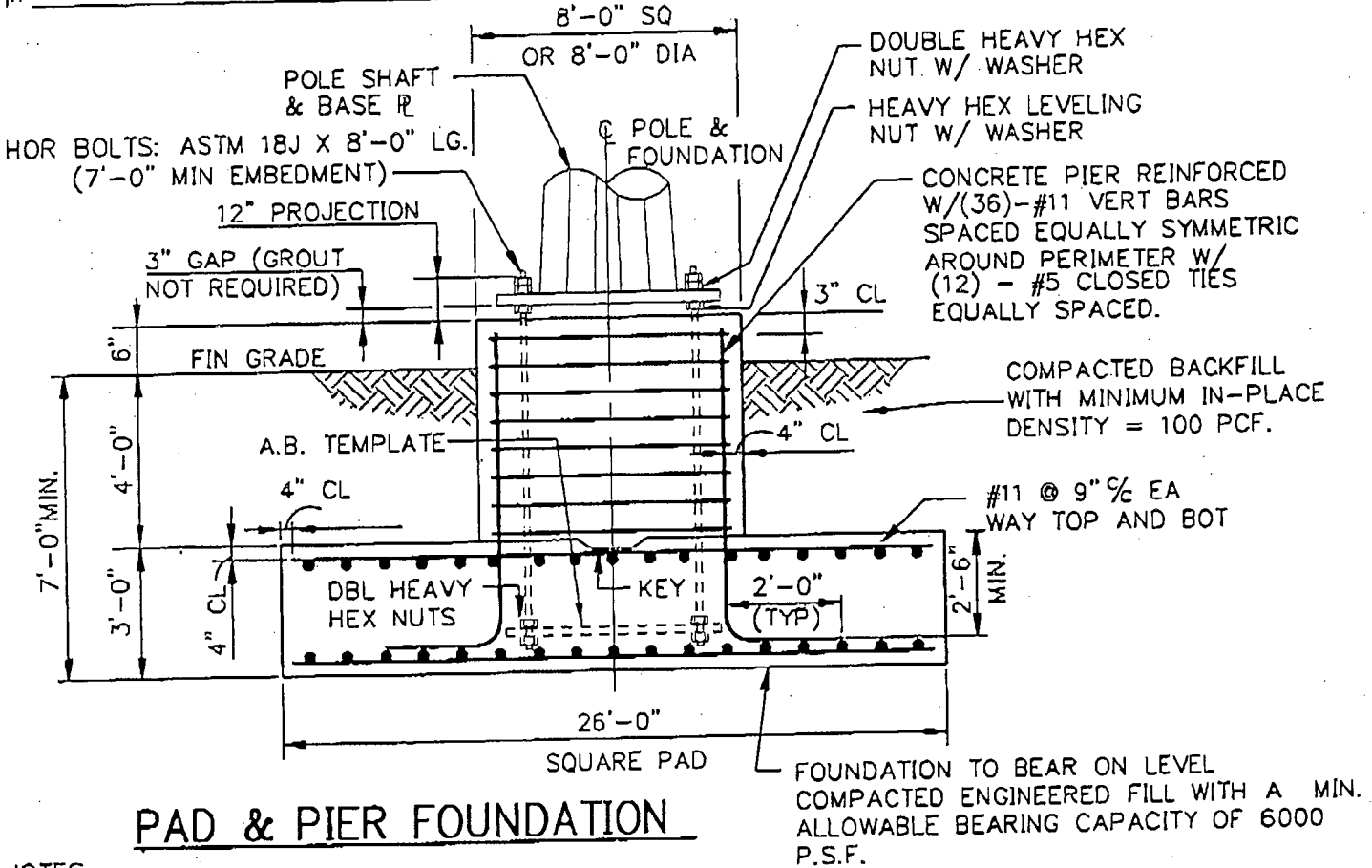
WEST HAZLETON, PA 18201  
E MAIL: SUMMITCA@EPIX.NET  
WWW.SUMMITMFLLC.COM



**PAUL J. FORD AND COMPANY**  
**STRUCTURAL ENGINEERS**  
250 East Broad Street, Suite 500, Columbus, Ohio 43215  
(614)-221-6679 FAX (614)-221-0166

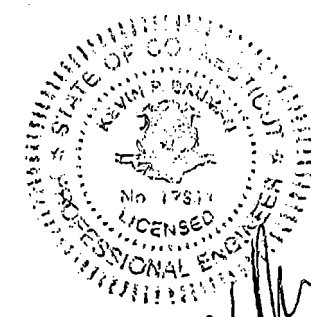
190' EXPRESS POLE  
HARTFORD CO., CT  
NEW BRITIAN III.  
CROWN CASTLE  
80 MPH / 69 MPH + 1/2" RADIAL ICE

Page 3 Of 3  
By MFP / KJS Date 12-11-2000  
Summit Job No. 12481 Job No. 29200-1787  
Revision No. \_\_\_\_\_ Date \_\_\_\_\_  
According to TIA/EIA-222-F 1996



## PAD & PIER FOUNDATION

- NOTES:**
- ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF AT LEAST 3000 PSI AT 28 DAYS.
  - REINFORCING STEEL SHALL CONFORM TO ASTM A615 (GRADE 60) EXCEPT PIER TIES MAY BE ASTM A615 GRADE 40).
  - SEE PAGE 1 FOR ANCHOR BOLT QUANTITY, SIZE, LENGTH AND BOLT CIRCLE.
  - TOTAL CONCRETE = 86 CUBIC YARDS.
  - FOUNDATION DESIGN BASED UPON GEOTECHNICAL EXPLORATION REPORT  
PREPARED BY: CLOUGH, HARBOUR & ASSOCIATES, LLP.  
REPORT NO.: 8961.07.46  
DATED: 10-26-2000
  - CONTRACTOR SHALL CONSULT GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.
  - MONOPOLE WAS DESIGNED USING THE FOLLOWING SERVICE LOADS:  
MOMENT = 4650 FT-K, AXIAL = 44.0 K, AND SHEAR = 34.5 K.



*Kevin P. Brumen*  
12-10-00



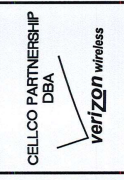
# NEW BRITAIN 3

## LESTER STREET

### NEW BRITAIN, CONNECTICUT

#### PROJECT SUMMARY

**SITE NAME:** NEW BRITAIN 3  
**SITE ADDRESS:** LESTER STREET, NEW BRITAIN, CONNECTICUT  
**CONTACT PERSON:** MARK SAUER (203) 494-0023  
**COVERING CODE:** CONNECTICUT STATE BUILDING AND LIFE SAFETY CODE  
**APPLICANT:** VERIZON WIRELESS, 20 ALEXANDER DRIVE, WALLINGFORD, CT, 06492  
**ARCHITECT:** URS CORPORATION A.E.S., 500 ENTERPRISE DRIVE, ROCKY HILL, CT 08607  
**M/E/P ENGINEER:** URS CORPORATION A.E.S., 500 ENTERPRISE DRIVE, ROCKY HILL, CT 08607  
**SURVEYOR:** URS CORPORATION A.E.S., 500 ENTERPRISE DRIVE, ROCKY HILL, CT 08607



**URS CORPORATION A.E.S.**  
 500 ENTERPRISE DRIVE  
 ROCKY HILL, CONNECTICUT  
 1-800-529-4886



#### LEGEND

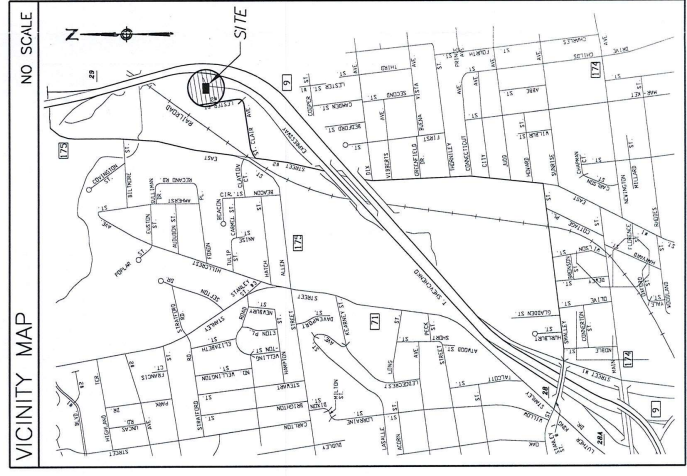
SYMBOL	DESCRIPTION
	SECTION OR DETAIL NUMBER
	SHEET WHERE DETAIL/SECTION OCCURS
	ELEVATION NUMBER
	SHEET WHERE ELEVATION OCCURS

#### ABBREVIATIONS

MIN	MINIMUM
V.L.	VERBY IN FIELD
O.C.	ON CENTER
P.S.F.	POUND/SQUARE FOOT
TYP.	TYPICAL
T.O.C.	TOP OF CONCRETE
T.O.W.	TOP OF WALL

#### SHEET INDEX

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET - GENERAL NOTES AND LEGENDS
SC-1	SITE PLAN, TOWER ELEVATION AND LEGEND



**PROJECT NO.:** F.301825-40/F03  
**DRAWN BY:** K.J.B.  
**CHECKED BY:**  
**ISSUED FOR:**  
 [ ] 04-06-01 RFR  
 [ ] 04-12-01 TRN

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS THE PROPERTY OF URS CORPORATION. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH IS SPECIFICALLY AUTHORIZED IS STRICTLY PROHIBITED.

**NEW BRITAIN 3**  
 LESTER STREET  
 NEW BRITAIN, CONNECTICUT

**SCALE:** NONE  
**DATE:** 04-06-01  
**DRAWING 1 OF 2**

**TITLE SHEET - GENERAL NOTES AND LEGENDS**

**T-1**

CELCO PARTNERSHIP  
DBA  
**verizon wireless**

AGE ITEM  
**URS CORPORATION AES**  
500 ENTERPRISE DRIVE  
ROCKY HILL, CONNECTICUT  
H-0603-508-8882



PROJECT NO: F301825.40/703  
DRAWN BY: KJB  
CHECKED BY:

ISSUED FOR

04-15-01	REVISE
04-12-01	TRAIL

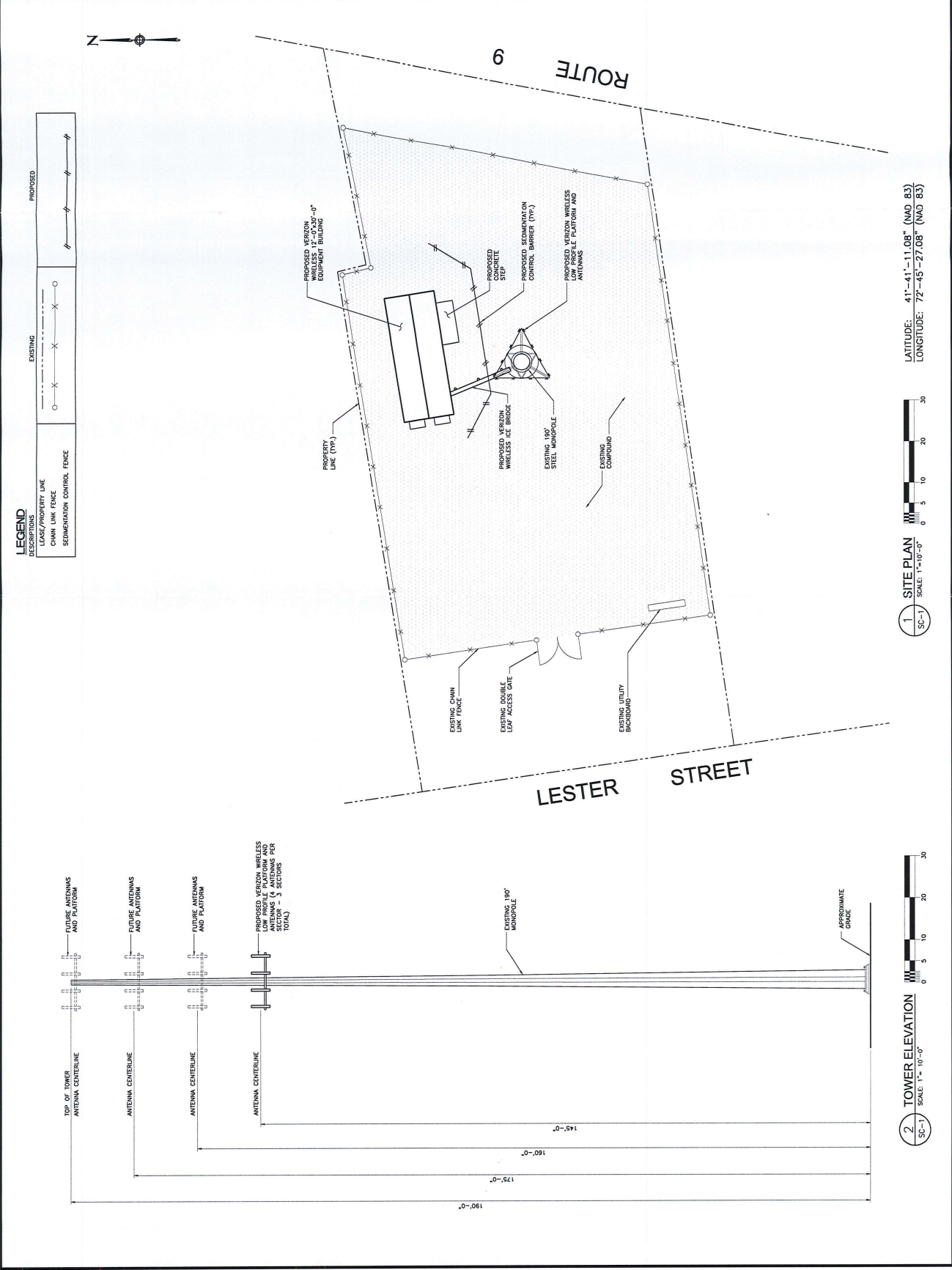
THE INFORMATION CONTAINED  
HEREIN IS PROPRIETARY AND  
ANY USE OR DISCLOSURE  
OTHER THAN THAT FOR WHICH  
IT IS STRICTLY PROHIBITED.

**NEW BRITAIN 3**  
LESTER STREET  
NEW BRITAIN, CONNECTICUT

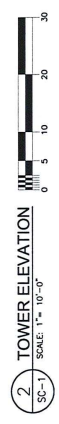
SCALE: AS NOTED  
DATE: 04-06-01  
DRAWING 2 OF 2

**SITE PLAN,  
TOWER ELEVATION  
AND LEGEND**

**SC-1**



LATITUDE: 41-41'-11.08" (NAD 83)  
LONGITUDE: 72-45'-27.08" (NAD 83)





City of New Britain  
Building Department

Date Issued 5/30/02

# BUILDING PERMIT — CERTIFICATE OF OCCUPANCY

1/9/01

Date 5/17/01

Permit No. B1779 & B2093

Applicant Crown Castle Atlantic, LLC Address 703 Hebron Ave, Glastonbury, CT

Permit To \_\_\_\_\_ (Type of Improvement) \_\_\_\_\_ (No.) \_\_\_\_\_ Story \_\_\_\_\_ (Proposed Use) \_\_\_\_\_ No. of Dwelling Units \_\_\_\_\_

At (Location) 167 LESTER STREET (No.) \_\_\_\_\_ (Street) \_\_\_\_\_ Zoning District I2

Subdivision \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_ Lot \_\_\_\_\_ Size \_\_\_\_\_

Building is to be \_\_\_\_\_ Ft. wide by \_\_\_\_\_ Ft. long by \_\_\_\_\_ Ft. in height and shall conform in construction

To Type \_\_\_\_\_ Use Group \_\_\_\_\_ Basement Walls or Foundation \_\_\_\_\_ (Type)

Remarks: 190' telecommunication tower per plan and 1999 State Building Code, B1779.

Area or Volume Install 12'x30' panelized land site steel frame shelter, 40 KW Diesel generator and 12 panel antennas approved by Siting Council 4/27/01, B2093 (Cubic/Square Feet)

Owner John & Helen Balavender

Address 30 Biltmore St. NB, CT

(Building Inspector)

To be posted on premises — See reverse side for conditions of certificate.



# Exhibit B

## **Property Card**

# 167 COCCOMO CIR

**Location** 167 COCCOMO CIR

**Mblu** A5D/ 22/ / /

**Acct#** 15950167

**Owner** CROWN ATLANTIC COMPANY  
LLC

**Assessment** \$58,380

**Appraisal** \$83,400

**PID** 10590

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$47,400	\$36,000	\$83,400
Assessment			
Valuation Year	Improvements	Land	Total
2017	\$33,180	\$25,200	\$58,380

## Owner of Record

**Owner** CROWN ATLANTIC COMPANY LLC

**Sale Price** \$90,000

**Co-Owner**

**Certificate**

**Address** 4017 WASHINGTON RD PMB 353  
MCMURRAY, PA 15317

**Book & Page** 1359/0428

**Sale Date** 02/13/2001

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
CROWN ATLANTIC COMPANY LLC	\$90,000		1359/0428	02/13/2001
BALAVENDER JOHN S +	\$44,000		1284/0180	08/26/1998
	\$0		1281/0173	07/15/1998
	\$0		0770/0808	10/29/1981
CLARA MARY DOUCETTE	\$0		0725/0121	03/02/1977
FRANCISZKA BARANOWSKI + CLARA	\$0		0594/0393	01/20/1966
FRANCISZKA BARANOWSKI	\$0		0532/0263	03/14/1962
FRANCISZKA + EDWARD R	\$0		0365/0244	03/16/1953
LILLIAN S SCHROEDEL	\$0		0365/0243	03/16/1953
FRANCISZKA BARANOWSKI	\$0		0332/0426	08/26/1949

## Building Information

### Building 1 : Section 1

**Year Built:** 1918  
**Living Area:** 624  
**Replacement Cost:** \$105,398  
**Building Percent Good:** 45  
**Replacement Cost Less Depreciation:** \$47,400

#### Building Attributes

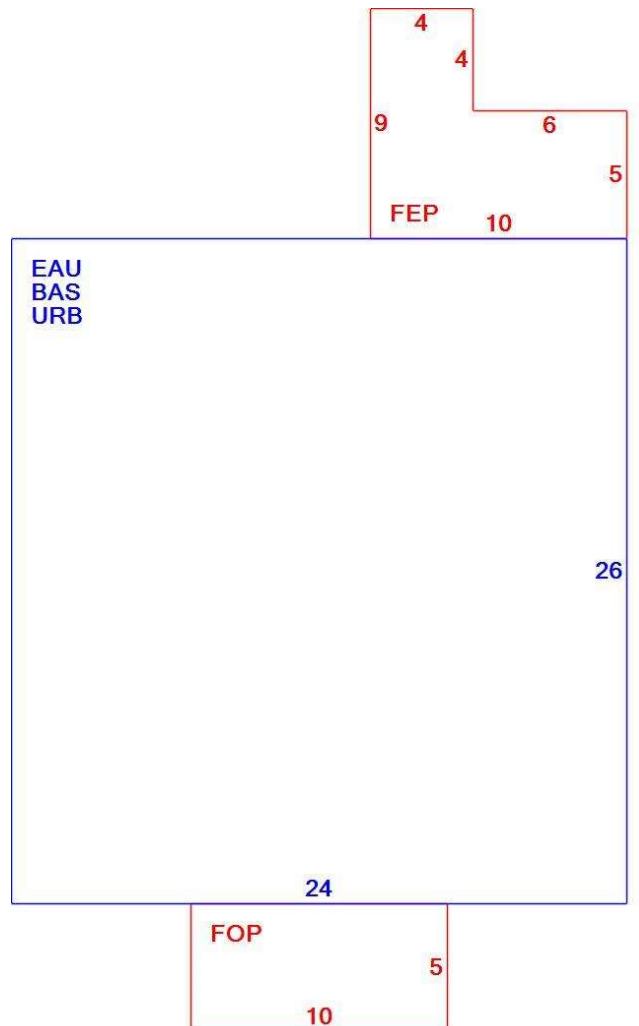
Field	Description
Style	Conventional
Model	Residential
Grade	C
Stories	1 1/4 Stories
Occupancy	1
Exterior Wall 1	Aluminum Sidin
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Plaster
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Central Heat Sys	Yes
Heat Type	99
AC Type	None
Total Bedrooms	2 Bedrooms
Total Full Baths	1
Total Half Baths	0
Total Xtra Fixtrs	0
Total Rooms	4
Bath Style	Average
Kitchen Style	Average
Num Kitchens	
Whirlpool Tub	
Fireplaces	
Rec Room Finish	
Rec Room Qual	
Bsmt Garages	
Fireplaces	
Bldg Nbhd	104A

### Building Photo



(<http://images.vgsi.com/photos/NewBritainCTPhotos/\00\02\86\91.JPG>)

### Building Layout



(ParcelSketch.ashx?pid=10590&bid=11318)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area

Fndtn Cndtn	
Basement	

BAS	First Floor	624	624
EAU	Attic, Expansion, Unfinished	624	0
FEP	Enclosed Porch	66	0
FOP	Open Porch	50	0
URB	Unfin Raised Basement	624	0
		1,988	624

### Extra Features

Extra Features	<u>Legend</u>
No Data for Extra Features	

### Land

#### Land Use

**Use Code** 1010  
**Description** Single Family  
**Zone** I2  
**Neighborhood** 104  
**Alt Land Appr** No  
**Category**

#### Land Line Valuation

**Size (Acres)** 0.32  
**Depth**  
**Assessed Value** \$25,200  
**Appraised Value** \$36,000

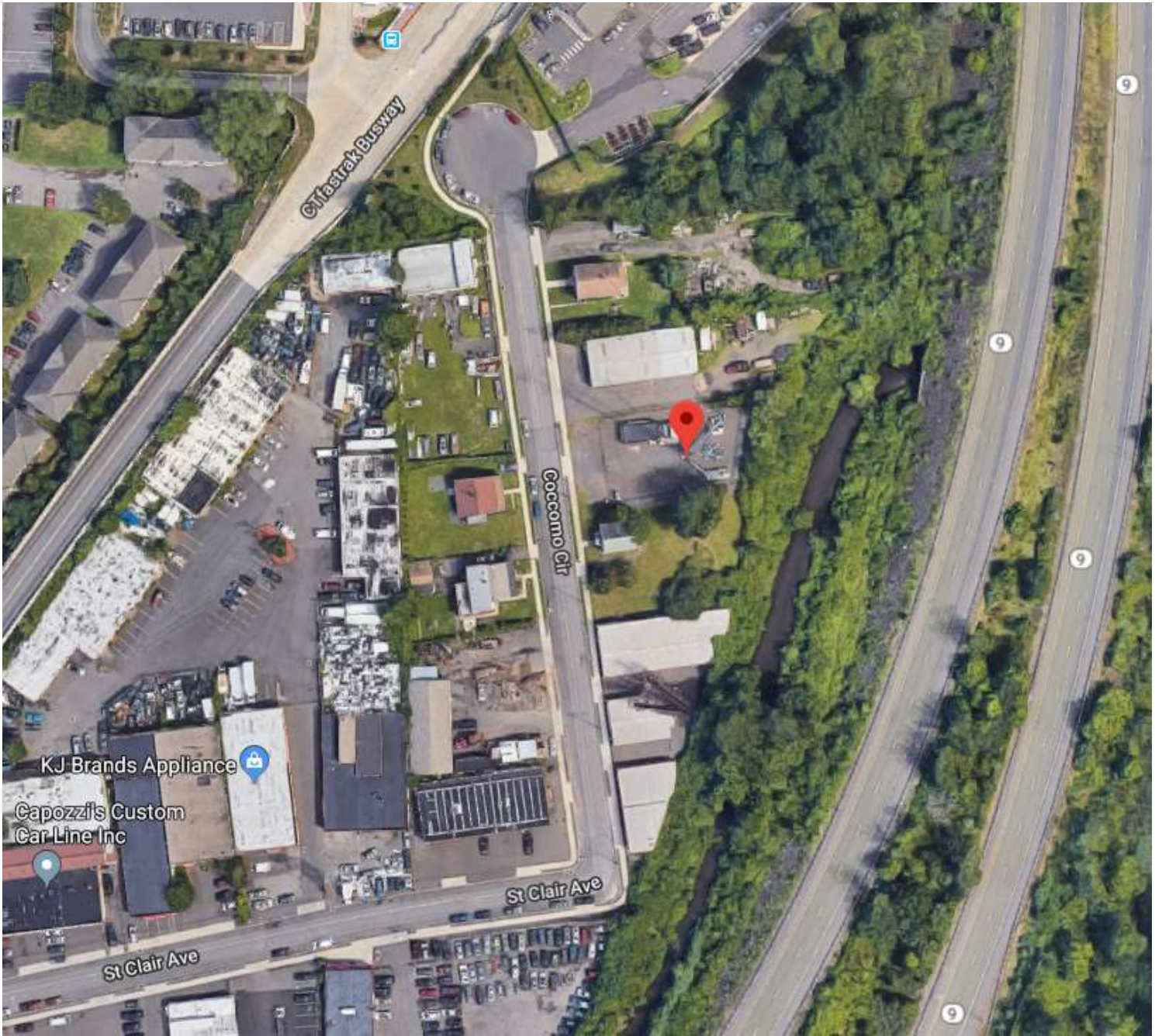
### Outbuildings

Outbuildings	<u>Legend</u>
No Data for Outbuildings	

### Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$47,400	\$36,000	\$83,400
2019	\$47,400	\$36,000	\$83,400
2018	\$47,400	\$36,000	\$83,400

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$33,180	\$25,200	\$58,380
2019	\$33,180	\$25,200	\$58,380
2018	\$33,180	\$25,200	\$58,380



# Exhibit C

## **Construction Drawings**

# T-Mobile

T-Mobile

4 SYLVAN WAY  
PARSIPPANY, NJ 07054

**CROWN CASTLE**

3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

**B+T GRP**

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

**T-MOBILE SITE NUMBER: CT11783B**

**T-MOBILE SITE NAME: CROWN COMM. MONOPOLE**

**SITE TYPE: MONOPOLE**

**TOWER HEIGHT: 188'-0"**

**BUSINESS UNIT #: 803175**

**SITE ADDRESS: 167 COCCOMO  
NEW BRITAIN, CT 06051**

**COUNTY: HARTFORD**

**JURISDICTION: CONNECTICUT SITING**

**T-MOBILE ANCHOR SITE CONFIGURATION: 67D5A997DB OUTDOOR COUNCIL**

**T-MOBILE SITE NUMBER:  
CT11783B**

**BU #: 803175  
CT NEW BRITAIN 3 CAC  
803175**

**167 COCCOMO  
NEW BRITAIN, CT 06051**

**EXISTING  
188'-0" MONOPOLE**

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/1/21	LHT	PRELIMINARY REVIEW	MTJ
0	4/15/21	GEH	CONSTRUCTION	GEH

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	CT NEW BRITAIN 3 CAC 803175
SITE ADDRESS:	167 COCCOMO NEW BRITAIN, CT 06051
COUNTY:	HARTFORD
MAP/PARCEL #:	A5D 23
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.686611°
LONGITUDE:	-72.757722°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	89'-0"
CURRENT ZONING:	I2 - GENERAL INDUSTRY
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CROWN ATLANTIC COMPANY LLC 4017 WASHINGTON RD PMB 353 MCMURRAY, PA 15317
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	N/A
TELCO PROVIDER:	N/A

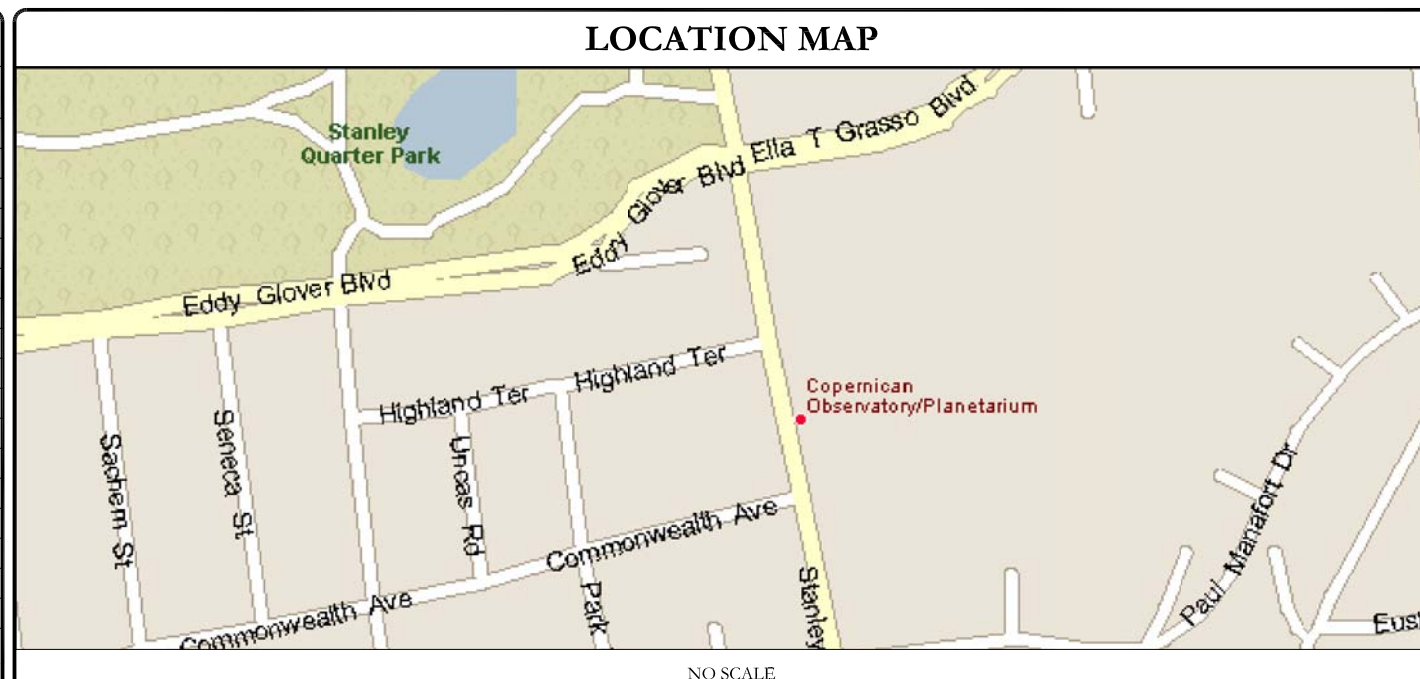
PROJECT TEAM	
A&E FIRM:	B+T GROUP 1717 S BOULDER AVE, SUITE 300 TULSA, OK 74119 JENNY PAUL JPAUL@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1200 MACARTHUR BLVD, SUITE 200 MAHWAH, NJ 07430

**NOTE:**  
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE  
CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	CODE SUMMARY
T-3	CODE SUMMARY
T-4	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION	
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.	
TOWER SCOPE OF WORK:	
<ul style="list-style-type: none"> <li>REMOVE (3) ANTENNAS</li> <li>REMOVE (3) TMAs</li> <li>INSTALL (3) ANTENNAS</li> <li>INSTALL (3) RADIOS</li> <li>INSTALL (1) 1-5/8" HYBRID CABLE</li> <li>INSTALL KICKER SUPPORT - SITE PRO P/N PRK-1245</li> <li>INSTALL SUPPORT RAIL KIT - SITE PRO P/N HRK14-U</li> </ul>	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> <li>INSTALL (1) 6160 CABINET</li> <li>INSTALL (1) B160 BATTERY CABINET</li> <li>INSTALL (2) BB6630</li> <li>INSTALL (1) IXRE ROUTER</li> <li>INSTALL (1) PSU 4813</li> </ul>	
NOTE: THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.	



APPLICABLE CODES/REFERENCE DOCUMENTS	
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:	
CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC
REFERENCE DOCUMENTS:	
STRUCTURAL ANALYSIS:	N/A
DATED:	N/A
MOUNT ANALYSIS:	GPD GROUP
DATED:	3/15/21
AC ELECTRICAL POWER DESIGN:	N/A
DATED:	N/A
RFDS REVISION:	5
DATED:	1/14/21
ORDER ID:	541332
REVISION:	0

CALL CONNECTICUT ONE CALL  
(800) 922-4455 CBYD.COM  
CALL 2 WORKING DAYS  
BEFORE YOU DIG!

APPROVALS		
APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

**B&T ENGINEERING, INC.**  
PEC.0001564  
Expires 2/10/22

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

<b>SHEET NUMBER:</b> <b>T-1</b>	<b>REVISION:</b> <b>0</b>
------------------------------------	------------------------------

**CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:**

- NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
- "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:  
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO: A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

**GREENFIELD GROUNDING NOTES:**

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

**GENERAL NOTES:**

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

**CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:  
#4 BARS AND SMALLER.....40 ksi  
#5 BARS AND LARGER.....60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:  
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"  
CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6 BARS AND LARGER.....2"  
#5 BARS AND SMALLER.....1-1/2"  
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:  
SLAB AND WALLS.....3/4"  
BEAMS AND COLUMNS.....1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

**ELECTRICAL INSTALLATION NOTES:**

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.  
4.1. ALL APPLICABLE CODE SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.  
4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET WORKING FITTINGS AS NOTED ON DRAWINGS.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKRUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
DC VOLTAGE	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

**APWA UNIFORM COLOR CODE:**

- WHITE PROPOSED EXCAVATION
- PINK TEMPORARY SURVEY MARKINGS
- RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- BLUE POTABLE WATER
- PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
- GREEN SEWERS AND DRAIN LINES

\* SEE NEC 210.5(C)(1) AND (2)  
\*\* POLARITY MARKED AT TERMINATION

**ABBREVIATIONS:**

- ANT ANTENNA
- (E) EXISTING
- FIF FACILITY INTERFACE FRAME
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- GSM GLOBAL SYSTEM FOR MOBILE
- LTE LONG TERM EVOLUTION
- MGB MASTER GROUND BAR
- MW MICROWAVE
- (N) NEW
- NEC NATIONAL ELECTRIC CODE
- (P) PROPOSED
- PP POWER PLANT
- QTY QUANTITY
- RECT RECTIFIER
- RBS RADIO BASE STATION
- RETS REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RRH REMOTE RADIO HEAD
- RRU REMOTE RADIO UNIT
- SIAD SMART INTEGRATED DEVICE
- TMA TOWER MOUNTED AMPLIFIER
- TYP TYPICAL
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- W.P. WORK POINT



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**T-MOBILE SITE NUMBER:**  
**CT11783B**


**BU #: 803175**  
**CT NEW BRITAIN 3 CAC**  
**803175**

167 COCCOMO  
NEW BRITAIN, CT 06051

EXISTING  
188'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/1/21	LHT	PRELIMINARY REVIEW	MTJ
0	4/15/21	GEH	CONSTRUCTION	GEH



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**SHEET NUMBER:** **T-4**      **REVISION:** **0**



**SITE PLAN DISCLAIMER:**  
 PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM BING MAPS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.



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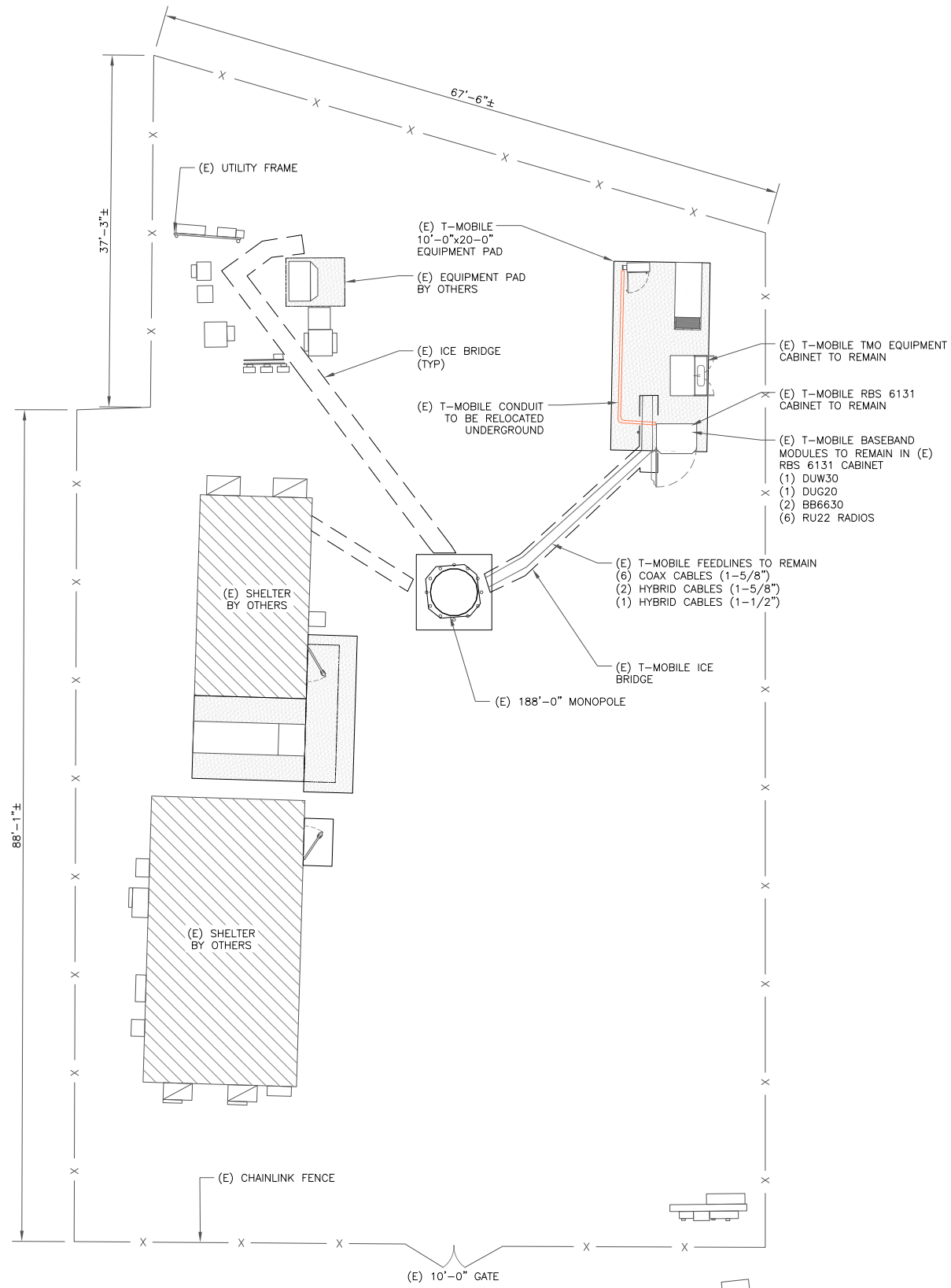
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**C-1.1**

**REVISION:**  
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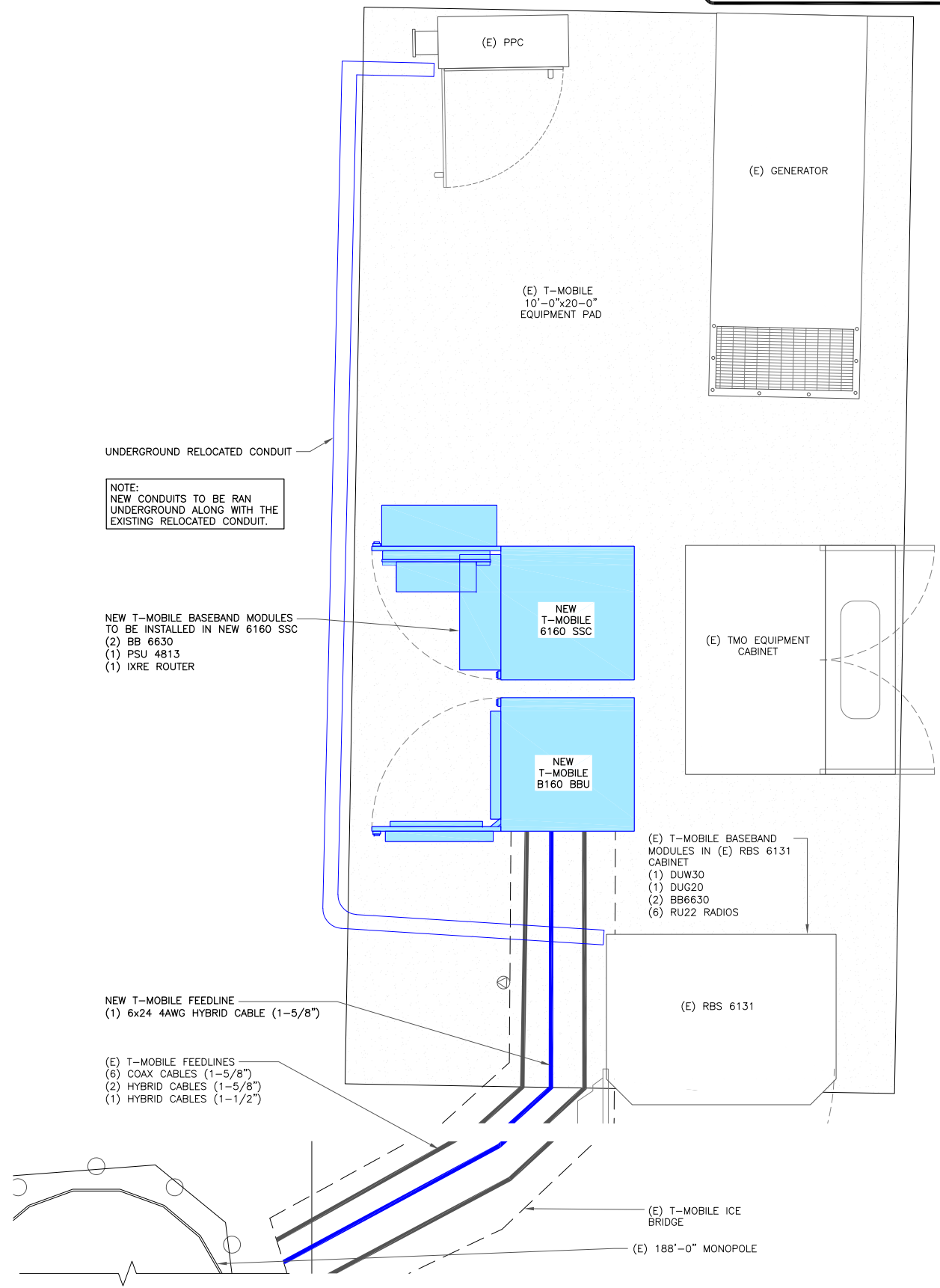
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**1 OVERALL SITE PLAN**  
 SCALE: 1"=30'-0" (FULL SIZE)  
 1"=60'-0" (11x17)





1 SITE PLAN  
 SCALE: 1/8"=1'-0" (FULL SIZE)  
 1/16"=1'-0" (11x17)



2 ENLARGED SITE PLAN  
 SCALE: 3/4"=1'-0" (FULL SIZE)  
 3/8"=1'-0" (11x17)

NOTES:  
 THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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EXISTING  
 188'-0" MONOPOLE

ISSUED FOR:

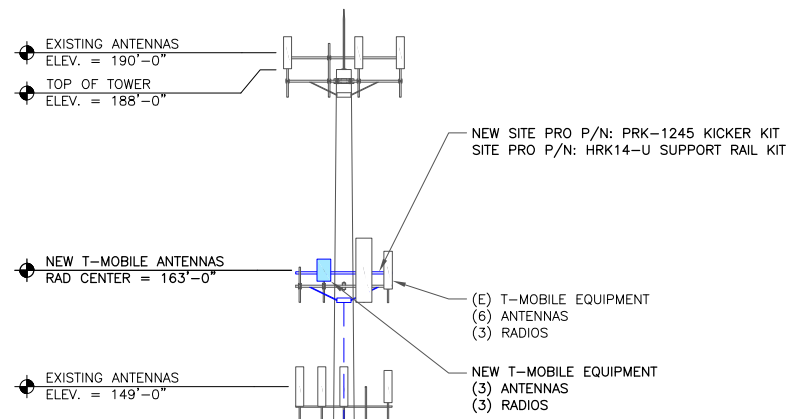
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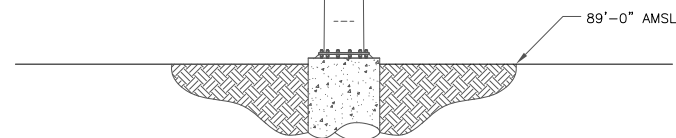


**T-MOBILE EQUIPMENT**

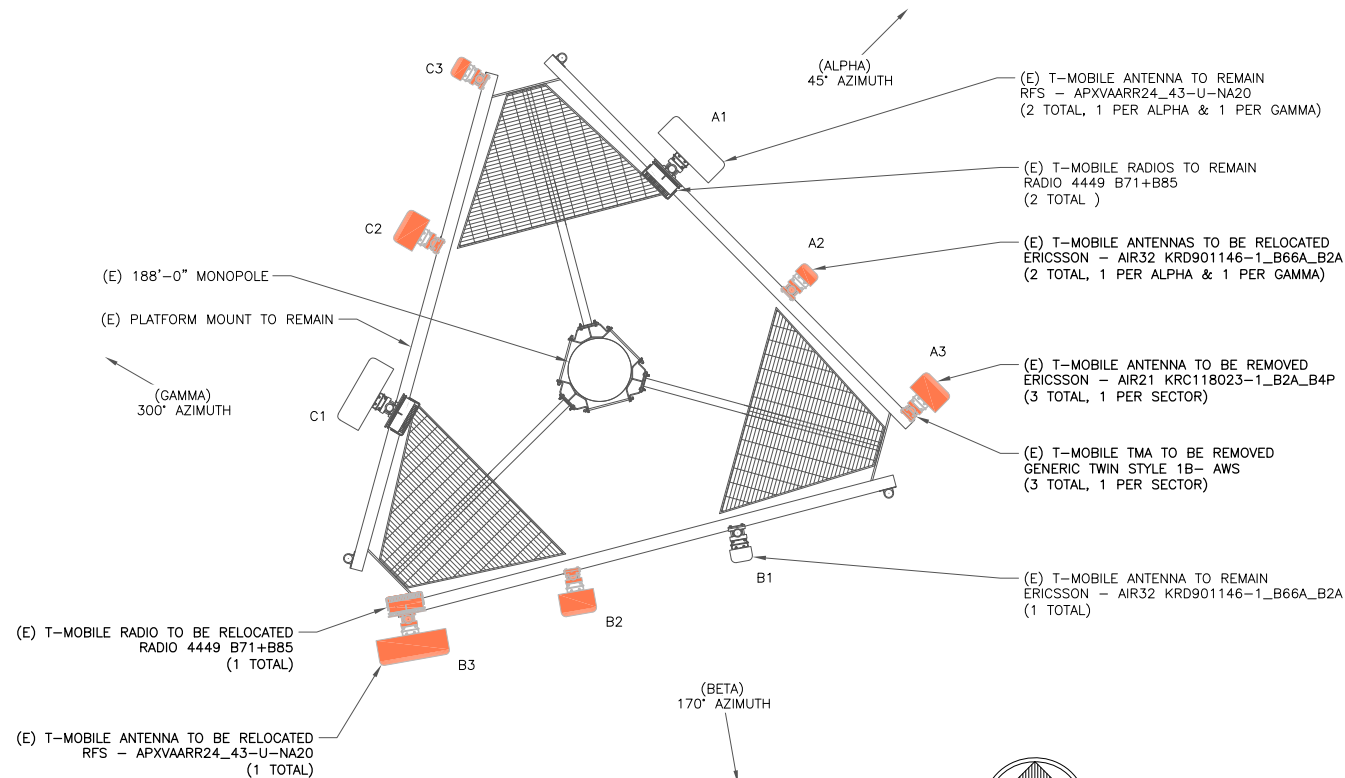
ANTENNA CL: 163'-0"  
MOUNT CL: 161'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

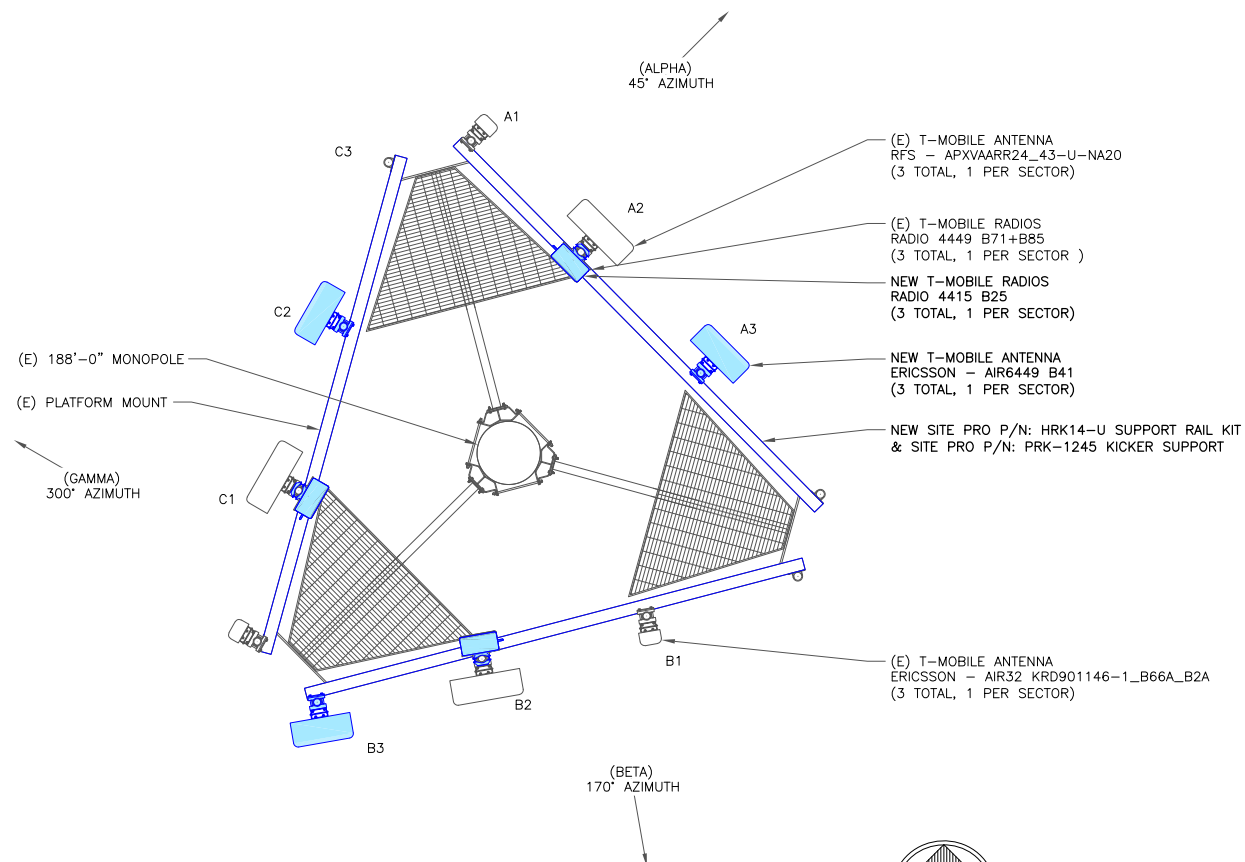
- (E) T-MOBILE FEEDLINES
- (6) COAX CABLES (1-5/8")
- (2) HYBRID CABLES (1-5/8")
- (1) HYBRID CABLES (1-1/2")
- (E) 188'-0" MONOPOLE
- NEW T-MOBILE FEEDLINE
- (1) HYBRID CABLE (1-5/8")



1 FINAL ELEVATION  
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT  
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT  
SCALE: NOT TO SCALE

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BU #: 803175  
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803175**

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NEW BRITAIN, CT 06051

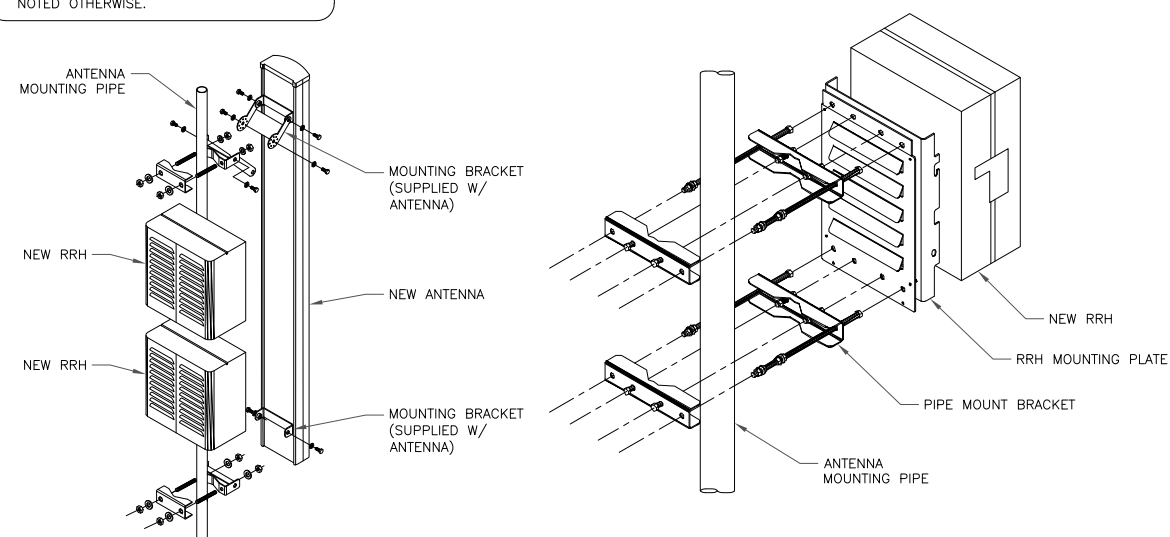
EXISTING  
188'-0" MONOPOLE

RF SYSTEM SCHEDULE										
SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A-1	L2100 / L1900 / G1900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	45°	0°	2° / 2° / 2° / 2°	163'-0"	-	-
	A-2	L700 / L600 / N600 / L1900	RFS	APXVAARR24_43-U-NA20	45°	0°	2° / 2° / 2° / 2°	163'-0"	(1) 4449 B71+B85 (1) 4415 B25	(1) 6X12 HYBRID
	A-3	L2500 / N2500	ERICSSON	AIR6449 B41	45°	0°	2° / 2°	163'-0"	-	-
BETA	B-1	L2100 / L1900 / G1900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	170°	0°	2° / 2° / 2° / 2°	163'-0"	-	-
	B-2	L700 / L600 / N600 / L1900	RFS	APXVAARR24_43-U-NA20	170°	0°	2° / 2° / 2° / 2°	163'-0"	(1) 4449 B71+B85 (1) 4415 B25	(1) 6X12 HYBRID
	B-3	L2500 / N2500	ERICSSON	AIR6449 B41	170°	0°	2° / 2°	163'-0"	-	-
GAMMA	C-1	L2100 / L1900 / G1900	ERICSSON	AIR32 KRD901146-1_B66A_B2A	300°	0°	2° / 2° / 2° / 2°	163'-0"	-	-
	C-2	L700 / L600 / N600 / L1900	RFS	APXVAARR24_43-U-NA20	300°	0°	2° / 2° / 2° / 2°	163'-0"	(1) 4449 B71+B85 (1) 4415 B25	(1) 1 5/8" HYBRID
	C-3	L2500 / N2500	ERICSSON	AIR6449 B41	300°	0°	2° / 2°	163'-0"	-	-

1 ANTENNA AND CABLE SCHEDULE  
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRHs MOUNTING DETAIL  
SCALE: NOT TO SCALE

ISSUED FOR:

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4/15/21

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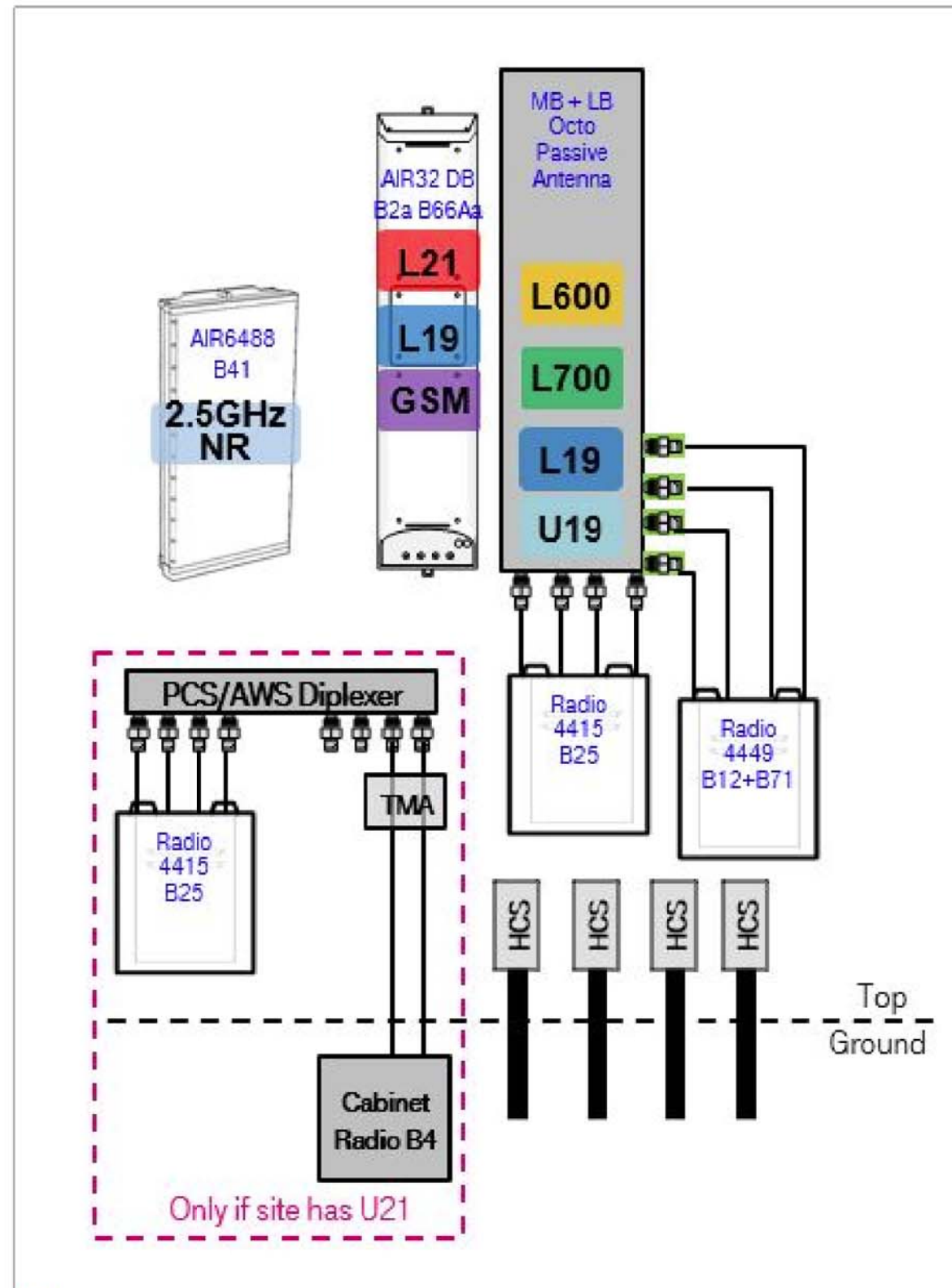
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REVISION:

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1/14/2021

CT11783B\_Anchor\_5\_2021-01-15



Notes:

1 PLUMBING DIAGRAM  
SCALE: NOT TO SCALE

T-Mobile

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CROWN CASTLE

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B+T GRP

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

T-MOBILE SITE NUMBER:  
CT11783B

BU #: 803175  
CT NEW BRITAIN 3 CAC  
803175

167 COCCOMO  
NEW BRITAIN, CT 06051

EXISTING  
188'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/1/21	LHT	PRELIMINARY REVIEW	MTJ
0	4/15/21	GEH	CONSTRUCTION	GEH



4/15/21

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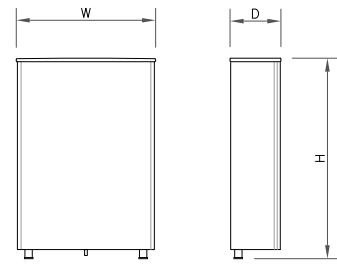
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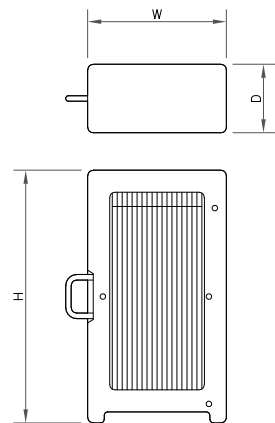
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ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS  
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4415 B25
WIDTH	13.40"
DEPTH	5.90"
HEIGHT	16.50"
WEIGHT	46 LBS

2 RRU SPECS  
SCALE: NOT TO SCALE



ERICSSON 6160 SSC  
WEIGHT: 60.0 LBS  
SIZE (HxWxD): 63"x25.6"x33.5" IN.

3 ERICSSON 6160 SSC  
SCALE: NOT TO SCALE



BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

4 ERICSSON B160 BATTERY CABINET  
SCALE: NOT TO SCALE

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**E-1**

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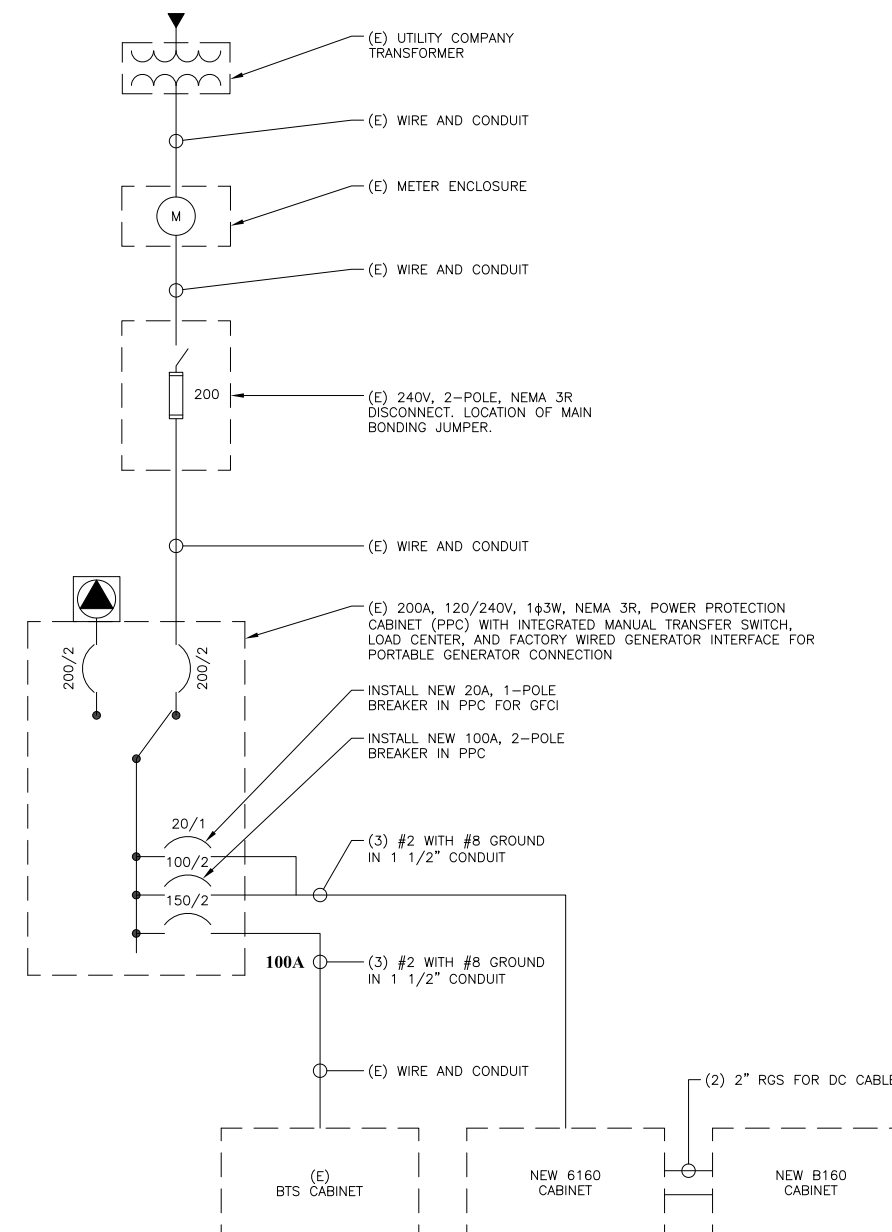
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
BTS	2	50A	1	2	60A	2	RBS 3106
6131	2	125A	3	4	50A	2	BTS
SAFETY LIGHT	1	15A	7	8			
GFCI	1	20A	9	10	100A	2	6160
			11	12			

RATED VOLTAGE:  120/240  1 PHASE, 3 WIRE  
 BRANCH POLES:  12  24  30  42  
 APPROVED MF'RS  
 RATED AMPS:  100  200  400  
 CABINET:  SURFACE  FLUSH  
 NEMA  1  3R  4X  
 MAIN LUGS ONLY  MAIN 200 AMPS  BREAKER  FUSED SWITCH  HINGED DOOR  
 KEYED DOOR LATCH  
 FUSED  CIRCUIT BREAKER  BRANCH DEVICES  TO BE GFCI BREAKERS  FULL NEUTRAL BUS  GROUND BAR  
 ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

REPLACE EXISTING BREAKER IN POSITION 10 AND 12 WITH A NEW 2P 100A BREAKER  
 REPLACE EXISTING WIRES FOR EXISTING BTS CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".  
 IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (OR APPROVED EQUAL).  
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.  
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

**1** FINAL T-MOBILE PANEL DETAIL

SCALE: NOT TO SCALE



**NOTES:**

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.

**2** ONE LINE DIAGRAM

SCALE: NOT TO SCALE

**1** AC PANEL SCHEDULE

SCALE: NOT TO SCALE

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BU #: 803175  
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803175

167 COCCOMO  
NEW BRITAIN, CT 06051

EXISTING  
188'-0" MONOPOLE

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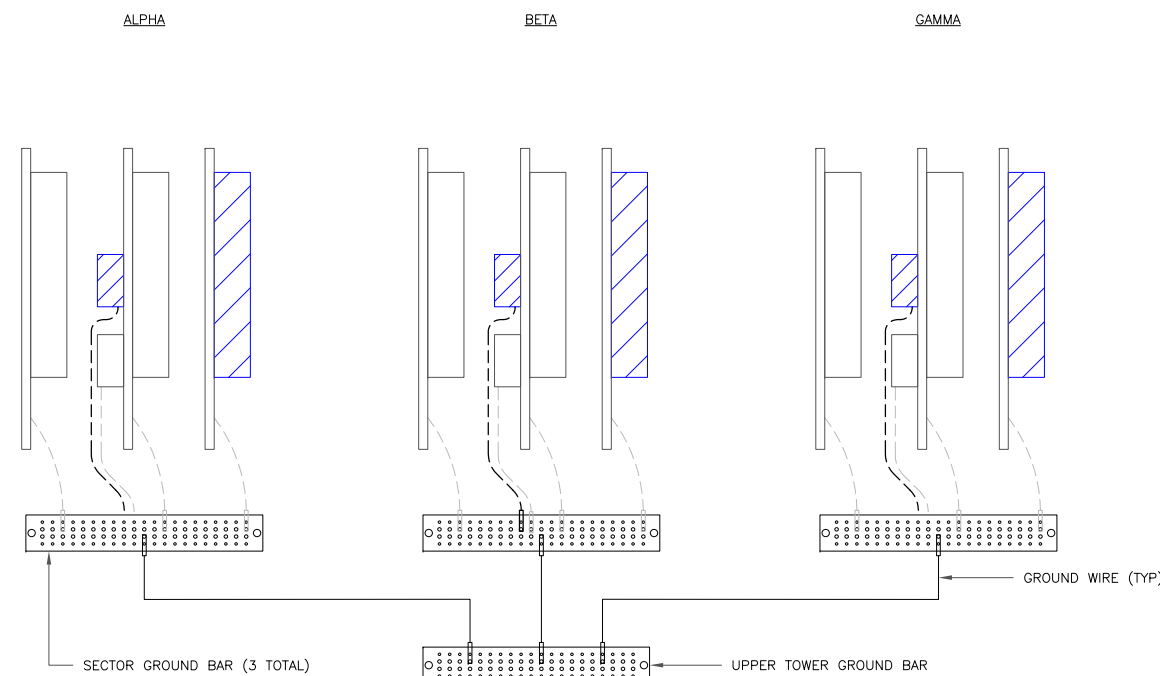
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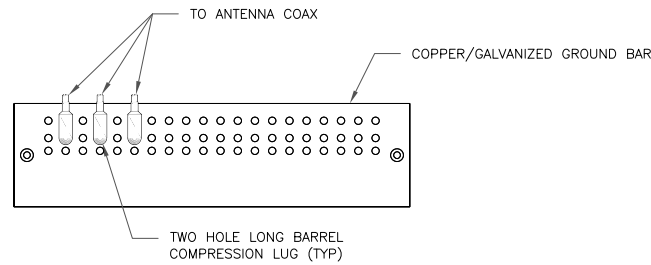
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**NOTE:**  
ALL NEW GROUNDS TO BE #6 STRANDED  
COPPER WITH GREEN INSULATION UNLESS  
NOTED OTHERWISE.

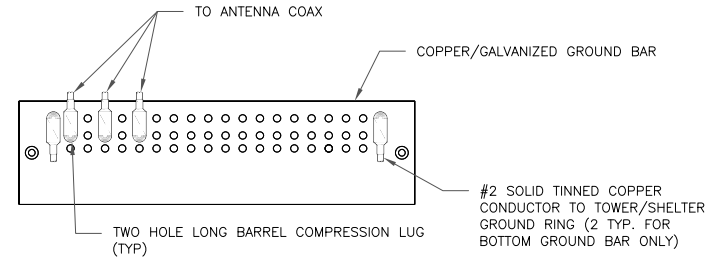
1 ANTENNA GROUNDING DIAGRAM  
SCALE: NOT TO SCALE





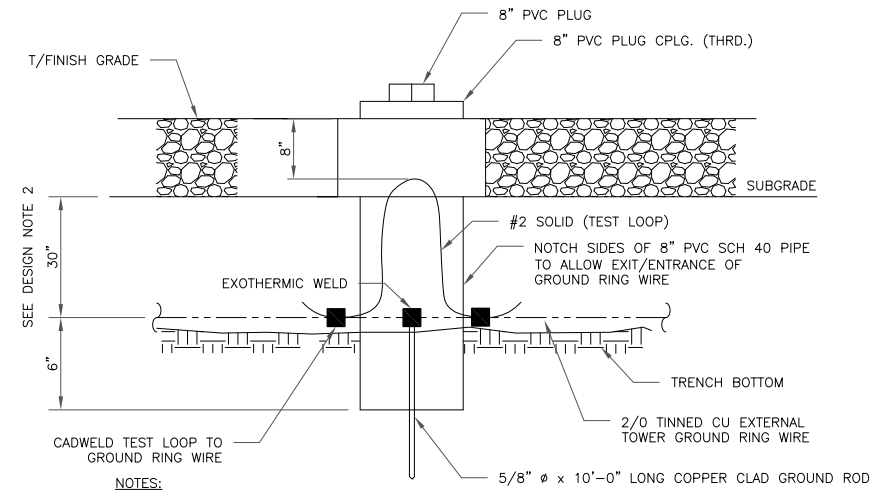
- NOTES:**
1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
  2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
  3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE



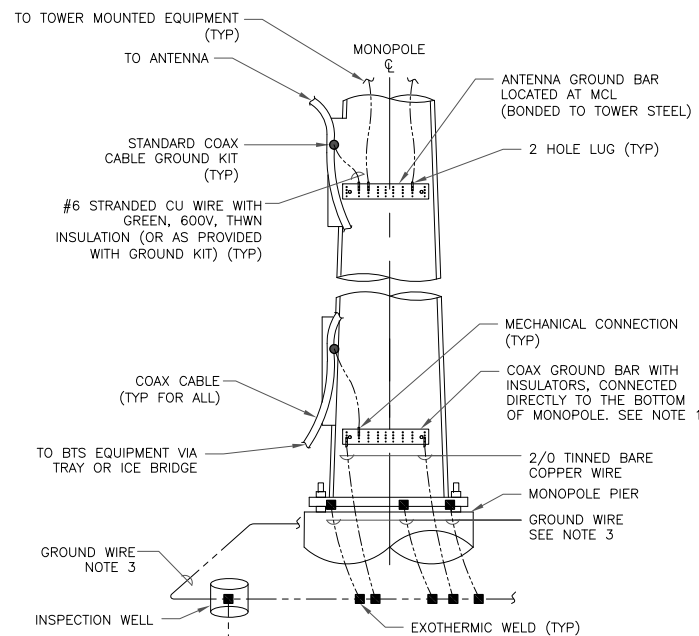
- NOTES:**
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
  2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
  3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE



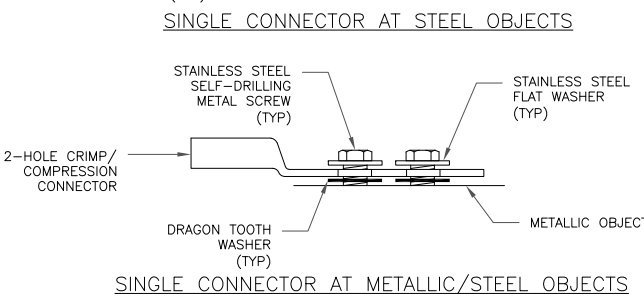
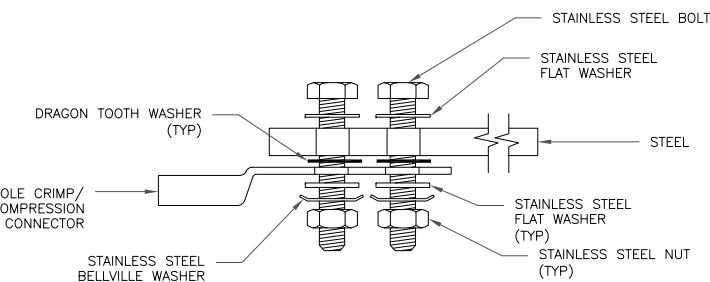
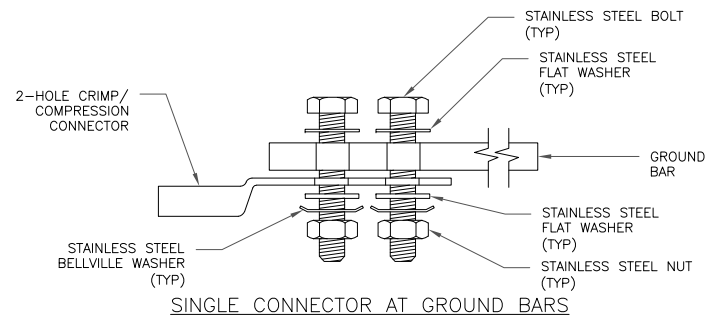
- NOTES:**
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
  2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

3 INSPECTION WELL DETAIL  
SCALE: NOT TO SCALE

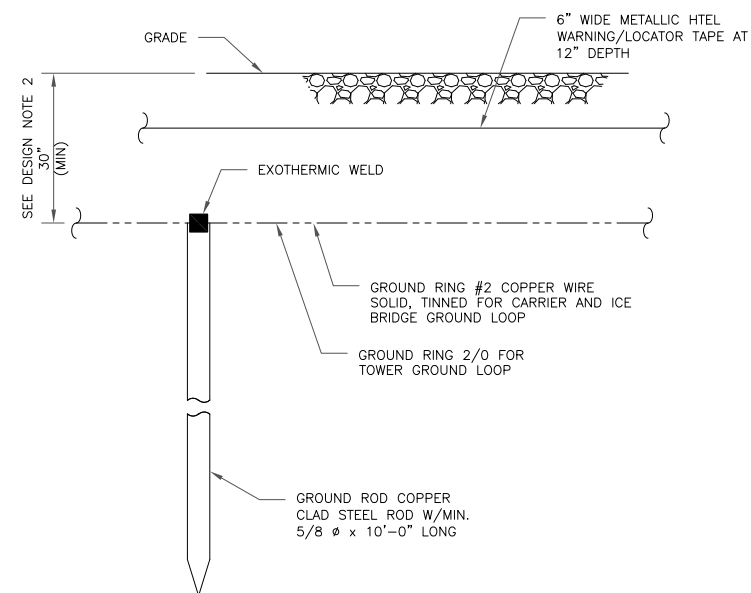


- NOTES:**
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
  2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
  3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING  
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE



- NOTES:**
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
  2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

6 GROUND ROD DETAIL  
SCALE: NOT TO SCALE

**T-Mobile**  
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T-MOBILE SITE NUMBER:  
**CT11783B**

BU #: 803175  
CT NEW BRITAIN 3 CAC  
803175

167 COCCOMO  
NEW BRITAIN, CT 06051

EXISTING  
188'-0" MONOPOLE

**ISSUED FOR:**

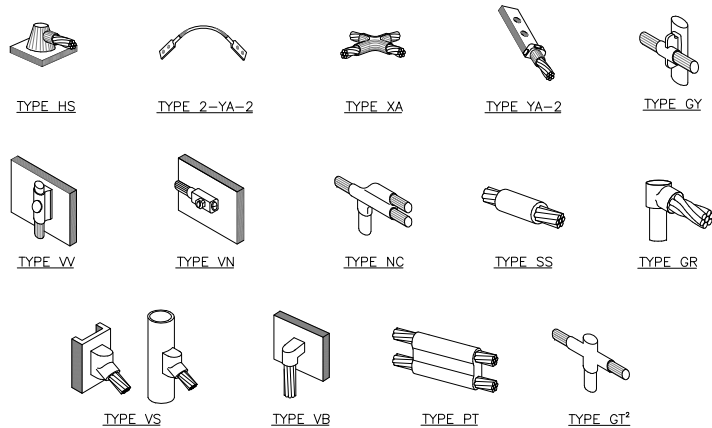
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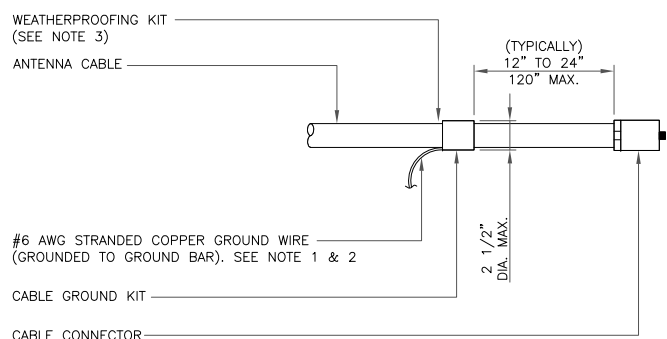
SHEET NUMBER: **G-2** REVISION: **0**



**NOTE:**

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

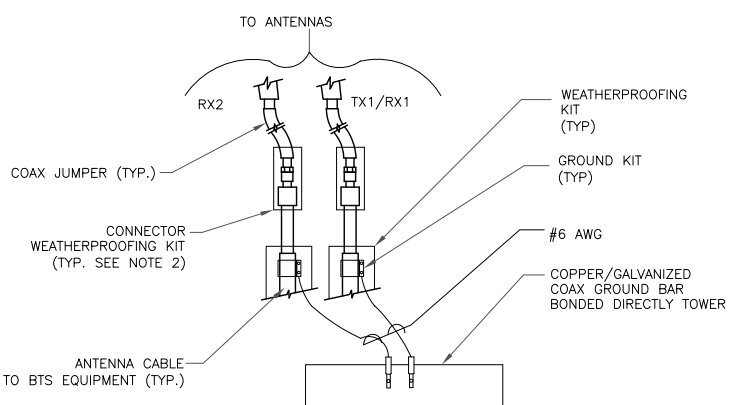
**1 CADWELD GROUNDING CONNECTIONS**  
SCALE: NOT TO SCALE



**NOTES:**

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

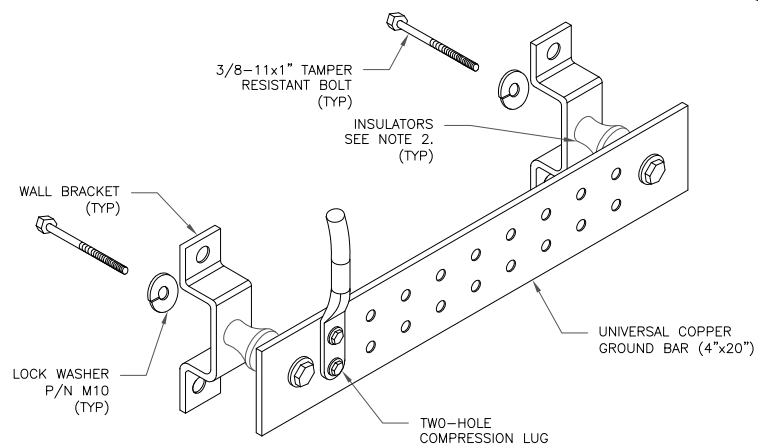
**3 CABLE GROUND KIT CONNECTION**  
SCALE: NOT TO SCALE



**NOTES:**

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

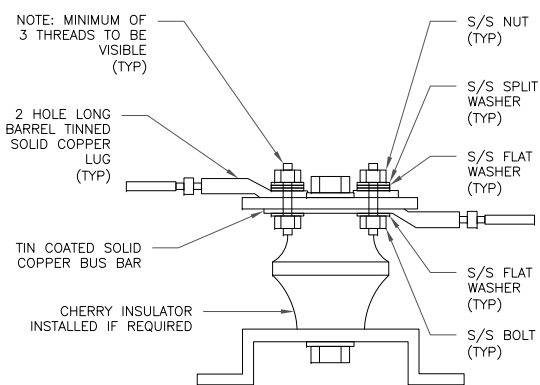
**4 GROUND CABLE CONNECTION**  
SCALE: NOT TO SCALE



**NOTES:**

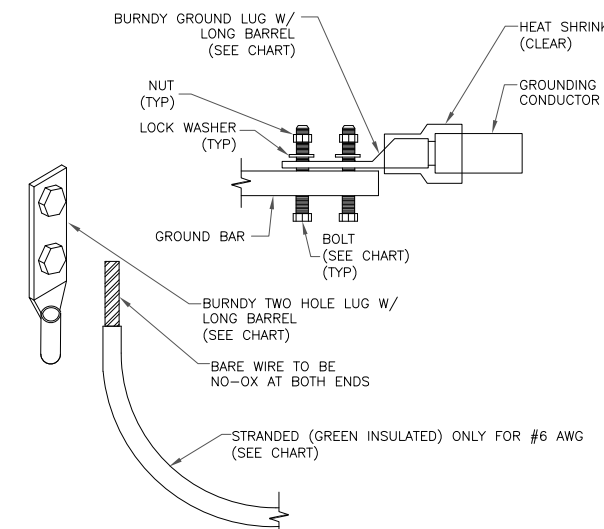
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

**6 GROUND BAR DETAIL**  
SCALE: NOT TO SCALE



**7 LUG DETAIL**  
SCALE: NOT TO SCALE

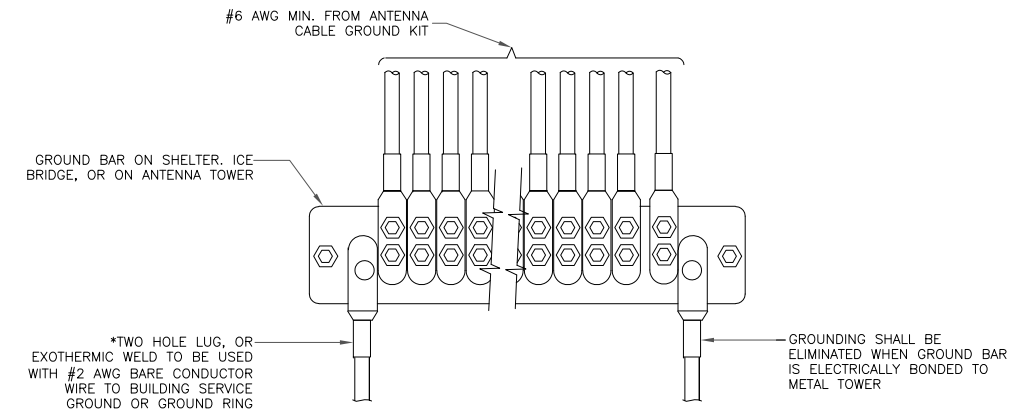
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



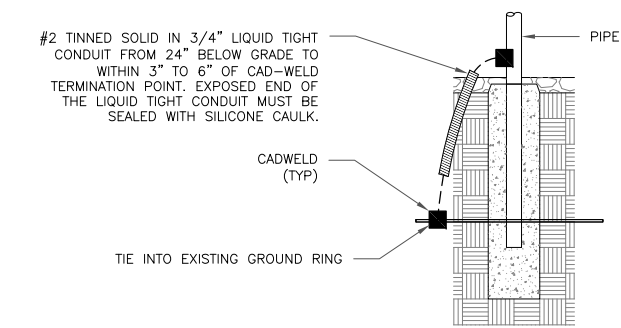
**NOTES:**

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

**2 MECHANICAL LUG CONNECTION**  
SCALE: NOT TO SCALE



**5 GROUNDWIRE INSTALLATION**  
SCALE: NOT TO SCALE



**8 TRANSITIONING GROUND DETAIL**  
SCALE: NOT TO SCALE

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# Exhibit D

## **Structural Analysis Report**

Date: **March 20, 2021**



Tower Engineering Professionals  
326 Tryon Road  
Raleigh, NC 27603  
(919) 661-6351

**Subject: Structural Analysis Report**

**Carrier Designation:** **T-Mobile Co-Locate**  
**Site Number:** CT11783B  
**Site Name:** Crown Comm. Monopole

**Crown Castle Designation:** **BU Number:** 803175  
**Site Name:** CT New Britain 3 CAC 803175  
**JDE Job Number:** 631909  
**Work Order Number:** 1916898  
**Order Number:** 541332 Rev. 0

**Engineering Firm Designation:** **TEP Project Number:** 25666.515606

**Site Data:** **167 Cocco, New Britain, Hartford County, CT 06051**  
**Latitude 41° 41' 11.80", Longitude -72° 45' 27.80"**  
**188 Foot - Monopole Tower**

*Tower Engineering Professionals* is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration

**Sufficient Capacity - 88.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Todd Lester, P.E. / EJB

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

03/20/2021

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Table 2 - Other Considered Equipment

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tnxTower Output

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Additional Calculations

## 1) INTRODUCTION

This tower is a 188-ft monopole tower designed by Paul J. Ford and Company.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1.0
<b>Ice Thickness:</b>	2.0 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
161.0	161.0	3	Ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	1 2	1-1/2 1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	RRUS 4415 B25_CCIV2		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		1	SitePro 1	PRK-1245		
		1	SitePro 1	HRK14-U		
		1	Tower Mounts	Platform Mount [LP 601-1]		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
188.0	190.0	2	Cci Antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	6 8 2	1-5/8 3/4 3/8
		1	Cci Antennas	OPA-65R-LCUU-H4 w/ Mount Pipe		
		2	Quintel Technology	QS66512-2 w/ Mount Pipe		
		1	Quintel Technology	QS46512-2 w/ Mount Pipe		
		2	Cci Antennas	DMP65R-BU6D w/ Mount Pipe		
		1	Cci Antennas	DMP65R-BU4D w/ Mount Pipe		
		2	Cci Antennas	OPA65R-BU6D w/ Mount Pipe		
		1	Cci Antennas	OPA65R-BU4D w/ Mount Pipe		
		3	Ericsson	RRUS E2 B29		
		3	Ericsson	RRUS 4478 B14		
		3	Ericsson	RRUS 4449 B5/B12		
	3	Ericsson	RRUS 32 B2			
	1	Raycap	DC6-48-60-18-8C			
	189.0	3	Ericsson	RRUS 32 B30		
		2	Raycap	DC6-48-60-18-8F		
		1	Raycap	DC6-48-60-0-8F		
		3	Ericsson	RRUS 32 B2		
3		Ericsson	RRUS 32 B66			
188.0	1	Tower Mounts	Platform Mount [LP 1201-1_KCKR]			
	1	SitePro 1	HRK14-3HD			
146.0	149.0	6	Andrew	SBNHH-1D65B w/ Mount Pipe	14	1-5/8
		3	Amphenol	BXA-80063-6BF-EDIN-4 w/ Mount Pipe		
		3	Samsung Telecom.	CBRS w/ Mount Pipe		
		3	Samsung Telecom.	RFV01U-D2A		
		3	Samsung Telecom.	RFV01U-D1A		
	3	Samsung Telecom.	20W CBRS			
	146.0	1	Armor Tower	12-ft Arch Frame Mount		
145.0	2	Raycap	RHSDC-3315-PF-48			

**3) ANALYSIS PROCEDURE**

**Table 3 - Documents Provided**

Document	Reference	Source
Geotechnical Report	679661	CCISites
Tower Foundation Drawings	679660	CCISites
Foundation Mapping Report	679660	CCISites
Tower Manufacturer Drawings	679659	CCISites

### 3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

### 3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

## 4) ANALYSIS RESULTS

**Table 4 - Section Capacity (Summary)**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\Phi P_{allow}$ (k)	% Capacity	Pass / Fail	
L1	188 - 137	Pole	TP32.711x22x0.25	1	-14.83	1538.67	66.4	Pass	
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-24.61	2474.49	86.7	Pass	
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-37.91	3602.47	85.0	Pass	
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-60.39	5762.13	66.8	Pass	
							Summary		
							Pole (L2)	86.7	Pass
							<b>RATING =</b>	<b>86.7</b>	<b>Pass</b>

**Table 5 - Tower Component Stresses vs. Capacity - LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	71.0	Pass
1,2	Base Plate	-	71.6	Pass
1,2	Base Foundation Soil Interaction	-	88.5	Pass
1,2	Base Foundation Structural	-	54.8	Pass

<b>Structure Rating (max from all components) =</b>	<b>88.5%</b>
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5

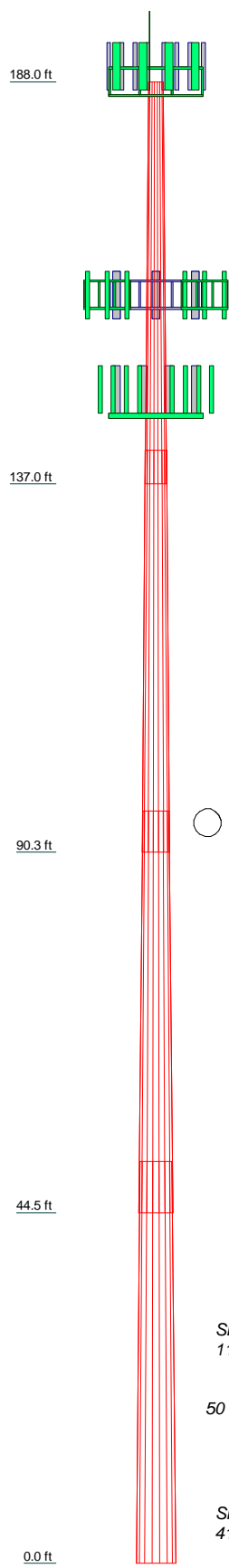
### 4.1) Recommendations

- 1) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.



**APPENDIX A**  
**TNXTOWER OUTPUT**

Section	1	2	3	4	
Length (ft)	51.00	51.00	51.00	51.00	
Number of Sides	18	18	18	18	
Thickness (in)	0.2500	0.3125	0.3750	0.5000	
Socket Length (ft)	4.25	5.25	6.50		
Top Dia (in)	22.0000	31.3184	40.3023	48.8988	
Bot Dia (in)	32.7110	42.0300	51.0140	59.6100	
Grade		A607-65			
Weight (K)	3.7	6.3	9.4	14.8	34.1



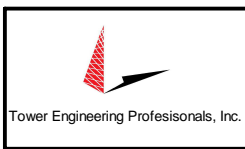
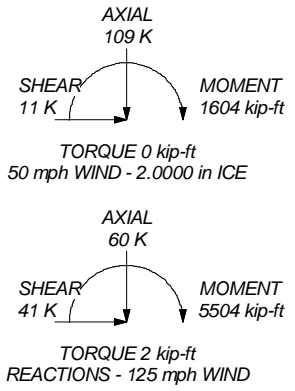
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 86.7%

ALL REACTIONS ARE FACTORED



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 Raleigh, NC 27603  
 Phone: (919) 661-6351  
 FAX: (919) 661-6350

Job: <b>CT New Britain 3 CAC 803175 (BU 803175)</b>		
Project: <b>TEP No. 25666.515606</b>		
Client: Crown Castle	Drawn by: EJB	App'd:
Code: TIA-222-H	Date: 03/19/21	Scale: NTS
Path:		Dwg No. E-1

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	<b>Project</b> TEP No. 25666.515606	<b>Date</b> 23:43:35 03/19/21
	<b>Client</b> Crown Castle	<b>Designed by</b> EJB

## Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Tower base elevation above sea level: 88.00 ft.

Basic wind speed of 125 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 2.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.05.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used:  $K_{es}(F_w) = 0.95$ ,  $K_{es}(t_i) = 0.85$ .

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>Use Clear Spans For KL/r</li> <li>Retension Guys To Initial Tension</li> <li>√ Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> <li>Ignore KL/ry For 60 Deg. Angle Legs</li> </ul>	<ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>Include Angle Block Shear Check</li> <li>Use TIA-222-H Bracing Resist. Exemption</li> <li>Use TIA-222-H Tension Splice Exemption</li> <li style="text-align: center;">Poles</li> <li>√ Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No Appurtenances</li> <li>Outside and Inside Corner Radii Are Known</li> </ul>
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## Tapered Pole Section Geometry

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	<b>Client</b> Crown Castle	<b>Designed by</b> EJB

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	188.00-137.00	51.00	4.25	18	22.0000	32.7110	0.2500	1.0000	A607-65 (65 ksi)
L2	137.00-90.25	51.00	5.25	18	31.3184	42.0300	0.3125	1.2500	A607-65 (65 ksi)
L3	90.25-44.50	51.00	6.50	18	40.3023	51.0140	0.3750	1.5000	A607-65 (65 ksi)
L4	44.50-0.00	51.00		18	48.8988	59.6100	0.5000	2.0000	A607-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	22.3008	17.2586	1031.4832	7.7212	11.1760	92.2945	2064.3237	8.6310	3.4320	13.728
	33.1771	25.7578	3429.0204	11.5237	16.6172	206.3538	6862.5527	12.8813	5.3171	21.269
L2	32.6597	30.7540	3735.3228	11.0071	15.9098	234.7819	7475.5606	15.3799	4.9620	15.879
	42.6302	41.3785	9098.0688	14.8097	21.3512	426.1143	18208.1091	20.6932	6.8473	21.911
L3	41.9859	47.5235	9571.6471	14.1742	20.4736	467.5120	19155.8887	23.7663	6.4332	17.155
	51.7431	60.2731	19526.7966	17.9768	25.9151	753.4907	39079.2871	30.1423	8.3185	22.183
L4	50.9622	76.8089	22730.9630	17.1816	24.8406	915.0736	45491.8360	38.4117	7.7262	15.452
	60.4524	93.8076	41409.2395	20.9841	30.2819	1367.4593	82872.9664	46.9127	9.6114	19.223

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 188.00-137.00				1	1	1			
L2 137.00-90.25				1	1	1			
L3 90.25-44.50				1	1	1			
L4 44.50-0.00				1	1	1			

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
*** Safety Line 3/8	C	No	Surface Ar (CaAa)	188.00 - 0.00	1	1	0.500 - 0.500	0.3750		0.22
*** 3/8-in Detuner Wire	A	No	Surface Ar (CaAa)	133.00 - 0.00	1	1	0.000 - 0.000	0.3750		0.10
3/8-in Detuner Wire	B	No	Surface Ar (CaAa)	133.00 - 0.00	1	1	0.000 - 0.000	0.3750		0.10
3/8-in Detuner Wire	C	No	Surface Ar (CaAa)	133.00 - 0.00	1	1	0.000 - 0.000	0.3750		0.10

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	<b>Client</b> Crown Castle	<b>Designed by</b> EJB

**Feed Line/Linear Appurtenances - Entered As Area**

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
*188									
LDF7-50A(1-5/8")	B	No	No	Inside Pole	188.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-002-75000 (3/8")	B	No	No	Inside Pole	188.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG86ST-BRD(3/4")	B	No	No	Inside Pole	188.00 - 0.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
2" Flex Conduit	B	No	No	Inside Pole	188.00 - 0.00	1	No Ice	0.00	0.36
							1/2" Ice	0.00	0.36
							1" Ice	0.00	0.36
							2" Ice	0.00	0.36
2" Flex Conduit	B	No	No	Inside Pole	188.00 - 0.00	1	No Ice	0.00	0.36
							1/2" Ice	0.00	0.36
							1" Ice	0.00	0.36
							2" Ice	0.00	0.36
WR-VG86ST-BRD(3/4")	B	No	No	Inside Pole	188.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
*161*									
HB158-21U6S24-xx M_TMO(1-5/8)	C	No	No	Inside Pole	161.00 - 0.00	1	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
HCS 6X12 4AWG(1-5/8")	C	No	No	Inside Pole	161.00 - 0.00	1	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
33-597(1-1/2)	C	No	No	Inside Pole	161.00 - 0.00	1	No Ice	0.00	1.61
							1/2" Ice	0.00	1.61
							1" Ice	0.00	1.61
							2" Ice	0.00	1.61
*146*									
HB158-1-08U8-S8J 18(1-5/8")	C	No	No	Inside Pole	146.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30
LCF158-50J(1-5/8")	C	No	No	Inside Pole	146.00 - 0.00	12	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
							2" Ice	0.00	0.92

**Feed Line/Linear Appurtenances Section Areas**

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Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L1	188.00-137.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.53
		C	0.000	0.000	1.912	0.000	0.29
L2	137.00-90.25	A	0.000	0.000	1.603	0.000	0.00
		B	0.000	0.000	1.603	0.000	0.49
		C	0.000	0.000	3.356	0.000	0.96
L3	90.25-44.50	A	0.000	0.000	1.716	0.000	0.00
		B	0.000	0.000	1.716	0.000	0.48
		C	0.000	0.000	3.431	0.000	0.94
L4	44.50-0.00	A	0.000	0.000	1.669	0.000	0.00
		B	0.000	0.000	1.669	0.000	0.47
		C	0.000	0.000	3.337	0.000	0.91

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L1	188.00-137.00	A	1.992	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.53
		C		0.000	0.000	22.231	0.000	0.58
L2	137.00-90.25	A	1.922	0.000	0.000	18.635	0.000	0.25
		B		0.000	0.000	18.635	0.000	0.74
		C		0.000	0.000	39.013	0.000	1.47
L3	90.25-44.50	A	1.825	0.000	0.000	19.306	0.000	0.25
		B		0.000	0.000	19.306	0.000	0.73
		C		0.000	0.000	38.611	0.000	1.43
L4	44.50-0.00	A	1.636	0.000	0.000	17.909	0.000	0.22
		B		0.000	0.000	17.909	0.000	0.69
		C		0.000	0.000	35.818	0.000	1.35

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>x</sub> in	CP <sub>z</sub> in	CP <sub>x</sub> Ice in	CP <sub>z</sub> Ice in
L1	188.00-137.00	-0.2610	0.1507	-1.4506	0.8375
L2	137.00-90.25	-0.2505	0.1446	-1.2243	0.7069
L3	90.25-44.50	-0.2521	0.1455	-1.2630	0.7292
L4	44.50-0.00	-0.2538	0.1465	-1.2839	0.7412

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

### Shielding Factor Ka

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	<b>Client</b> Crown Castle	<b>Designed by</b> EJB

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L1	21	Safety Line 3/8	137.00 - 188.00	1.0000	1.0000
L2	21	Safety Line 3/8	90.25 - 137.00	1.0000	1.0000
L2	23	3/8-in Detuner Wire	90.25 - 133.00	1.0000	1.0000
L2	24	3/8-in Detuner Wire	90.25 - 133.00	1.0000	1.0000
L2	25	3/8-in Detuner Wire	90.25 - 133.00	1.0000	1.0000
L3	21	Safety Line 3/8	44.50 - 90.25	1.0000	1.0000
L3	23	3/8-in Detuner Wire	44.50 - 90.25	1.0000	1.0000
L3	24	3/8-in Detuner Wire	44.50 - 90.25	1.0000	1.0000
L3	25	3/8-in Detuner Wire	44.50 - 90.25	1.0000	1.0000
L4	21	Safety Line 3/8	0.00 - 44.50	1.0000	1.0000
L4	23	3/8-in Detuner Wire	0.00 - 44.50	1.0000	1.0000
L4	24	3/8-in Detuner Wire	0.00 - 44.50	1.0000	1.0000
L4	25	3/8-in Detuner Wire	0.00 - 44.50	1.0000	1.0000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
Lighting Rod 3/4" x 8'	C	From Leg	0.00	0.00	0.0000	188.00	No Ice	0.60	0.60	0.03
			0.00	0.00			1/2" Ice	1.41	1.41	0.04
			4.00	4.00			1" Ice	2.25	2.25	0.05
							2" Ice	3.67	3.67	0.09
**188** OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Centroid-Fa ce	4.00	0.00	0.0000	188.00	No Ice	9.19	6.21	0.11
			0.00	2.00			1/2" Ice	9.94	6.93	0.18
							1" Ice	10.71	7.66	0.26
							2" Ice	12.30	9.17	0.45
OPA-65R-LCUU-H4 w/ Mount Pipe	B	From Centroid-Fa ce	4.00	0.00	0.0000	188.00	No Ice	6.03	4.11	0.08
			0.00	2.00			1/2" Ice	6.56	4.60	0.13
							1" Ice	7.11	5.11	0.19
							2" Ice	8.26	6.18	0.33
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Centroid-Fa ce	4.00	0.00	0.0000	188.00	No Ice	9.19	6.21	0.11
			0.00	2.00			1/2" Ice	9.94	6.93	0.18
							1" Ice	10.71	7.66	0.26
							2" Ice	12.30	9.17	0.45
QS66512-2 w/ Mount Pipe	A	From Centroid-Fa ce	4.00	0.00	0.0000	188.00	No Ice	4.04	4.18	0.14
			0.00	2.00			1/2" Ice	4.42	4.57	0.21
							1" Ice	4.82	4.97	0.29
							2" Ice	5.63	5.79	0.48
QS46512-2 w/ Mount Pipe	B	From Centroid-Fa ce	4.00	0.00	0.0000	188.00	No Ice	2.95	3.33	0.09
			0.00	2.00			1/2" Ice	3.25	3.63	0.15
							1" Ice	3.55	3.94	0.21
							2" Ice	4.19	4.60	0.37
QS66512-2 w/ Mount Pipe	C	From Centroid-Fa ce	4.00	0.00	0.0000	188.00	No Ice	4.04	4.18	0.14
			0.00	2.00			1/2" Ice	4.42	4.57	0.21
							1" Ice	4.82	4.97	0.29
							2" Ice	5.63	5.79	0.48
DMP65R-BU6D w/ Mount Pipe	A	From Centroid-Fa	4.00	0.00	0.0000	188.00	No Ice	11.96	5.97	0.11
							1/2" Ice	12.70	6.63	0.20

<b>tnxTower</b>  <b>Tower Engineering Professionals, Inc.</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>		CT New Britain 3 CAC 803175 (BU 803175)		<b>Page</b>		6 of 20	
	<b>Project</b>		TEP No. 25666.515606		<b>Date</b>		23:43:35 03/19/21	
	<b>Client</b>		Crown Castle		<b>Designed by</b>		EJB	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Lateral Vert						°
		ce	2.00							
DMP65R-BU4D w/ Mount Pipe	B	From Centroid-Face	4.00		0.0000	188.00	1" Ice	13.46	7.30	0.30
			0.00				2" Ice	15.02	8.69	0.53
			2.00				No Ice	7.53	3.79	0.09
							1/2" Ice	8.04	4.23	0.16
DMP65R-BU6D w/ Mount Pipe	C	From Centroid-Face	4.00		0.0000	188.00	1" Ice	8.57	4.68	0.22
			0.00				2" Ice	9.68	5.63	0.39
			2.00				No Ice	11.96	5.97	0.11
							1/2" Ice	12.70	6.63	0.20
OPA65R-BU6D w/ Mount Pipe	A	From Centroid-Face	4.00		0.0000	188.00	1" Ice	13.46	7.30	0.30
			0.00				2" Ice	15.02	8.69	0.53
			2.00				No Ice	12.25	6.05	0.09
							1/2" Ice	13.00	6.71	0.18
OPA65R-BU4D w/ Mount Pipe	B	From Centroid-Face	4.00		0.0000	188.00	1" Ice	13.76	7.39	0.27
			0.00				2" Ice	15.34	8.79	0.51
			2.00				No Ice	8.10	4.03	0.08
							1/2" Ice	8.65	4.50	0.14
OPA65R-BU6D w/ Mount Pipe	C	From Centroid-Face	4.00		0.0000	188.00	1" Ice	9.21	4.98	0.21
			0.00				2" Ice	10.39	5.98	0.38
			2.00				No Ice	12.25	6.05	0.09
							1/2" Ice	13.00	6.71	0.18
RRUS 32 B30	A	From Centroid-Face	4.00		0.0000	188.00	1" Ice	13.76	7.39	0.27
			0.00				2" Ice	15.34	8.79	0.51
			1.00				No Ice	2.73	1.67	0.05
							1/2" Ice	2.95	1.86	0.07
RRUS 32 B30	B	From Centroid-Face	4.00		0.0000	188.00	1" Ice	3.18	2.05	0.10
			0.00				2" Ice	3.66	2.46	0.16
			1.00				No Ice	2.73	1.67	0.05
							1/2" Ice	2.95	1.86	0.07
RRUS 32 B30	C	From Centroid-Face	4.00		0.0000	188.00	1" Ice	3.18	2.05	0.10
			0.00				2" Ice	3.66	2.46	0.16
			1.00				No Ice	2.73	1.67	0.05
							1/2" Ice	2.95	1.86	0.07
DC6-48-60-18-8F	A	From Centroid-Face	4.00		0.0000	188.00	1" Ice	3.18	2.05	0.10
			0.00				2" Ice	3.66	2.46	0.16
			1.00				No Ice	1.21	1.21	0.03
							1/2" Ice	1.89	1.89	0.05
DC6-48-60-18-8F	B	From Centroid-Face	4.00		0.0000	188.00	1" Ice	2.11	2.11	0.08
			0.00				2" Ice	2.57	2.57	0.14
			1.00				No Ice	1.21	1.21	0.03
							1/2" Ice	1.89	1.89	0.05
DC6-48-60-0-8F	C	From Centroid-Face	4.00		0.0000	188.00	1" Ice	2.11	2.11	0.08
			0.00				2" Ice	2.57	2.57	0.14
			1.00				No Ice	0.92	0.92	0.03
							1/2" Ice	1.46	1.46	0.05
RRUS 32 B2	A	From Centroid-Face	4.00		0.0000	188.00	1" Ice	1.64	1.64	0.07
			0.00				2" Ice	2.04	2.04	0.12
			1.00				No Ice	2.73	1.67	0.05
							1/2" Ice	2.95	1.86	0.07
RRUS 32 B2	B	From Centroid-Face	4.00		0.0000	188.00	1" Ice	3.18	2.05	0.10
			0.00				2" Ice	3.66	2.46	0.16
			1.00				No Ice	2.73	1.67	0.05
							1/2" Ice	2.95	1.86	0.07
RRUS 32 B2	C	From Centroid-Face	4.00		0.0000	188.00	1" Ice	3.18	2.05	0.10
			0.00				2" Ice	3.66	2.46	0.16
			1.00				No Ice	2.73	1.67	0.05
							1/2" Ice	2.95	1.86	0.07



<b>tnxTower</b>  <b>Tower Engineering Professionals, Inc.</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	CT New Britain 3 CAC 803175 (BU 803175)	<b>Page</b>	7 of 20
	<b>Project</b>	TEP No. 25666.515606	<b>Date</b>	23:43:35 03/19/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	EJB

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
RRUS 32 B66	A	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	3.66	2.46	0.16
			0.00			No Ice	2.74	1.67	0.05
			1.00			1/2" Ice	2.96	1.86	0.07
						1" Ice	3.19	2.05	0.10
RRUS 32 B66	B	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	3.68	2.46	0.16
			0.00			No Ice	2.74	1.67	0.05
			1.00			1/2" Ice	2.96	1.86	0.07
						1" Ice	3.19	2.05	0.10
RRUS 32 B66	C	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	3.68	2.46	0.16
			0.00			No Ice	2.74	1.67	0.05
			1.00			1/2" Ice	2.96	1.86	0.07
						1" Ice	3.19	2.05	0.10
RRUS E2 B29	A	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	3.68	2.46	0.16
			0.00			No Ice	3.15	1.29	0.06
			2.00			1/2" Ice	3.36	1.44	0.08
						1" Ice	3.59	1.60	0.11
RRUS E2 B29	B	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	4.07	1.95	0.17
			0.00			No Ice	3.15	1.29	0.06
			2.00			1/2" Ice	3.36	1.44	0.08
						1" Ice	3.59	1.60	0.11
RRUS E2 B29	C	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	4.07	1.95	0.17
			0.00			No Ice	3.15	1.29	0.06
			2.00			1/2" Ice	3.36	1.44	0.08
						1" Ice	3.59	1.60	0.11
RRUS 4478 B14	A	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	4.07	1.95	0.17
			0.00			No Ice	1.84	1.06	0.06
			2.00			1/2" Ice	2.01	1.20	0.08
						1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	2.57	1.66	0.14
			0.00			No Ice	1.84	1.06	0.06
			2.00			1/2" Ice	2.01	1.20	0.08
						1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	2.57	1.66	0.14
			0.00			No Ice	1.84	1.06	0.06
			2.00			1/2" Ice	2.01	1.20	0.08
						1" Ice	2.19	1.34	0.09
RRUS 4449 B5/B12	A	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	2.57	1.66	0.14
			0.00			No Ice	1.97	1.41	0.07
			2.00			1/2" Ice	2.14	1.56	0.09
						1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	B	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	2.72	2.07	0.16
			0.00			No Ice	1.97	1.41	0.07
			2.00			1/2" Ice	2.14	1.56	0.09
						1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	C	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	2.72	2.07	0.16
			0.00			No Ice	1.97	1.41	0.07
			2.00			1/2" Ice	2.14	1.56	0.09
						1" Ice	2.33	1.73	0.11
RRUS 32 B2	A	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	2.72	2.07	0.16
			0.00			No Ice	2.73	1.67	0.05
			2.00			1/2" Ice	2.95	1.86	0.07
						1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Centroid-Fa ce	4.00	0.0000	188.00	2" Ice	3.66	2.46	0.16
			0.00			No Ice	2.73	1.67	0.05
			2.00			1/2" Ice	2.95	1.86	0.07
						1" Ice	3.18	2.05	0.10
					2" Ice	3.66	2.46	0.16	

<b>tnxTower</b>  <b>Tower Engineering Professionals, Inc.</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	CT New Britain 3 CAC 803175 (BU 803175)	<b>Page</b>	8 of 20
	<b>Project</b>	TEP No. 25666.515606	<b>Date</b>	23:43:35 03/19/21
	<b>Client</b>	Crown Castle	<b>Designed by</b>	EJB

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
RRUS 32 B2	C	From Centroid-Face	4.00	0.0000	188.00	No Ice	2.73	1.67	0.05
			0.00	0.0000		1/2" Ice	2.95	1.86	0.07
			2.00	0.0000		1" Ice	3.18	2.05	0.10
				0.0000		2" Ice	3.66	2.46	0.16
DC6-48-60-18-8C	B	From Centroid-Face	4.00	0.0000	188.00	No Ice	1.14	1.14	0.03
			0.00	0.0000		1/2" Ice	1.79	1.79	0.05
			2.00	0.0000		1" Ice	2.00	2.00	0.07
				0.0000		2" Ice	2.45	2.45	0.13
Platform Mount [LP 1201-1_KCKR-HR-1]	C	None		0.0000	188.00	No Ice	37.61	37.61	2.63
				0.0000		1/2" Ice	45.62	45.62	3.48
				0.0000		1" Ice	53.59	53.59	4.46
				0.0000		2" Ice	69.65	69.65	6.85
2.4" Dia. x 6-ft	A	From Centroid-Leg	3.00	0.0000	188.00	No Ice	1.43	0.00	0.02
			0.00	0.0000		1/2" Ice	1.92	0.00	0.03
			0.00	0.0000		1" Ice	2.29	0.00	0.05
				0.0000		2" Ice	3.06	0.00	0.09
2.4" Dia. x 6-ft	B	From Centroid-Leg	3.00	0.0000	188.00	No Ice	1.43	0.00	0.02
			0.00	0.0000		1/2" Ice	1.92	0.00	0.03
			0.00	0.0000		1" Ice	2.29	0.00	0.05
				0.0000		2" Ice	3.06	0.00	0.09
2.4" Dia. x 6-ft	C	From Centroid-Leg	3.00	0.0000	188.00	No Ice	1.43	0.00	0.02
			0.00	0.0000		1/2" Ice	1.92	0.00	0.03
			0.00	0.0000		1" Ice	2.29	0.00	0.05
				0.0000		2" Ice	3.06	0.00	0.09
**161**									
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Centroid-Face	4.00	0.0000	161.00	No Ice	3.76	3.15	0.19
			0.00	0.0000		1/2" Ice	4.12	3.49	0.25
			0.00	0.0000		1" Ice	4.48	3.84	0.32
				0.0000		2" Ice	5.24	4.58	0.48
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Centroid-Face	4.00	0.0000	161.00	No Ice	3.76	3.15	0.19
			0.00	0.0000		1/2" Ice	4.12	3.49	0.25
			0.00	0.0000		1" Ice	4.48	3.84	0.32
				0.0000		2" Ice	5.24	4.58	0.48
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Centroid-Face	4.00	0.0000	161.00	No Ice	3.76	3.15	0.19
			0.00	0.0000		1/2" Ice	4.12	3.49	0.25
			0.00	0.0000		1" Ice	4.48	3.84	0.32
				0.0000		2" Ice	5.24	4.58	0.48
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Centroid-Face	4.00	0.0000	161.00	No Ice	5.87	3.27	0.13
			0.00	0.0000		1/2" Ice	6.23	3.73	0.18
			0.00	0.0000		1" Ice	6.61	4.20	0.23
				0.0000		2" Ice	7.38	5.20	0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Centroid-Face	4.00	0.0000	161.00	No Ice	5.87	3.27	0.13
			0.00	0.0000		1/2" Ice	6.23	3.73	0.18
			0.00	0.0000		1" Ice	6.61	4.20	0.23
				0.0000		2" Ice	7.38	5.20	0.36
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Centroid-Face	4.00	0.0000	161.00	No Ice	5.87	3.27	0.13
			0.00	0.0000		1/2" Ice	6.23	3.73	0.18
			0.00	0.0000		1" Ice	6.61	4.20	0.23
				0.0000		2" Ice	7.38	5.20	0.36
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Face	4.00	0.0000	161.00	No Ice	14.69	6.87	0.19
			0.00	0.0000		1/2" Ice	15.46	7.55	0.31
			0.00	0.0000		1" Ice	16.23	8.25	0.46
				0.0000		2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Face	4.00	0.0000	161.00	No Ice	14.69	6.87	0.19
			0.00	0.0000		1/2" Ice	15.46	7.55	0.31
			0.00	0.0000		1" Ice	16.23	8.25	0.46
				0.0000		2" Ice	17.82	9.67	0.79

<b>tnxTower</b>  <b>Tower Engineering Professionals, Inc.</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b> CT New Britain 3 CAC 803175 (BU 803175)	<b>Page</b> 9 of 20
	<b>Project</b> TEP No. 25666.515606	<b>Date</b> 23:43:35 03/19/21
	<b>Client</b> Crown Castle	<b>Designed by</b> EJB

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub>		Weight
			Horz	Vert			Front	Side	
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Face	4.00	0.0000	161.00	No Ice	14.69	6.87	0.19
			0.00	0.00		1/2" Ice	15.46	7.55	0.31
			0.00	0.00		1" Ice	16.23	8.25	0.46
			0.00	0.00		2" Ice	17.82	9.67	0.79
RRUS 4415 B25_CCIV2	A	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.84	0.82	0.05
			0.00	0.00		1/2" Ice	2.01	0.94	0.06
			0.00	0.00		1" Ice	2.19	1.07	0.08
			0.00	0.00		2" Ice	2.57	1.37	0.12
RRUS 4415 B25_CCIV2	B	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.84	0.82	0.05
			0.00	0.00		1/2" Ice	2.01	0.94	0.06
			0.00	0.00		1" Ice	2.19	1.07	0.08
			0.00	0.00		2" Ice	2.57	1.37	0.12
RRUS 4415 B25_CCIV2	C	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.84	0.82	0.05
			0.00	0.00		1/2" Ice	2.01	0.94	0.06
			0.00	0.00		1" Ice	2.19	1.07	0.08
			0.00	0.00		2" Ice	2.57	1.37	0.12
RADIO 4449 B71 B85A_T-MOBILE	A	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.97	1.59	0.07
			0.00	0.00		1/2" Ice	2.15	1.75	0.09
			0.00	0.00		1" Ice	2.33	1.92	0.12
			0.00	0.00		2" Ice	2.72	2.28	0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.97	1.59	0.07
			0.00	0.00		1/2" Ice	2.15	1.75	0.09
			0.00	0.00		1" Ice	2.33	1.92	0.12
			0.00	0.00		2" Ice	2.72	2.28	0.17
RADIO 4449 B71 B85A_T-MOBILE	C	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.97	1.59	0.07
			0.00	0.00		1/2" Ice	2.15	1.75	0.09
			0.00	0.00		1" Ice	2.33	1.92	0.12
			0.00	0.00		2" Ice	2.72	2.28	0.17
2.4" Dia. x 6-ft	A	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.43	1.43	0.02
			0.00	0.00		1/2" Ice	1.92	1.92	0.03
			0.00	0.00		1" Ice	2.29	2.29	0.05
			0.00	0.00		2" Ice	3.06	3.06	0.09
2.4" Dia. x 6-ft	B	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.43	1.43	0.02
			0.00	0.00		1/2" Ice	1.92	1.92	0.03
			0.00	0.00		1" Ice	2.29	2.29	0.05
			0.00	0.00		2" Ice	3.06	3.06	0.09
2.4" Dia. x 6-ft	C	From Centroid-Face	4.00	0.0000	161.00	No Ice	1.43	1.43	0.02
			0.00	0.00		1/2" Ice	1.92	1.92	0.03
			0.00	0.00		1" Ice	2.29	2.29	0.05
			0.00	0.00		2" Ice	3.06	3.06	0.09
Platform Mount [LP 602-1_KCKR]	C	None		0.0000	161.00	No Ice	42.30	42.30	1.62
				0.00		1/2" Ice	49.04	49.04	2.38
				0.00		1" Ice	55.87	55.87	3.27
				0.00		2" Ice	69.85	69.85	5.40
**146**									
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00	0.0000	146.00	No Ice	4.09	3.30	0.07
			0.00	0.00		1/2" Ice	4.49	3.68	0.13
			3.00	0.00		1" Ice	4.89	4.07	0.20
			0.00	0.00		2" Ice	5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00	0.0000	146.00	No Ice	4.09	3.30	0.07
			0.00	0.00		1/2" Ice	4.49	3.68	0.13
			3.00	0.00		1" Ice	4.89	4.07	0.20
			0.00	0.00		2" Ice	5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00	0.0000	146.00	No Ice	4.09	3.30	0.07
			0.00	0.00		1/2" Ice	4.49	3.68	0.13
			3.00	0.00		1" Ice	4.89	4.07	0.20
			0.00	0.00		2" Ice	5.72	4.87	0.39

<b><i>tnxTower</i></b>  <b><i>Tower Engineering Professionals, Inc.</i></b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>		CT New Britain 3 CAC 803175 (BU 803175)		<b>Page</b>		10 of 20	
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	<b>Client</b>		Crown Castle		<b>Designed by</b>		EJB	

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>CAA Front</i> <i>ft<sup>2</sup></i>	<i>CAA Side</i> <i>ft<sup>2</sup></i>	<i>Weight</i> <i>K</i>
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 7.50 1/2" Ice 8.03 1" Ice 8.53 2" Ice 9.56	5.63 6.72 7.56 9.29	0.04 0.10 0.17 0.33
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 7.50 1/2" Ice 8.03 1" Ice 8.53 2" Ice 9.56	5.63 6.72 7.56 9.29	0.04 0.10 0.17 0.33
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 7.50 1/2" Ice 8.03 1" Ice 8.53 2" Ice 9.56	5.63 6.72 7.56 9.29	0.04 0.10 0.17 0.33
CBRS w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.45 1/2" Ice 1.67 1" Ice 1.90 2" Ice 2.42	0.99 1.18 1.39 1.85	0.03 0.05 0.07 0.12
CBRS w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.45 1/2" Ice 1.67 1" Ice 1.90 2" Ice 2.42	0.99 1.18 1.39 1.85	0.03 0.05 0.07 0.12
CBRS w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.45 1/2" Ice 1.67 1" Ice 1.90 2" Ice 2.42	0.99 1.18 1.39 1.85	0.03 0.05 0.07 0.12
(2) RFV01U-D2A	A	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	B	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D1A	B	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
(2) RFV01U-D1A	C	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
RHSDC-3315-PF-48	A	From Leg	4.00 0.00 -1.00	0.0000	146.00	No Ice 3.36 1/2" Ice 3.60 1" Ice 3.84 2" Ice 4.34	2.19 2.39 2.61 3.05	0.03 0.06 0.09 0.17
RHSDC-3315-PF-48	C	From Leg	4.00 0.00 -1.00	0.0000	146.00	No Ice 3.36 1/2" Ice 3.60 1" Ice 3.84 2" Ice 4.34	2.19 2.39 2.61 3.05	0.03 0.06 0.09 0.17
20W CBRS	A	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 0.86 1/2" Ice 0.98 1" Ice 1.10 2" Ice 1.37	0.42 0.51 0.61 0.83	0.02 0.03 0.03 0.06
20W CBRS	B	From Leg	4.00 0.00 3.00	0.0000	146.00	No Ice 0.86 1/2" Ice 0.98 1" Ice 1.10 2" Ice 1.37	0.42 0.51 0.61 0.83	0.02 0.03 0.03 0.06
20W CBRS	C	From Leg	4.00	0.0000	146.00	No Ice 0.86	0.42	0.02

<b>tnxTower</b>  <b>Tower Engineering Professionals, Inc.</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	<b>Job</b>	CT New Britain 3 CAC 803175 (BU 803175)	<b>Page</b>	11 of 20
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	<b>Client</b>	Crown Castle	<b>Designed by</b>	EJB

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral	Vert					
			0.00				1/2" Ice	0.98	0.51	0.03
			3.00				1" Ice	1.10	0.61	0.03
							2" Ice	1.37	0.83	0.06
Sector Mount [SM 801-3]	C	None			0.0000	146.00	No Ice	20.61	20.61	0.88
							1/2" Ice	29.42	29.42	1.28
							1" Ice	38.23	38.23	1.82
							2" Ice	56.22	56.22	3.29
**Detuner**										
Side Arm Mount [SO 701-3]	C	None			0.0000	133.00	No Ice	3.02	3.02	0.20
							1/2" Ice	4.18	4.18	0.24
							1" Ice	5.33	5.33	0.28
							2" Ice	7.63	7.63	0.36
*****										
1" Dia x 3.5-ft	A	From Leg	1.50		0.0000	100.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	B	From Leg	1.50		0.0000	100.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	C	From Leg	1.50		0.0000	100.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
*****										
1" Dia x 3.5-ft	A	From Leg	1.50		0.0000	70.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	B	From Leg	1.50		0.0000	70.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	C	From Leg	1.50		0.0000	70.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
*****										
1" Dia x 3.5-ft	A	From Leg	1.50		0.0000	40.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	B	From Leg	1.50		0.0000	40.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	C	From Leg	1.50		0.0000	40.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
*****										
1" Dia x 3.5-ft	A	From Leg	1.50		0.0000	10.00	No Ice	0.00	0.37	0.00
			0.00				1/2" Ice	0.00	0.68	0.01
			0.00				1" Ice	0.00	0.90	0.01
							2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	B	From Leg	1.50		0.0000	10.00	No Ice	0.00	0.37	0.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
			0.00			1/2" Ice	0.00	0.68	0.01
			0.00			1" Ice	0.00	0.90	0.01
						2" Ice	0.00	1.37	0.03
1" Dia x 3.5-ft	C	From Leg	1.50		0.0000	No Ice	0.00	0.37	0.00
			0.00			1/2" Ice	0.00	0.68	0.01
			0.00			1" Ice	0.00	0.90	0.01
						2" Ice	0.00	1.37	0.03
***									

## Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp

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Comb. No.	Description
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	188 - 137	Pole	Max Tension	48	0.00	-0.00	0.00
			Max. Compression	26	-47.17	2.68	-1.01
			Max. Mx	20	-14.91	749.02	7.12
			Max. My	14	-14.85	-6.88	-757.29
			Max. Vy	20	-25.13	749.02	7.12
			Max. Vx	14	25.35	-6.88	-757.29
			Max. Torque	2			1.77
L2	137 - 90.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.83	2.93	-1.57
			Max. Mx	20	-24.66	2023.47	13.32
			Max. My	14	-24.62	-13.03	-2041.80
			Max. Vy	20	-30.49	2023.47	13.32
			Max. Vx	14	30.70	-13.03	-2041.80
			Max. Torque	2			1.77
L3	90.25 - 44.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.36	2.93	-2.05
			Max. Mx	20	-37.93	3496.43	19.21
			Max. My	14	-37.91	-18.92	-3524.43
			Max. Vy	20	-35.61	3496.43	19.21
			Max. Vx	14	35.83	-18.92	-3524.43
			Max. Torque	2			1.76
L4	44.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-109.31	2.93	-2.65
			Max. Mx	20	-60.39	5452.49	25.69
			Max. My	14	-60.39	-25.42	-5491.21
			Max. Vy	20	-40.74	5452.49	25.69
			Max. Vx	14	40.94	-25.42	-5491.21
			Max. Torque	2			1.75

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	109.31	-0.02	-11.13
	Max. H <sub>x</sub>	21	45.32	40.69	0.12
	Max. H <sub>z</sub>	2	60.43	0.12	40.90

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M <sub>x</sub>	2	5490.66	0.12	40.90
	Max. M <sub>z</sub>	8	5451.35	-40.69	-0.12
	Max. Torsion	2	1.75	0.12	40.90
	Min. Vert	23	45.32	35.30	20.56
	Min. H <sub>x</sub>	8	60.43	-40.69	-0.12
	Min. H <sub>z</sub>	15	45.32	-0.12	-40.90
	Min. M <sub>x</sub>	14	-5491.21	-0.12	-40.90
	Min. M <sub>z</sub>	20	-5452.49	40.69	0.12
	Min. Torsion	12	-1.72	-20.45	-35.48

## Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	50.35	0.00	0.00	0.21	0.43	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	60.43	-0.12	-40.90	-5490.66	26.49	-1.75
0.9 Dead+1.0 Wind 0 deg - No Ice	45.32	-0.12	-40.90	-5411.54	25.87	-1.73
1.2 Dead+1.0 Wind 30 deg - No Ice	60.43	20.24	-35.36	-4742.28	-2702.92	-1.27
0.9 Dead+1.0 Wind 30 deg - No Ice	45.32	20.24	-35.36	-4673.98	-2664.20	-1.26
1.2 Dead+1.0 Wind 60 deg - No Ice	60.43	35.18	-20.34	-2722.93	-4708.07	-0.44
0.9 Dead+1.0 Wind 60 deg - No Ice	45.32	35.18	-20.34	-2683.80	-4640.42	-0.44
1.2 Dead+1.0 Wind 90 deg - No Ice	60.43	40.69	0.12	26.23	-5451.35	0.51
0.9 Dead+1.0 Wind 90 deg - No Ice	45.32	40.69	0.12	25.68	-5372.96	0.50
1.2 Dead+1.0 Wind 120 deg - No Ice	60.43	35.30	20.56	2768.23	-4733.68	1.30
0.9 Dead+1.0 Wind 120 deg - No Ice	45.32	35.30	20.56	2728.15	-4665.59	1.29
1.2 Dead+1.0 Wind 150 deg - No Ice	60.43	20.45	35.48	4768.43	-2747.68	1.72
0.9 Dead+1.0 Wind 150 deg - No Ice	45.32	20.45	35.48	4699.54	-2708.16	1.70
1.2 Dead+1.0 Wind 180 deg - No Ice	60.43	0.12	40.90	5491.21	-25.42	1.68
0.9 Dead+1.0 Wind 180 deg - No Ice	45.32	0.12	40.90	5411.92	-25.09	1.67
1.2 Dead+1.0 Wind 210 deg - No Ice	60.43	-20.24	35.36	4742.85	2704.01	1.22
0.9 Dead+1.0 Wind 210 deg - No Ice	45.32	-20.24	35.36	4674.40	2664.99	1.21
1.2 Dead+1.0 Wind 240 deg - No Ice	60.43	-35.18	20.34	2723.50	4709.20	0.45
0.9 Dead+1.0 Wind 240 deg - No Ice	45.32	-35.18	20.34	2684.22	4641.24	0.44
1.2 Dead+1.0 Wind 270 deg - No Ice	60.43	-40.69	-0.12	-25.69	5452.49	-0.45
0.9 Dead+1.0 Wind 270 deg - No Ice	45.32	-40.69	-0.12	-25.29	5373.76	-0.44
1.2 Dead+1.0 Wind 300 deg - No Ice	60.43	-35.30	-20.56	-2767.71	4734.79	-1.24



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Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
No Ice						
0.9 Dead+1.0 Wind 300 deg - No Ice	45.32	-35.30	-20.56	-2727.77	4666.40	-1.23
1.2 Dead+1.0 Wind 330 deg - No Ice	60.43	-20.45	-35.48	-4767.90	2748.75	-1.73
0.9 Dead+1.0 Wind 330 deg - No Ice	45.32	-20.45	-35.48	-4699.16	2708.94	-1.71
1.2 Dead+1.0 Ice+1.0 Temp	109.31	-0.00	0.00	2.65	2.93	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	109.31	-0.02	-11.13	-1597.77	7.85	-0.47
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	109.31	5.53	-9.63	-1381.00	-789.48	-0.34
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	109.31	9.60	-5.55	-793.43	-1374.42	-0.12
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	109.31	11.10	0.02	7.51	-1590.23	0.13
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	109.31	9.62	5.58	807.19	-1379.07	0.34
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	109.31	5.57	9.65	1391.34	-797.55	0.47
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	109.31	0.02	11.13	1603.46	-1.47	0.46
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	109.31	-5.53	9.63	1386.69	795.86	0.34
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	109.31	-9.60	5.55	799.12	1380.81	0.12
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	109.31	-11.10	-0.02	-1.82	1596.61	-0.12
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	109.31	-9.62	-5.58	-801.50	1385.46	-0.34
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	109.31	-5.57	-9.65	-1385.66	803.93	-0.47
Dead+Wind 0 deg - Service	50.35	-0.03	-8.87	-1183.39	6.06	-0.38
Dead+Wind 30 deg - Service	50.35	4.39	-7.67	-1022.03	-582.27	-0.28
Dead+Wind 60 deg - Service	50.35	7.63	-4.41	-586.75	-1014.46	-0.10
Dead+Wind 90 deg - Service	50.35	8.83	0.03	5.82	-1174.68	0.11
Dead+Wind 120 deg - Service	50.35	7.66	4.46	596.89	-1020.04	0.28
Dead+Wind 150 deg - Service	50.35	4.44	7.70	1028.08	-591.95	0.38
Dead+Wind 180 deg - Service	50.35	0.03	8.87	1183.85	-5.12	0.38
Dead+Wind 210 deg - Service	50.35	-4.39	7.67	1022.50	583.21	0.28
Dead+Wind 240 deg - Service	50.35	-7.63	4.41	587.21	1015.40	0.10
Dead+Wind 270 deg - Service	50.35	-8.83	-0.03	-5.36	1175.62	-0.10
Dead+Wind 300 deg - Service	50.35	-7.66	-4.46	-596.43	1020.98	-0.28
Dead+Wind 330 deg - Service	50.35	-4.44	-7.70	-1027.62	592.89	-0.38

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-50.35	0.00	0.00	50.35	0.00	0.000%
2	-0.12	-60.43	-40.90	0.12	60.43	40.90	0.000%
3	-0.12	-45.32	-40.90	0.12	45.32	40.90	0.000%
4	20.24	-60.43	-35.36	-20.24	60.43	35.36	0.000%
5	20.24	-45.32	-35.36	-20.24	45.32	35.36	0.000%
6	35.18	-60.43	-20.34	-35.18	60.43	20.34	0.000%
7	35.18	-45.32	-20.34	-35.18	45.32	20.34	0.000%
8	40.69	-60.43	0.12	-40.69	60.43	-0.12	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
9	40.69	-45.32	0.12	-40.69	45.32	-0.12	0.000%
10	35.30	-60.43	20.56	-35.30	60.43	-20.56	0.000%
11	35.30	-45.32	20.56	-35.30	45.32	-20.56	0.000%
12	20.45	-60.43	35.48	-20.45	60.43	-35.48	0.000%
13	20.45	-45.32	35.48	-20.45	45.32	-35.48	0.000%
14	0.12	-60.43	40.90	-0.12	60.43	-40.90	0.000%
15	0.12	-45.32	40.90	-0.12	45.32	-40.90	0.000%
16	-20.24	-60.43	35.36	20.24	60.43	-35.36	0.000%
17	-20.24	-45.32	35.36	20.24	45.32	-35.36	0.000%
18	-35.18	-60.43	20.34	35.18	60.43	-20.34	0.000%
19	-35.18	-45.32	20.34	35.18	45.32	-20.34	0.000%
20	-40.69	-60.43	-0.12	40.69	60.43	0.12	0.000%
21	-40.69	-45.32	-0.12	40.69	45.32	0.12	0.000%
22	-35.30	-60.43	-20.56	35.30	60.43	20.56	0.000%
23	-35.30	-45.32	-20.56	35.30	45.32	20.56	0.000%
24	-20.45	-60.43	-35.48	20.45	60.43	35.48	0.000%
25	-20.45	-45.32	-35.48	20.45	45.32	35.48	0.000%
26	0.00	-109.31	0.00	0.00	109.31	-0.00	0.000%
27	-0.02	-109.31	-11.13	0.02	109.31	11.13	0.000%
28	5.53	-109.31	-9.63	-5.53	109.31	9.63	0.000%
29	9.60	-109.31	-5.55	-9.60	109.31	5.55	0.000%
30	11.10	-109.31	0.02	-11.10	109.31	-0.02	0.000%
31	9.62	-109.31	5.58	-9.62	109.31	-5.58	0.000%
32	5.57	-109.31	9.65	-5.57	109.31	-9.65	0.000%
33	0.02	-109.31	11.13	-0.02	109.31	-11.13	0.000%
34	-5.53	-109.31	9.63	5.53	109.31	-9.63	0.000%
35	-9.60	-109.31	5.55	9.60	109.31	-5.55	0.000%
36	-11.10	-109.31	-0.02	11.10	109.31	0.02	0.000%
37	-9.62	-109.31	-5.58	9.62	109.31	5.58	0.000%
38	-5.57	-109.31	-9.65	5.57	109.31	9.65	0.000%
39	-0.03	-50.35	-8.87	0.03	50.35	8.87	0.000%
40	4.39	-50.35	-7.67	-4.39	50.35	7.67	0.000%
41	7.63	-50.35	-4.41	-7.63	50.35	4.41	0.000%
42	8.83	-50.35	0.03	-8.83	50.35	-0.03	0.000%
43	7.66	-50.35	4.46	-7.66	50.35	-4.46	0.000%
44	4.44	-50.35	7.70	-4.44	50.35	-7.70	0.000%
45	0.03	-50.35	8.87	-0.03	50.35	-8.87	0.000%
46	-4.39	-50.35	7.67	4.39	50.35	-7.67	0.000%
47	-7.63	-50.35	4.41	7.63	50.35	-4.41	0.000%
48	-8.83	-50.35	-0.03	8.83	50.35	0.03	0.000%
49	-7.66	-50.35	-4.46	7.66	50.35	4.46	0.000%
50	-4.44	-50.35	-7.70	4.44	50.35	7.70	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00020377
3	Yes	5	0.00000001	0.00008784
4	Yes	6	0.00000001	0.00030411
5	Yes	6	0.00000001	0.00008626
6	Yes	6	0.00000001	0.00030867
7	Yes	6	0.00000001	0.00008793
8	Yes	5	0.00000001	0.00011940
9	Yes	5	0.00000001	0.00005100

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10	Yes	6	0.0000001	0.00031567
11	Yes	6	0.0000001	0.00008929
12	Yes	6	0.0000001	0.00030678
13	Yes	6	0.0000001	0.00008611
14	Yes	5	0.0000001	0.00005167
15	Yes	4	0.0000001	0.00084650
16	Yes	6	0.0000001	0.00031211
17	Yes	6	0.0000001	0.00008901
18	Yes	6	0.0000001	0.00030653
19	Yes	6	0.0000001	0.00008712
20	Yes	5	0.0000001	0.00004655
21	Yes	4	0.0000001	0.00079192
22	Yes	6	0.0000001	0.00030782
23	Yes	6	0.0000001	0.00008651
24	Yes	6	0.0000001	0.00031774
25	Yes	6	0.0000001	0.00008992
26	Yes	4	0.0000001	0.00003641
27	Yes	6	0.0000001	0.00031309
28	Yes	6	0.0000001	0.00055038
29	Yes	6	0.0000001	0.00055465
30	Yes	6	0.0000001	0.00030994
31	Yes	6	0.0000001	0.00057150
32	Yes	6	0.0000001	0.00056195
33	Yes	6	0.0000001	0.00031431
34	Yes	6	0.0000001	0.00057052
35	Yes	6	0.0000001	0.00056403
36	Yes	6	0.0000001	0.00031265
37	Yes	6	0.0000001	0.00056559
38	Yes	6	0.0000001	0.00057734
39	Yes	4	0.0000001	0.00018979
40	Yes	5	0.0000001	0.00007046
41	Yes	5	0.0000001	0.00007339
42	Yes	4	0.0000001	0.00014546
43	Yes	5	0.0000001	0.00007834
44	Yes	5	0.0000001	0.00007252
45	Yes	4	0.0000001	0.00017066
46	Yes	5	0.0000001	0.00007604
47	Yes	5	0.0000001	0.00007221
48	Yes	4	0.0000001	0.00013843
49	Yes	5	0.0000001	0.00007323
50	Yes	5	0.0000001	0.00007996

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	188 - 137	39.234	50	2.0033	0.0047
L2	141.25 - 90.25	21.184	50	1.5845	0.0018
L3	95.5 - 44.5	8.835	50	0.9536	0.0007
L4	51 - 0	2.325	50	0.4232	0.0002

### Critical Deflections and Radius of Curvature - Service Wind

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Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
188.00	Lighting Rod 3/4" x 8'	50	39.234	2.0033	0.0047	36247
161.00	AIR -32 B2A/B66AA w/ Mount Pipe	50	28.374	1.7863	0.0028	6711
146.00	(2) SBNHH-1D65B w/ Mount Pipe	50	22.822	1.6383	0.0020	4313
133.00	Side Arm Mount [SO 701-3]	50	18.502	1.4823	0.0014	3967
100.00	1" Dia x 3.5-ft	50	9.786	1.0168	0.0007	4385
70.00	1" Dia x 3.5-ft	50	4.472	0.6280	0.0004	4608
40.00	1" Dia x 3.5-ft	50	1.492	0.3196	0.0002	6036
10.00	1" Dia x 3.5-ft	50	0.249	0.0753	0.0000	24143

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	188 - 137	181.494	24	9.3026	0.0217
L2	141.25 - 90.25	98.185	24	7.3607	0.0083
L3	95.5 - 44.5	40.999	24	4.4303	0.0030
L4	51 - 0	10.791	24	1.9651	0.0010

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
188.00	Lighting Rod 3/4" x 8'	24	181.494	9.3026	0.0217	8204
161.00	AIR -32 B2A/B66AA w/ Mount Pipe	24	131.393	8.2970	0.0132	1513
146.00	(2) SBNHH-1D65B w/ Mount Pipe	24	105.755	7.6102	0.0093	967
133.00	Side Arm Mount [SO 701-3]	24	85.783	6.8862	0.0068	883
100.00	1" Dia x 3.5-ft	24	45.408	4.7238	0.0033	958
70.00	1" Dia x 3.5-ft	24	20.754	2.9171	0.0017	998
40.00	1" Dia x 3.5-ft	24	6.924	1.4837	0.0007	1301
10.00	1" Dia x 3.5-ft	24	1.154	0.3494	0.0001	5201

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KL/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
L1	188 - 137 (1)	TP32.711x22x0.25	51.00	0.00	0.0	25.0495	-14.83	1465.40	0.010
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	51.00	0.00	0.0	40.2848	-24.61	2356.66	0.010
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	51.00	0.00	0.0	58.6481	-37.91	3430.92	0.011
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	51.00	0.00	0.0	93.8076	-60.39	5487.74	0.011

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Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
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### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>nx</sub> kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M <sub>uy</sub> kip-ft	φM <sub>ny</sub> kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	188 - 137 (1)	TP32.711x22x0.25	761.24	1113.48	0.684	0.00	1113.48	0.000
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	2048.54	2281.22	0.898	0.00	2281.22	0.000
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	3533.82	4013.65	0.880	0.00	4013.65	0.000
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	5503.51	7974.63	0.690	0.00	7974.63	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V <sub>u</sub> K	φV <sub>n</sub> K	Ratio $\frac{V_u}{\phi V_n}$	Actual T <sub>u</sub> kip-ft	φT <sub>n</sub> kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	188 - 137 (1)	TP32.711x22x0.25	25.41	439.62	0.058	1.75	1215.38	0.001
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	30.77	707.00	0.044	1.74	2514.68	0.001
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	35.88	1029.27	0.035	1.73	4441.48	0.000
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	41.00	1646.32	0.025	1.73	8522.25	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	188 - 137 (1)	0.010	0.684	0.000	0.058	0.001	0.697	1.050	4.8.2
L2	137 - 90.25 (2)	0.010	0.898	0.000	0.044	0.001	0.910	1.050	4.8.2
L3	90.25 - 44.5 (3)	0.011	0.880	0.000	0.035	0.000	0.893	1.050	4.8.2
L4	44.5 - 0 (4)	0.011	0.690	0.000	0.025	0.000	0.702	1.050	4.8.2

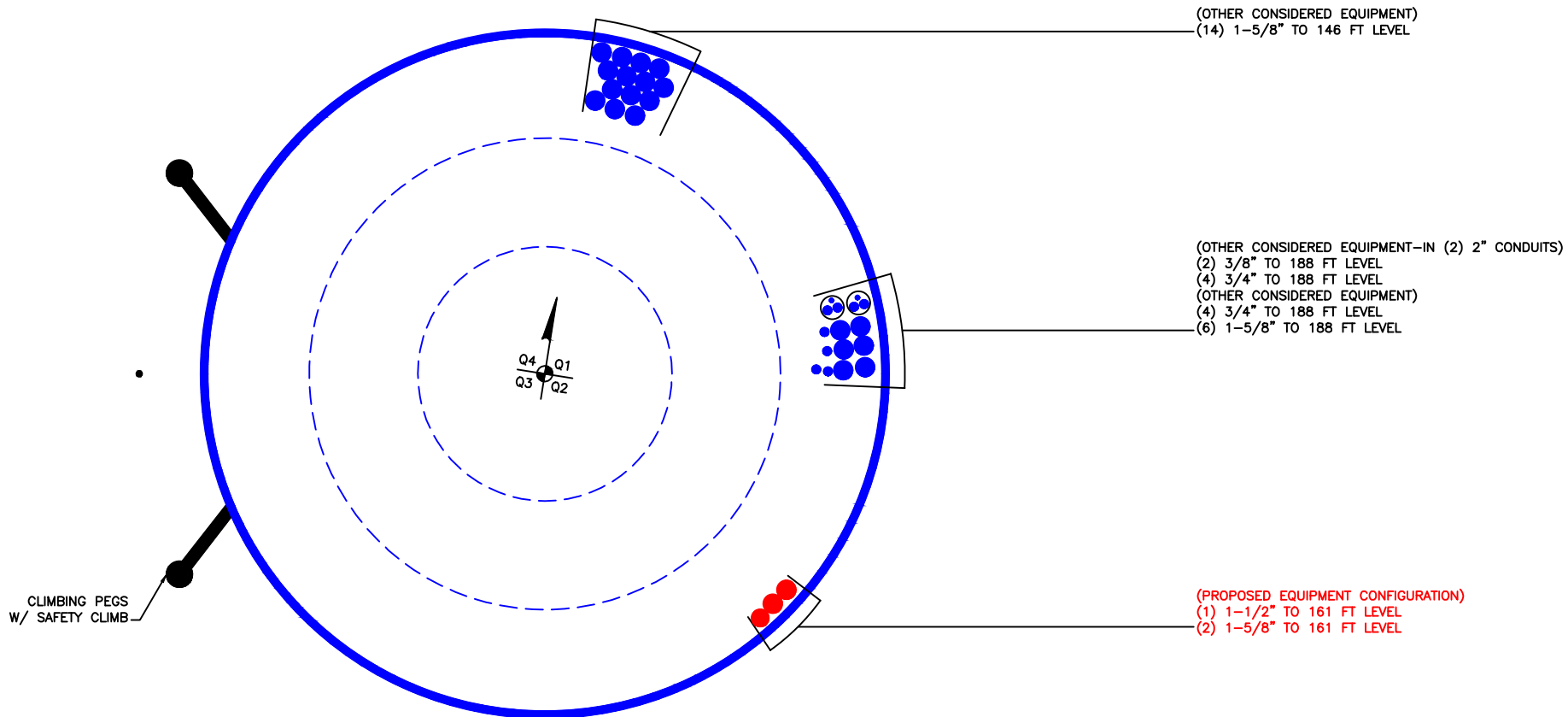
### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP <sub>allow</sub> K	% Capacity	Pass Fail
L1	188 - 137	Pole	TP32.711x22x0.25	1	-14.83	1538.67	66.4	Pass
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-24.61	2474.49	86.7	Pass
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-37.91	3602.47	85.0	Pass
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-60.39	5762.13	66.8	Pass

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<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Size</i>	<i>Critical Element</i>	<i>P K</i>	$\phi P_{allow}$ <i>K</i>	<i>% Capacity</i>	<i>Pass Fail</i>	
							Summary		
							Pole (L2)	86.7	Pass
							<b>RATING =</b>	<b>86.7</b>	<b>Pass</b>

**APPENDIX B**  
**BASE LEVEL DRAWING**





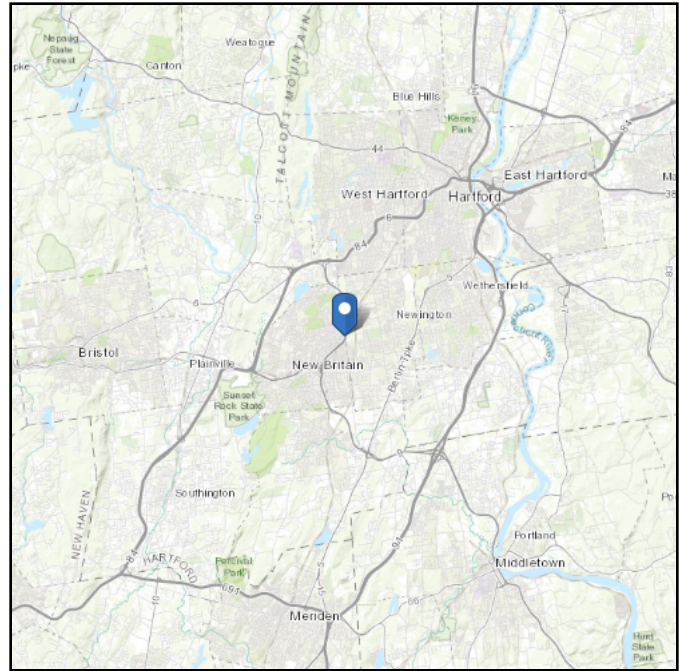
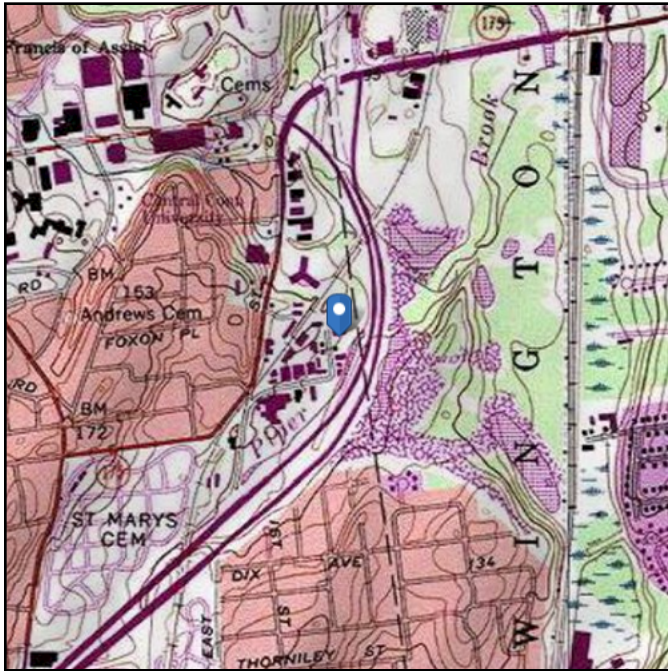
**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

**Standard:** ASCE/SEI 7-10  
**Risk Category:** II  
**Soil Class:** D - Stiff Soil

**Elevation:** 88.33 ft (NAVD 88)  
**Latitude:** 41.686611  
**Longitude:** -72.757722



## Wind

### Results:

Wind Speed:	122 Vmph	<b>*125 Vmph required per Appendix N of 2018 Connecticut State Building Code*</b>
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	93 Vmph	
100-year MRI	100 Vmph	

**Data Source:** ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

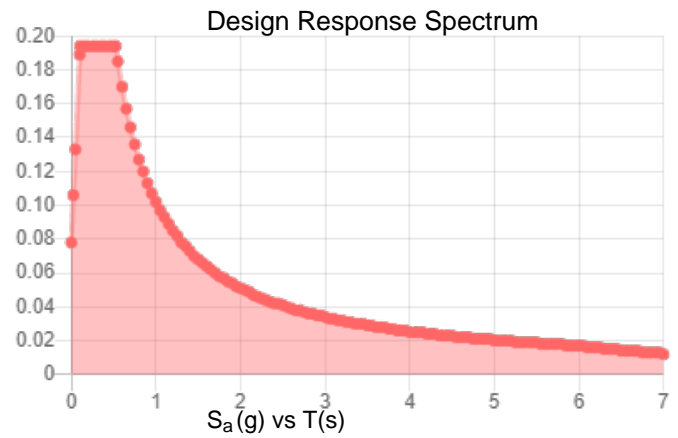
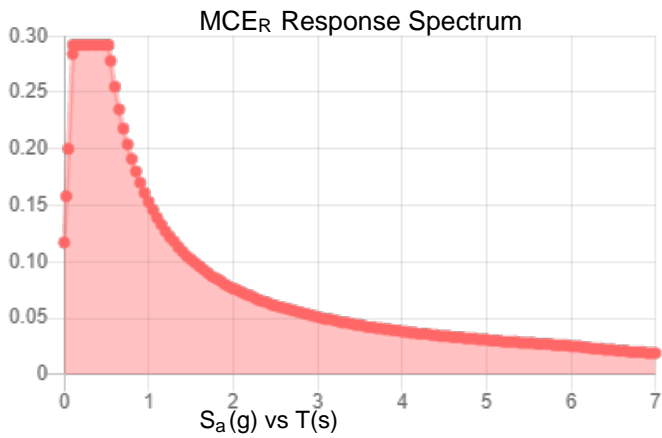
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.182	$S_{DS}$ :	0.194
$S_1$ :	0.064	$S_{D1}$ :	0.102
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.092
$S_{MS}$ :	0.292	$PGA_M$ :	0.148
$S_{M1}$ :	0.153	$F_{PGA}$ :	1.6
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Fri Mar 19 2021

**Date Source:**

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

## Ice

---

**Results:**

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

**Date Accessed:** Fri Mar 19 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

---

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# Monopole Base Plate Connection

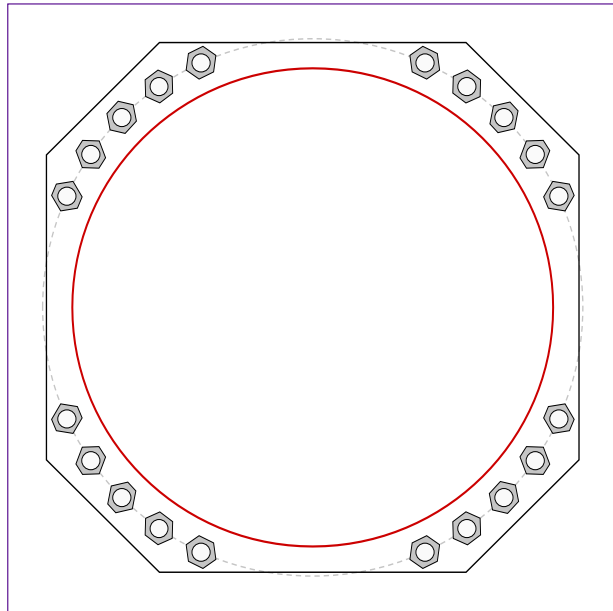


Site Info	
BU #	803175
Site Name	New Britain 3 CAC 803
Order #	541332 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
$l_{ar}$ (in)	1.25

Applied Loads	
Moment (kip-ft)	5504.00
Axial Force (kips)	60.00
Shear Force (kips)	41.00

\*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

**Anchor Rod Data**  
 (20) 2-1/4"  $\phi$  bolts (A615-75 N;  $F_y=75$  ksi,  $F_u=100$  ksi) on 67" BC  
 Anchor Spacing: 6 in

**Base Plate Data**  
 66" W x 3" Plate (A572-50;  $F_y=50$  ksi,  $F_u=65$  ksi); Clip: 14 in

**Stiffener Data**  
 N/A

**Pole Data**  
 59.61" x 0.5" 18-sided pole (A607-65;  $F_y=65$  ksi,  $F_u=80$  ksi)

Anchor Rod Summary		<i>(units of kips, kip-in)</i>	
$P_{u\_c} = 200.07$	$\phi P_{n\_c} = 268.39$		<b>Stress Rating</b>
$V_u = 2.05$	$\phi V_n = 120.77$		<b>71.0%</b>
$M_u = n/a$	$\phi M_n = n/a$		<b>Pass</b>

Base Plate Summary		
Max Stress (ksi):	33.85	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	<b>71.6%</b>	<b>Pass</b>

# Pier and Pad Foundation



**BU # :** 803175  
**Site Name:** CT New Britain 3 C  
**App. Number:** 541332 Rev. 0

**TIA-222 Revision:** H  
**Tower Type:** Monopole

**Top & Bot. Pad Rein. Different?:**   
**Block Foundation?:**   
**Rectangular Pad?:**

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	60	kips
Base Shear, $V_{u\_comp}$ :	41	kips
Moment, $M_u$ :	5504	ft-kips
Tower Height, $H$ :	188	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3.5	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	221.65	41.00	17.6%	Pass
<i>Bearing Pressure (ksf)</i>	9.00	4.30	47.8%	Pass
<i>Overtuning (kip*ft)</i>	6556.18	5802.96	88.5%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	9854.47	5668.00	54.8%	Pass
<i>Pier Compression (kip)</i>	30551.04	106.08	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	6473.47	2952.21	43.4%	Pass
<i>Pad Shear - 1-way (kips)</i>	766.05	412.64	51.3%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	8464.14	3400.80	38.3%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	8	ft
Ext. Above Grade, $E$ :	1.083333	ft
Pier Rebar Size, $Sc$ :	11	
Pier Rebar Quantity, $mc$ :	36	
Pier Tie/Spiral Size, $St$ :	5	
Pier Tie/Spiral Quantity, $mt$ :	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	4	in

\*Rating per TIA-222-H Section 15.5

Soil Rating*:	88.5%
Structural Rating*:	54.8%

Pad Properties		
Depth, $D$ :	5.9167	ft
Pad Width, $W_1$ :	26	ft
Pad Thickness, $T$ :	3	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	11	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	33	
Pad Clear Cover, $cc_{pad}$ :	4	in

Material Properties		
Rebar Grade, $F_y$ :	60	ksi
Concrete Compressive Strength, $F'_c$ :	3	ksi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	110	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	12.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	30	degrees
SPT Blow Count, $N_{blows}$ :		
Base Friction, $\mu$ :		
Neglected Depth, $N$ :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	17.75	ft

<-- Toggle between Gross and Net

# Exhibit E

## **Mount Analysis**

Date: **March 15, 2021**

Darcy Tarr  
Crown Castle  
6325 Ardrey Kell Road, Suite 600  
Charlotte, NC 28277  
(704) 405-6589



**GPD Engineering and Architecture  
Professional Corporation**  
520 South Main Street, Suite 2531  
Akron, Ohio 44311  
(216) 927-8663  
CrownMA@gpdgroup.com

**Subject:** **Mount Modification Report**

**Carrier Designation:** **T-Mobile Loading Modification**  
**Carrier Site Number:** CT11783B  
**Carrier Site Name:** Crown Comm. Monopole

**Crown Castle Designation:** **Crown Castle BU Number:** 803175  
**Crown Castle Site Name:** CT NEW BRITAIN 3 CAC 803175  
**Crown Castle JDE Job Number:** 631909  
**Crown Castle Order Number:** 541332 Rev. 0

**Engineering Firm Designation:** **GPD Report Designation:** 2021777.803175.02

**Site Data:** **167 Cocomo, New Britain, Hartford County, CT 06051**  
**Latitude 41° 41' 11.80" Longitude -72° 45' 27.80"**

**Structure Information:** **Tower Height & Type:** **188.0 ft Monopole Tower**  
**Mount Elevation:** **161.0 ft**  
**Mount Type:** **13.5 ft Platform Mount**

Dear Darcy Tarr,

GPD is pleased to submit this "**Mount Modification Report**" to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

**Platform Mount**



**Sufficient-81.2%\***

**\*See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Matthew Moeller

Respectfully Submitted by:



Christopher J. Scheks, P.E.  
Connecticut #: 0030026

3/15/2021



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Software Analysis Output

### 8) APPENDIX D

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### 9) APPENDIX E

Mount Modification Design Drawings (MDD)

## 1) INTRODUCTION

This is a 13.5' Platform Mount mapped by ETS (Project #: 183581, dated 8/23/2018).

A proposed support rail (Site Pro 1 Part #: HRK14-U, see Appendix E) has been assumed for the purpose of this analysis. In order for the analysis results to be valid, the support rail shall be installed at 36" above the toe rail.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Ultimate Wind Speed:</b>	125 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor at Base:</b>	1
<b>Topographic Factor at Mount:</b>	1
<b>Ice Thickness:</b>	2 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Live Loading Wind Speed:</b>	30 mph
<b>Man Live Load at Mid/End-Points:</b>	250 lb
<b>Man Live Load at Mount Pipes:</b>	500 lb

**Table 1 - Proposed Equipment Configuration**

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount Details
161.0	161.0	3	Ericsson	AIR -32 B2A/B66AA	13.5 ft. Platform Mount
		3	Ericsson	AIR6449 B41_T-MOBILE	
		3	RFS/Celwave	APXVAARR24_43-U-NA20	
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE	
		3	Ericsson	RRUS 4415 B25_CCIV2	

## 3) ANALYSIS PROCEDURE

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 541332 Rev. 0	-	CCI
Support Rail Design	Site Pro 1 Drawing #: HRK14-U, dated 3/10/2015	-	Site Pro 1
Mount Mapping	ETS Project #: 183581, dated 8/23/2018	7742984	CCI
Mount Modification Design Drawings	GPD Project #: 2021777.803175.02, dated 03/15/2021	-	GPD

### 3.1) Analysis Method

RISA-3D Edition (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by GPD, using Microsoft Excel, was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

**3.2) Assumptions**

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) This analysis assumes all information reference in Table 2 is current and correct.
- 5) Steel grades have been assumed as follows, unless noted otherwise:
 

Angle & Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

**4) ANALYSIS RESULTS**

**Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)**

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1 & 3	Face Horizontal	FM-H3	161.0	28.2	Pass
	Horizontal Support	M91		81.2	Pass
	Platform Arm	H1		26.9	Pass
	Connection Plate(1)	M12		55.9	Pass
	Connection Plate(2)	M17		43.1	Pass
	Support Rail Corner	M22		27.7	Pass
	Support Rail Horizontal	M86		27.2	Pass
	9' Mount Pipe	C2		63.6	Pass
	5' Mount Pipe	A3		24.9	Pass
	New Kicker Kit	M80	15.1	Pass	
2 & 3	Kicker to Tower Connection	-		11.7	Pass
	Mount to Tower Connection			10.3	Pass

<b>Structure Rating (max from all components) =</b>	<b>81.2%<sup>3</sup></b>
---	--------------------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.
- 3) Ratings per TIA-222-H section 15.5.

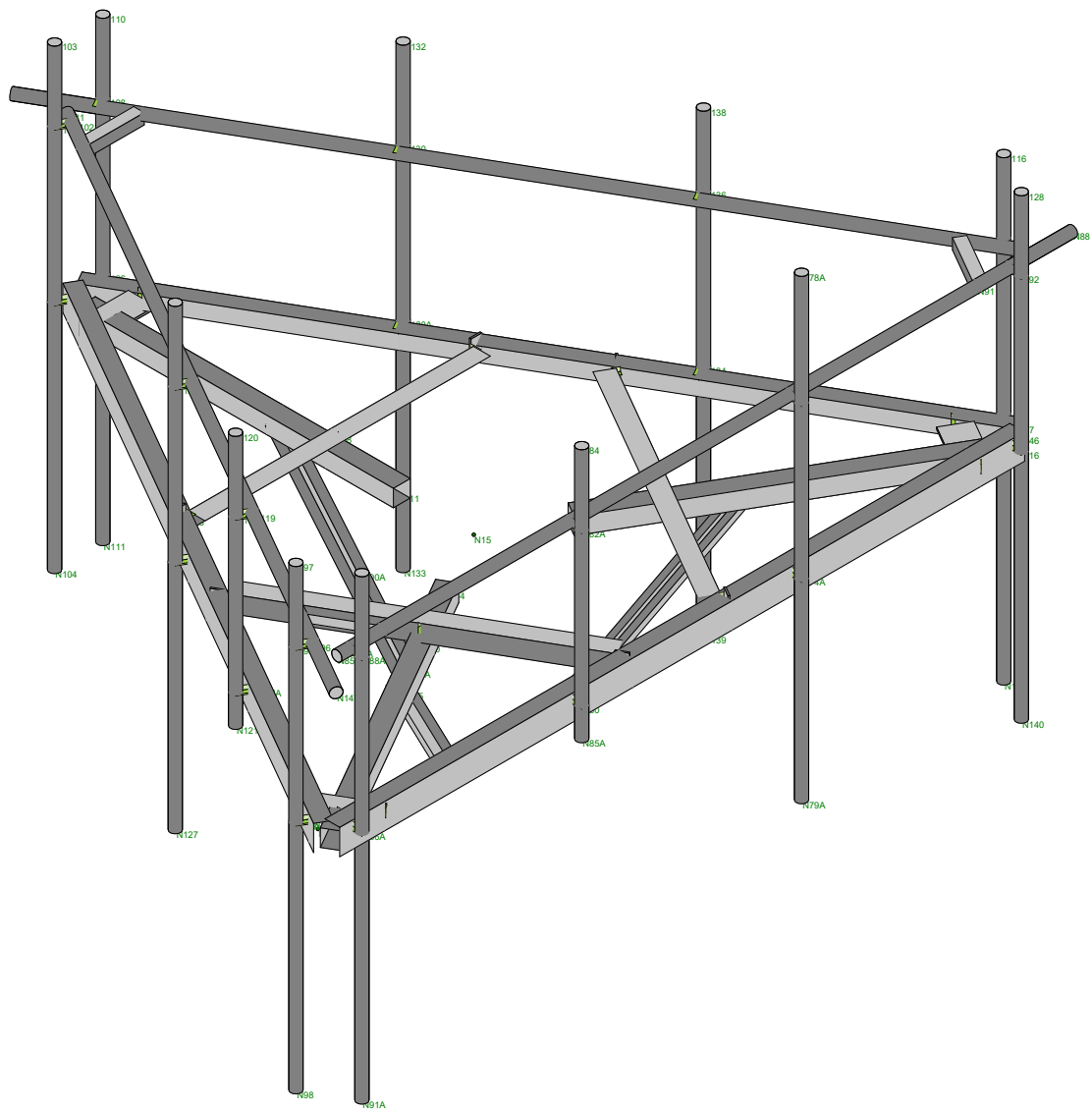
#### **4.1) Recommendations**

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Install kicker support, Site Pro P/N PRK-1245
2. Install support rail kit, Site Pro P/N HRK14-U

Engineering detail drawings have been provided in Appendix E – Mount Modification Design Drawings (MDD). Connection from the mount to the tower and local stresses on the tower are sufficient.

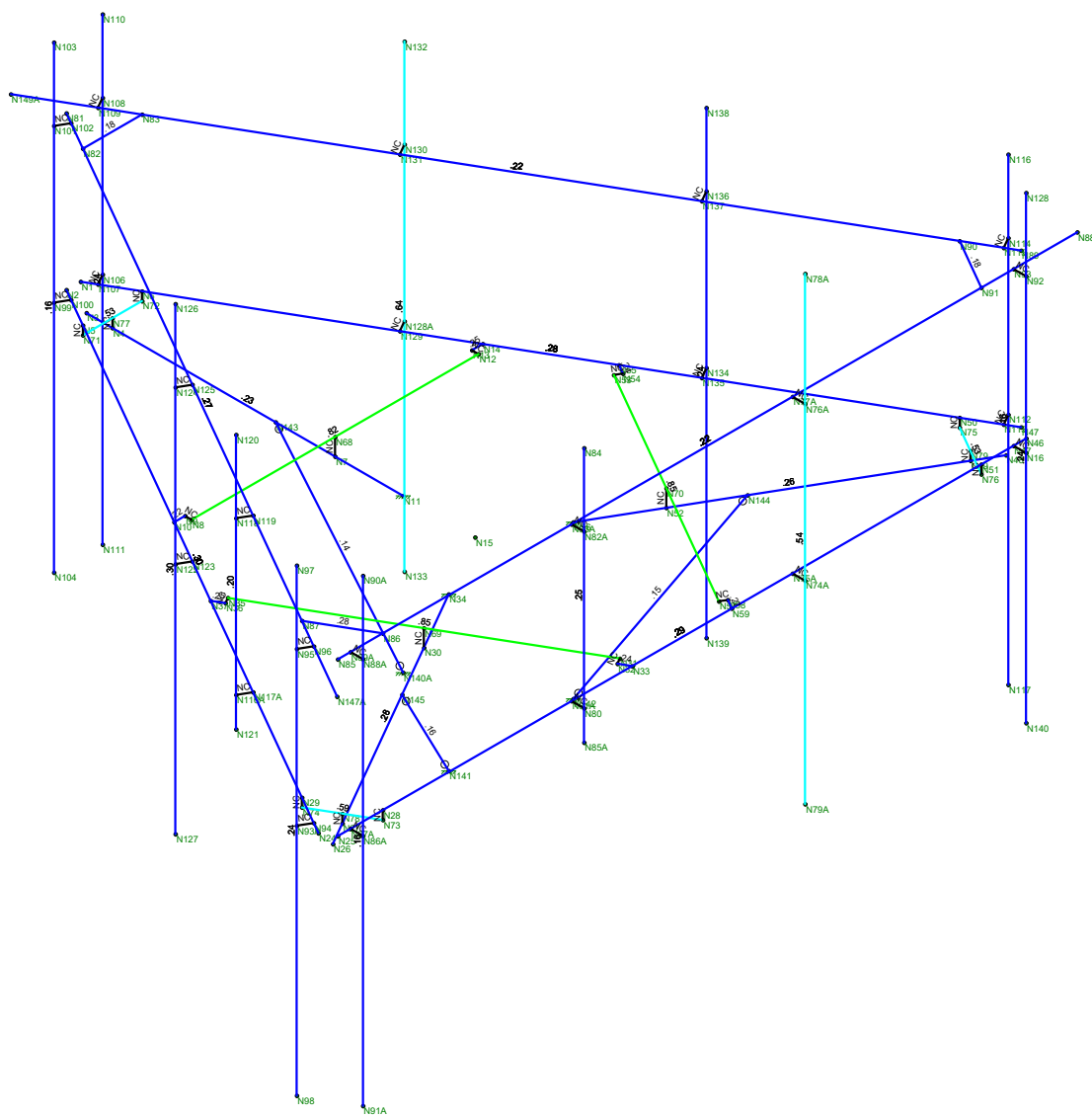
**APPENDIX A**  
**WIRE FRAME AND RENDERED MODELS**



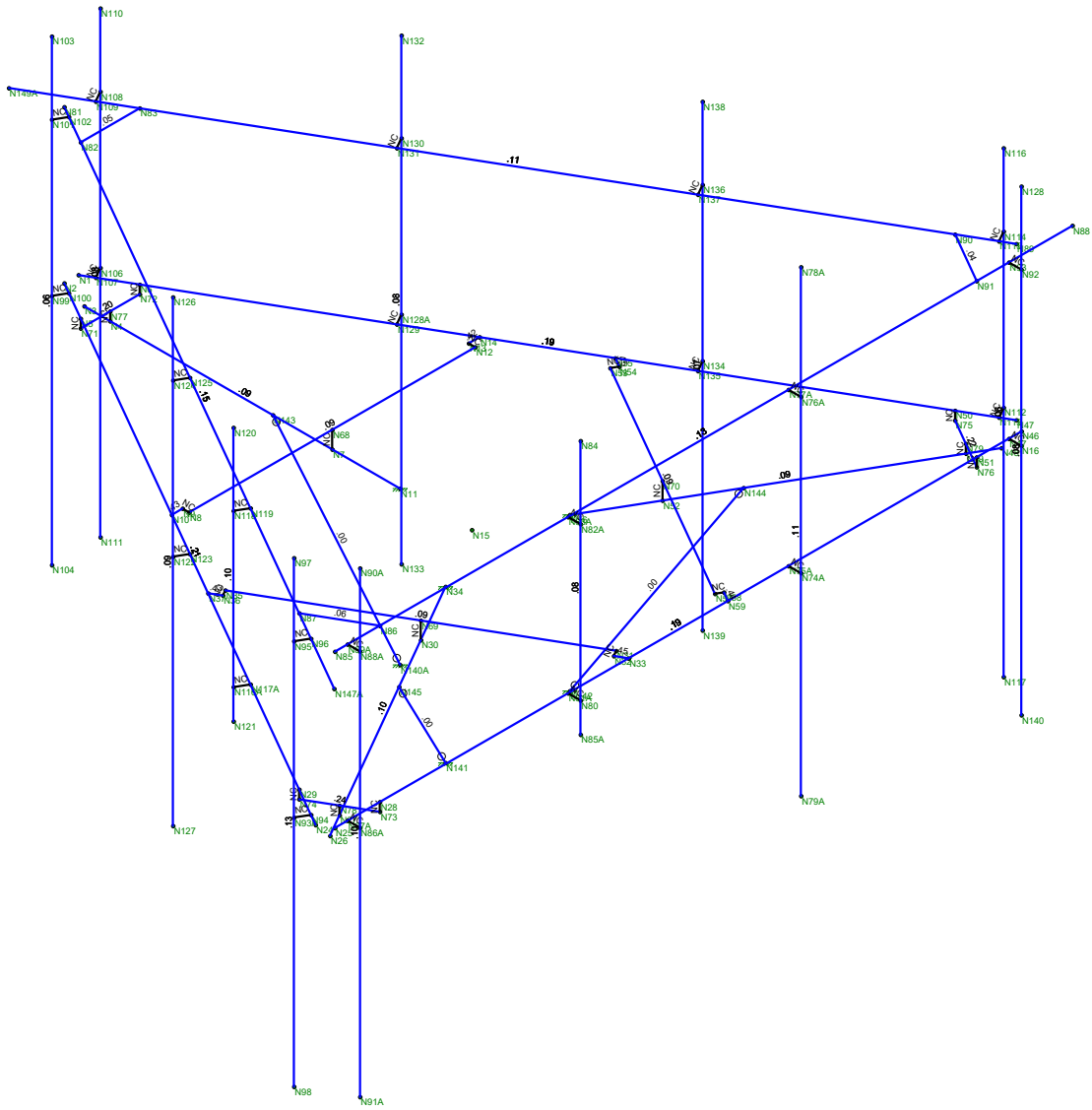




Code Check (Env)	
Black	No Calc
Red	> 1.0
Orange	90-1.0
Yellow	75-90
Green	50-75
Blue	0-50







**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**



Structure Information		
Structure Type:	Monopole	
Structure Height:	188	ft
z (Mount Centerline) =	161	ft
Gh (Mount Gust Effect Factor) =	1.00	
Risk Category:	II	

Code Specifications		
TIA/EIA Code:	H	
Ultimate Wind Speed (No Ice) =	125	mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50	mph (3-s gust)
Ice Thickness	2	in
Exposure Category	C	
Tower Base Elevation (AMSL)	88	ft

Topographic Inputs	
Topographic Feature:	N/A

Mount Components	Section Sets									No Ice		Ice Output	
	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K <sub>a</sub>	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*	
Face Horizontal	Angle	162.000	6	3.5		6.95	Flat	0.90	1.00	53.00	10.34	26.60	
Horizontal Support	Angle	68.000	4	4		5.66	Flat	0.90	1.00	30.62	6.75	22.91	
Platform Arm	Square/Rect.	78.000	4	4		5.66	Flat	0.90	1.00	32.09	6.94	22.91	
Connection Plate(1)	Square/Rect.	21.000	0.5	6.5		6.52	Flat	0.90	1.00	4.42	2.88	25.37	
Connection Plate(2)	Square/Rect.	11.000	4	0.375		4.02	Flat	0.90	1.00	21.39	5.71	18.21	
Support Rail Corner	Angle	18.000	2.5	2.5		3.54	Flat	0.90	1.00	15.53	4.44	16.83	
Support Rail Horizontal	Pipe	174.000	2.375	2.375		2.38	Round	0.90	1.00	12.59	5.95	13.51	
New Kicker Kit	Angle	52.000	2.5	2.5		3.54	Flat	0.90	1.00	20.54	5.15	16.83	
9' Mount Pipe	Pipe	108.000	2.375	2.375		2.38	Round	0.90	1.00	12.59	4.91	13.51	
5' Mount Pipe	Pipe	60.000	2.375	2.375		2.38	Round	0.90	1.00	12.59	4.16	13.51	

\*All forces are unfactored.

Appurtenance Model	Appurtenances						Shielding			No Ice		Ice Output	
	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K <sub>a</sub> and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) AIR -32 B2A/B66AA	161	56.6	12.9	8.7	132.2	Flat	0%	0%	0.90	310.50	132.20	61.43	261.75
(3) AIR6449 B41_T-MOBILE	161	33.11	20.51	8.54	114.63	Flat	0%	0%	0.90	269.92	114.63	53.32	220.29
(3) APXVAARR24_43-U-NA20	161	95.9	24	8.7	128	CFD	0%	0%	0.90	699.52	128.00	140.34	613.49
(3) RADIO 4449 B71 B85A_T-MOBILE	161	17.91	13.2	10.63	73.21	Flat	0%	0%	0.90	93.97	73.21	21.26	119.19
(3) RRUS 4415 B25_CCIV2	161	16.5	13.4	5.9	46	Flat	0%	0%	0.90	87.88	46.00	20.07	89.20

\*All forces are unfactored.

**APPENDIX C**  
**SOFTWARE ANALYSIS OUTPUT**







Company : GPD  
 Designer : Moeller, Matt  
 Job Number : 2021777.803175.02  
 Model Name : 803175 - CT NEW BRITAIN 3 CAC 803175

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**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(...)
1	Dead	DL		-1			24	38	3
2	No Ice Wind 0 deg	None					24	38	
3	No Ice Wind 30 deg	None					48	66	
4	No Ice Wind 60 deg	None					48	76	
5	No Ice Wind 90 deg	None					24	32	
6	No Ice Wind 120 deg	None					48	76	
7	No Ice Wind 150 deg	None					48	66	
8	No Ice Wind 180 deg	None					24	38	
9	No Ice Wind 210 deg	None					48	66	
10	No Ice Wind 240 deg	None					48	76	
11	No Ice Wind 270 deg	None					24	32	
12	No Ice Wind 300 deg	None					48	76	
13	No Ice Wind 330 deg	None					48	66	
14	Ice Weight	None					24	39	3
15	Ice Wind 0 deg	None					24	38	
16	Ice Wind 30 deg	None					48	64	
17	Ice Wind 60 deg	None					48	76	
18	Ice Wind 90 deg	None					24	32	
19	Ice Wind 120 deg	None					48	76	
20	Ice Wind 150 deg	None					48	64	
21	Ice Wind 180 deg	None					24	38	
22	Ice Wind 210 deg	None					48	64	
23	Ice Wind 240 deg	None					48	76	
24	Ice Wind 270 deg	None					24	32	
25	Ice Wind 300 deg	None					48	76	
26	Ice Wind 330 deg	None					48	64	
27	Live Load - A1	None					1		
28	Live Load - A2	None					1		
29	Live Load - A3	None					1		
30	Live Load - A4	None					1		
31	Live Load - B1	None					1		
32	Live Load - B2	None					1		
33	Live Load - B3	None					1		
34	Live Load - B4	None					1		
35	Live Load - C1	None					1		
36	Live Load - C2	None					1		
37	Live Load - C3	None					1		
38	Live Load - C4	None					1		
39	Live Load - FM-H1 (Start)	None					1		
40	Live Load - FM-H1 (Mid...)	None					1		
41	Live Load - FM-H1 (End)	None					1		
42	Live Load - FM-H2 (Start)	None					1		
43	Live Load - FM-H2 (Mid...)	None					1		
44	Live Load - FM-H2 (End)	None					1		
45	Live Load - FM-H3 (Start)	None					1		
46	Live Load - FM-H3 (Mid...)	None					1		
47	Live Load - FM-H3 (End)	None					1		
48	Live Load - HR-H1 (Start)	None					1		
49	Live Load - HR-H1 (Mid...)	None					1		
50	Live Load - HR-H1 (End)	None					1		
51	Live Load - M86 (Start)	None					1		
52	Live Load - M86 (Middle)	None					1		
53	Live Load - M86 (End)	None					1		
54	Live Load - M87 (Start)	None					1		
55	Live Load - M87 (Middle)	None					1		
56	Live Load - M87 (End)	None					1		
57	BLC 1 Transient Area L...	None						54	



Company : GPD  
 Designer : Moeller, Matt  
 Job Number : 2021777.803175.02  
 Model Name : 803175 - CT NEW BRITAIN 3 CAC 803175

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 Checked By: \_\_\_\_\_

### Basic Load Cases (Continued)

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me... Surface(...
58 BLC 14 Transient Area ...	None						54

### Load Combinations

Description	S...	PDelta	SR...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1 1.4 Dead	Yes	Y		1	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 1.2 Dead + 1.0 Wind @ 0° - N...	Yes	Y		1	1.2	2	1	0	0	0	0	0	0	0	0	0	0	0	0
3 0.9 Dead + 1.0 Wind @ 0° - N...	Yes	Y		1	.9	2	1	0	0	0	0	0	0	0	0	0	0	0	0
4 1.2 Dead + 1.0 Wind @ 30° - ...	Yes	Y		1	1.2	3	1	0	0	0	0	0	0	0	0	0	0	0	0
5 0.9 Dead + 1.0 Wind @ 30° - ...	Yes	Y		1	.9	3	1	0	0	0	0	0	0	0	0	0	0	0	0
6 1.2 Dead + 1.0 Wind @ 60° - ...	Yes	Y		1	1.2	4	1	0	0	0	0	0	0	0	0	0	0	0	0
7 0.9 Dead + 1.0 Wind @ 60° - ...	Yes	Y		1	.9	4	1	0	0	0	0	0	0	0	0	0	0	0	0
8 1.2 Dead + 1.0 Wind @ 90° - ...	Yes	Y		1	1.2	5	1	0	0	0	0	0	0	0	0	0	0	0	0
9 0.9 Dead + 1.0 Wind @ 90° - ...	Yes	Y		1	.9	5	1	0	0	0	0	0	0	0	0	0	0	0	0
10 1.2 Dead + 1.0 Wind @ 120° - ...	Yes	Y		1	1.2	6	1	0	0	0	0	0	0	0	0	0	0	0	0
11 0.9 Dead + 1.0 Wind @ 120° - ...	Yes	Y		1	.9	6	1	0	0	0	0	0	0	0	0	0	0	0	0
12 1.2 Dead + 1.0 Wind @ 150° - ...	Yes	Y		1	1.2	7	1	0	0	0	0	0	0	0	0	0	0	0	0
13 0.9 Dead + 1.0 Wind @ 150° - ...	Yes	Y		1	.9	7	1	0	0	0	0	0	0	0	0	0	0	0	0
14 1.2 Dead + 1.0 Wind @ 180° - ...	Yes	Y		1	1.2	8	1	0	0	0	0	0	0	0	0	0	0	0	0
15 0.9 Dead + 1.0 Wind @ 180° - ...	Yes	Y		1	.9	8	1	0	0	0	0	0	0	0	0	0	0	0	0
16 1.2 Dead + 1.0 Wind @ 210° - ...	Yes	Y		1	1.2	9	1	0	0	0	0	0	0	0	0	0	0	0	0
17 0.9 Dead + 1.0 Wind @ 210° - ...	Yes	Y		1	.9	9	1	0	0	0	0	0	0	0	0	0	0	0	0
18 1.2 Dead + 1.0 Wind @ 240° - ...	Yes	Y		1	1.2	10	1	0	0	0	0	0	0	0	0	0	0	0	0
19 0.9 Dead + 1.0 Wind @ 240° - ...	Yes	Y		1	.9	10	1	0	0	0	0	0	0	0	0	0	0	0	0
20 1.2 Dead + 1.0 Wind @ 270° - ...	Yes	Y		1	1.2	11	1	0	0	0	0	0	0	0	0	0	0	0	0
21 0.9 Dead + 1.0 Wind @ 270° - ...	Yes	Y		1	.9	11	1	0	0	0	0	0	0	0	0	0	0	0	0
22 1.2 Dead + 1.0 Wind @ 300° - ...	Yes	Y		1	1.2	12	1	0	0	0	0	0	0	0	0	0	0	0	0
23 0.9 Dead + 1.0 Wind @ 300° - ...	Yes	Y		1	.9	12	1	0	0	0	0	0	0	0	0	0	0	0	0
24 1.2 Dead + 1.0 Wind @ 330° - ...	Yes	Y		1	1.2	13	1	0	0	0	0	0	0	0	0	0	0	0	0
25 0.9 Dead + 1.0 Wind @ 330° - ...	Yes	Y		1	.9	13	1	0	0	0	0	0	0	0	0	0	0	0	0
26 1.2 Dead + 1.0 Ice Wind @ 0°...	Yes	Y		1	1.2	15	1	14	1	1	0	0	0	0	0	0	0	0	0
27 1.2 Dead + 1.0 Ice Wind @ 30...	Yes	Y		1	1.2	16	1	14	1	1	0	0	0	0	0	0	0	0	0
28 1.2 Dead + 1.0 Ice Wind @ 60...	Yes	Y		1	1.2	17	1	14	1	1	0	0	0	0	0	0	0	0	0
29 1.2 Dead + 1.0 Ice Wind @ 90...	Yes	Y		1	1.2	18	1	14	1	1	0	0	0	0	0	0	0	0	0
30 1.2 Dead + 1.0 Ice Wind @ 12...	Yes	Y		1	1.2	19	1	14	1	1	0	0	0	0	0	0	0	0	0
31 1.2 Dead + 1.0 Ice Wind @ 15...	Yes	Y		1	1.2	20	1	14	1	1	0	0	0	0	0	0	0	0	0
32 1.2 Dead + 1.0 Ice Wind @ 18...	Yes	Y		1	1.2	21	1	14	1	1	0	0	0	0	0	0	0	0	0
33 1.2 Dead + 1.0 Ice Wind @ 21...	Yes	Y		1	1.2	22	1	14	1	1	0	0	0	0	0	0	0	0	0
34 1.2 Dead + 1.0 Ice Wind @ 24...	Yes	Y		1	1.2	23	1	14	1	1	0	0	0	0	0	0	0	0	0
35 1.2 Dead + 1.0 Ice Wind @ 27...	Yes	Y		1	1.2	24	1	14	1	1	0	0	0	0	0	0	0	0	0
36 1.2 Dead + 1.0 Ice Wind @ 30...	Yes	Y		1	1.2	25	1	14	1	1	0	0	0	0	0	0	0	0	0
37 1.2 Dead + 1.0 Ice Wind @ 33...	Yes	Y		1	1.2	26	1	14	1	1	0	0	0	0	0	0	0	0	0
38 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	2	.06	0	0	0	0	0	0	0	0	0	0
39 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	3	.06	0	0	0	0	0	0	0	0	0	0
40 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	4	.06	0	0	0	0	0	0	0	0	0	0
41 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	5	.06	0	0	0	0	0	0	0	0	0	0
42 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	6	.06	0	0	0	0	0	0	0	0	0	0
43 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	7	.06	0	0	0	0	0	0	0	0	0	0
44 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	8	.06	0	0	0	0	0	0	0	0	0	0
45 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	9	.06	0	0	0	0	0	0	0	0	0	0
46 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	10	.06	0	0	0	0	0	0	0	0	0	0
47 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	11	.06	0	0	0	0	0	0	0	0	0	0
48 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	12	.06	0	0	0	0	0	0	0	0	0	0
49 1.2 Dead + 1.5 Live_M - A1 + ...	Yes	Y		1	1.2	27	1.5	13	.06	0	0	0	0	0	0	0	0	0	0
50 1.2 Dead + 1.5 Live_M - A2 + ...	Yes	Y		1	1.2	28	1.5	2	.06	0	0	0	0	0	0	0	0	0	0
51 1.2 Dead + 1.5 Live_M - A2 + ...	Yes	Y		1	1.2	28	1.5	3	.06	0	0	0	0	0	0	0	0	0	0







### Load Combinations (Continued)

	Description	S...	P	Delta	SR	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
109	1.2 Dead + 1.5 Live_M - B2 + ...	Yes	Y			1	1.2	32	1.5	13	.06	0		0	0	0	0			
110	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	2	.06	0		0	0	0	0			
111	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	3	.06	0		0	0	0	0			
112	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	4	.06	0		0	0	0	0			
113	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	5	.06	0		0	0	0	0			
114	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	6	.06	0		0	0	0	0			
115	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	7	.06	0		0	0	0	0			
116	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	8	.06	0		0	0	0	0			
117	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	9	.06	0		0	0	0	0			
118	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	10	.06	0		0	0	0	0			
119	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	11	.06	0		0	0	0	0			
120	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	12	.06	0		0	0	0	0			
121	1.2 Dead + 1.5 Live_M - B3 + ...	Yes	Y			1	1.2	33	1.5	13	.06	0		0	0	0	0			
122	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	2	.06	0		0	0	0	0			
123	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	3	.06	0		0	0	0	0			
124	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	4	.06	0		0	0	0	0			
125	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	5	.06	0		0	0	0	0			
126	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	6	.06	0		0	0	0	0			
127	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	7	.06	0		0	0	0	0			
128	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	8	.06	0		0	0	0	0			
129	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	9	.06	0		0	0	0	0			
130	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	10	.06	0		0	0	0	0			
131	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	11	.06	0		0	0	0	0			
132	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	12	.06	0		0	0	0	0			
133	1.2 Dead + 1.5 Live_M - B4 + ...	Yes	Y			1	1.2	34	1.5	13	.06	0		0	0	0	0			
134	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	2	.06	0		0	0	0	0			
135	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	3	.06	0		0	0	0	0			
136	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	4	.06	0		0	0	0	0			
137	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	5	.06	0		0	0	0	0			
138	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	6	.06	0		0	0	0	0			
139	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	7	.06	0		0	0	0	0			
140	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	8	.06	0		0	0	0	0			
141	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	9	.06	0		0	0	0	0			
142	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	10	.06	0		0	0	0	0			
143	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	11	.06	0		0	0	0	0			
144	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	12	.06	0		0	0	0	0			
145	1.2 Dead + 1.5 Live_M - C1 + ...	Yes	Y			1	1.2	35	1.5	13	.06	0		0	0	0	0			
146	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	2	.06	0		0	0	0	0			
147	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	3	.06	0		0	0	0	0			
148	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	4	.06	0		0	0	0	0			
149	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	5	.06	0		0	0	0	0			
150	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	6	.06	0		0	0	0	0			
151	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	7	.06	0		0	0	0	0			
152	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	8	.06	0		0	0	0	0			
153	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	9	.06	0		0	0	0	0			
154	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	10	.06	0		0	0	0	0			
155	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	11	.06	0		0	0	0	0			
156	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	12	.06	0		0	0	0	0			
157	1.2 Dead + 1.5 Live_M - C2 + ...	Yes	Y			1	1.2	36	1.5	13	.06	0		0	0	0	0			
158	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	2	.06	0		0	0	0	0			
159	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	3	.06	0		0	0	0	0			
160	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	4	.06	0		0	0	0	0			
161	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	5	.06	0		0	0	0	0			
162	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	6	.06	0		0	0	0	0			
163	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	7	.06	0		0	0	0	0			
164	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	8	.06	0		0	0	0	0			
165	1.2 Dead + 1.5 Live_M - C3 + ...	Yes	Y			1	1.2	37	1.5	9	.06	0		0	0	0	0			





Company : GPD  
 Designer : Moeller, Matt  
 Job Number : 2021777.803175.02  
 Model Name : 803175 - CT NEW BRITAIN 3 CAC 803175

Mar 14, 2021  
 1:11 PM  
 Checked By: \_\_\_\_\_

**Joint Coordinates and Temperatures (Continued)**

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
19	N25	48.691	4	81	0	
20	N26	45.716928	0	79.184042	0	
21	N27	42.659859	0	73.889044	0	
22	N28	48.691	4	70.407	0	
23	N29	36.630066	4	77.371	0	
24	N30	16.467329	0	28.522	0	
25	N31	45.695	4	11.647	0	
26	N32	46.477	4	13	0	
27	N33	48.691	4	11.722	0	
28	N34	8.467	0	14.665	0	
29	N35	-12.761	4	45.397	0	
30	N36	-11.98	4	46.75	0	
31	N37	-14.193729	4	48.027844	0	
32	N46	48.691	4	-81	0	
33	N47	45.803	4	-82.667	0	
34	N48	45.716928	0	-79.184042	0	
35	N49	42.659859	0	-73.889044	0	
36	N50	36.630066	4	-77.371	0	
37	N51	48.691	4	-70.407	0	
38	N52	16.467329	0	-28.522	0	
39	N53	-12.761	4	-45.397	0	
40	N54	-11.98	4	-46.75	0	
41	N55	-14.193729	4	-48.027844	0	
42	N56	8.467	0	-14.665	0	
43	N57	45.695	4	-11.647	0	
44	N58	46.477	4	-13	0	
45	N59	48.691	4	-11.722	0	
46	N68	-32.934	4	0.	0	
47	N69	16.467	4	28.522	0	
48	N70	16.467	4	-28.522	0	
49	N71	-85.32	2	6.964	0	
50	N72	-85.32	2	-6.964	0	
51	N73	48.691	2	70.407	0	
52	N74	36.629	2	77.371	0	
53	N75	36.629	2	-77.371	0	
54	N76	48.691	2	-70.407	0	
55	N77	-85.32	2	0.	0	
56	N78	42.66	2	73.889	0	
57	N79	42.66	2	-73.889	0	
58	N81	-94.493	40	1.667	0	
59	N82	-85.32	40	6.963038	0	
60	N83	-85.32	40	-6.963038	0	
61	N85	48.691	40	81	0	
62	N86	48.691	40	70.407	0	
63	N87	36.629533	40	77.370692	0	
64	N88	48.691	40	-93	0	
65	N89	45.803	40	-82.667	0	
66	N90	36.629533	40	-77.370692	0	
67	N91	48.691	40	-70.407	0	
68	N92	51.628	40	-78	0	
69	N93	48.691	40	-78	0	
70	N128	51.628	57	-78	0	
71	N140	51.628	-51	-78	0	
72	N147A	56.194863	40	88.667643	0	
73	N149A	-104.885863	40	4.332357	0	
74	N74A	51.628	4	-26	0	
75	N75A	48.691	4	-26	0	



Company : GPD  
 Designer : Moeller, Matt  
 Job Number : 2021777.803175.02  
 Model Name : 803175 - CT NEW BRITAIN 3 CAC 803175

Mar 14, 2021  
 1:11 PM  
 Checked By: \_\_\_\_\_

**Joint Coordinates and Temperatures (Continued)**

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
76	N76A	51.628	40	-26	0	
77	N77A	48.691	40	-26	0	
78	N78A	51.628	66.5	-26	0	
79	N79A	51.628	-41.5	-26	0	
80	N80	51.628	4	26	0	
81	N81A	48.691	4	26	0	
82	N82A	51.628	40	26	0	
83	N83A	48.691	40	26	0	
84	N84	51.628	57	26	0	
85	N85A	51.628	-3	26	0	
86	N86A	51.628	4	78	0	
87	N87A	48.691	4	78	0	
88	N88A	51.628	40	78	0	
89	N89A	48.691	40	78	0	
90	N90A	51.628	57	78	0	
91	N91A	51.628	-51	78	0	
92	N93A	41.735981	4	83.71116	0	
93	N94	43.204481	4	81.167643	0	
94	N95	41.735981	40	83.71116	0	
95	N96	43.204481	40	81.167643	0	
96	N97	41.735981	57	83.71116	0	
97	N98	41.735981	-51	83.71116	0	
98	N99	-93.363981	4	5.71116	0	
99	N100	-91.895481	4	3.167643	0	
100	N101	-93.363981	40	5.71116	0	
101	N102	-91.895481	40	3.167643	0	
102	N103	-93.363981	57	5.71116	0	
103	N104	-93.363981	-51	5.71116	0	
104	N106	-93.363981	4	-5.71116	0	
105	N107	-91.895481	4	-3.167643	0	
106	N108	-93.363981	40	-5.71116	0	
107	N109	-91.895481	40	-3.167643	0	
108	N110	-93.363981	57	-5.71116	0	
109	N111	-93.363981	-51	-5.71116	0	
110	N112	41.735981	4	-83.71116	0	
111	N113	43.204481	4	-81.167643	0	
112	N114	41.735981	40	-83.71116	0	
113	N115	43.204481	40	-81.167643	0	
114	N116	41.735981	57	-83.71116	0	
115	N117	41.735981	-51	-83.71116	0	
116	N116A	7.960991	4	64.21116	0	
117	N117A	9.429491	4	61.667643	0	
118	N118	7.960991	40	64.21116	0	
119	N119	9.429491	40	61.667643	0	
120	N120	7.960991	57	64.21116	0	
121	N121	7.960991	-3	64.21116	0	
122	N122	-25.814	4	44.71116	0	
123	N123	-24.3455	4	42.167643	0	
124	N124	-25.814	40	44.71116	0	
125	N125	-24.3455	40	42.167643	0	
126	N126	-25.814	57	44.71116	0	
127	N127	-25.814	-51	44.71116	0	
128	N128A	-48.33066	4	-31.71116	0	
129	N129	-46.86216	4	-29.167643	0	
130	N130	-48.33066	40	-31.71116	0	
131	N131	-46.86216	40	-29.167643	0	
132	N132	-48.33066	61	-31.71116	0	



**Joint Coordinates and Temperatures (Continued)**

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
133	N133	-48.33066	-47	-31.71116	0	
134	N134	-3.29734	4	-57.71116	0	
135	N135	-1.82884	4	-55.167643	0	
136	N136	-3.29734	40	-57.71116	0	
137	N137	-1.82884	40	-55.167643	0	
138	N138	-3.29734	57	-57.71116	0	
139	N139	-3.29734	-51	-57.71116	0	
140	N140A	-16.934	-36	0.	0	
141	N141	8.467	-36	14.665	0	
142	N142	8.467	-36	-14.665	0	
143	N143	-46.934	0	0.	0	
144	N144	23.466952	0	-40.64579	0	
145	N145	23.466952	0	40.64579	0	

**Envelope AISC 15th(360-16): LRFD Steel Code Checks**

Mem...	Shape	Code Check	Loc[in]	LC	She...	L.....	phi*Pn...	phi*P...	phi*Mn y-y...	phi*Mn z-z .....	Eqn
1	M91 L4X4X4	.853	34.091	29	.095	3...z	48250...	62532	3.138	6.097	H2-1
2	M92 L4X4X4	.850	33.409	34	.094	3...z	48250...	62532	3.138	6.103	H2-1
3	M93 L4X4X4	.819	34.091	26	.091	3...z	48250...	62532	3.138	6.093	H2-1
4	C2 P2 STD	.636	57.818	11	.076	5...8	12894...	3384...	1.997	1.997	H1-1b
5	M12 PL1/2"x6-1...	.587	7.034	36	.235	6...y	98853...	1053...	1.097	14.259	H1-1b
6	A2 P2 STD	.536	63.273	16	.110	6...y	12894...	3384...	1.997	1.997	H1-1b
7	M11 PL1/2"x6-1...	.528	7.034	32	.216	6...y	98853...	1053...	1.097	14.259	H1-1b
8	M10 PL1/2"x6-1...	.527	6.894	29	.204	7...y	98853...	1053...	1.097	14.259	H1-1b
9	B3 P2 STD	.302	52.364	2	.091	5...y	12894...	3384...	1.997	1.997	H1-1b
10	FM-H3 L6X3.5X5	.296	119.4...	29	.206	1...y	62958...	93636	3.396	10.653	H2-1
11	FM-H1 L6X3.5X5	.288	106.3...	26	.187	1...y	62958...	93636	3.396	10.011	H2-1
12	FM-H2 L6X3.5X5	.285	106.3...	33	.188	1...y	62958...	93636	3.396	10.141	H2-1
13	H1 HSS4x4x1/...	.282	30.101	34	.104	2...y	14884...	1552...	18.22	18.22	H1-1b
14	M22 L2.5x2.5x4	.280	13.927	22	.061	0 y	36898...	38556	1.114	2.537	H2-1
15	M86 P2 STD	.273	121.2...	24	.154	1...y	4967.6...	3481...	2.054	2.054	H1-1b
16	M16 PL3/8"x4"	.267	0	29	.438	0 y	47193...	48600	.38	4.05	H1-1b
17	H2 HSS4x4x1/...	.259	30.101	29	.093	2...y	14884...	1552...	18.22	18.22	H1-1b
18	M14 PL3/8"x4"	.255	2.556	37	.421	2...y	47194...	48600	.38	4.05	H1-1b
19	A3 P2 STD	.249	52.727	20	.078	5...y	25140...	3384...	1.997	1.997	H1-1b
20	M18 PL3/8"x4"	.246	0	37	.427	0 y	47194...	48600	.38	4.05	H1-1b
21	C3 P2 STD	.245	52.364	12	.072	5...8	12894...	3384...	1.997	1.997	H1-1b
22	C1 P2 STD	.243	52.364	22	.076	5...8	12894...	3384...	1.997	1.997	H1-1b
23	M17 PL3/8"x4"	.242	2.556	32	.453	2...y	47193...	48600	.38	4.05	H1-1b
24	A1 P2 STD	.237	52.364	6	.083	5...2	12894...	3384...	1.997	1.997	H1-1b
25	M15 PL3/8"x4"	.237	2.556	28	.447	2...y	47194...	48600	.38	4.05	H1-1b
26	B1 P2 STD	.236	52.364	14	.132	2...y	12894...	3384...	1.997	1.997	H1-1b
27	H3 HSS4x4x1/...	.235	30.101	26	.089	2...y	14884...	1552...	18.22	18.22	H1-1b
28	M13 PL3/8"x4"	.223	0	36	.431	0 y	47194...	48600	.38	4.05	H1-1b
29	M87 P2 STD	.215	159.9...	199	.113	1...8	4967.6...	3481...	2.054	2.054	H1-1b
30	HR-H1 P2 STD	.215	159.9...	193	.133	1...y	4967.6...	3481...	2.054	2.054	H1-1b
31	B2 P2 STD	.202	52.727	2	.098	1...y	25140...	3384...	1.997	1.997	H1-1b
32	M24 L2.5x2.5x4	.182	13.926	26	.045	0 z	36898...	38556	1.114	2.537	H2-1
33	M23 L2.5x2.5x4	.178	13.927	14	.043	0 z	36898...	38556	1.114	2.537	H2-1
34	C4 P2 STD	.163	52.364	14	.064	5...y	12894...	3384...	1.997	1.997	H1-1b
35	A4 P2 STD	.160	52.364	20	.101	5...y	12894...	3384...	1.997	1.997	H1-1b
36	M80 LL2.5x2.5x...	.159	0	35	.002	4...y	44784...	58320	3.954	2.55	H1-1b*
37	B4 P2 STD	.157	52.364	2	.062	5...8	12894...	3384...	1.997	1.997	H1-1b
38	M79 LL2.5x2.5x...	.148	0	30	.002	0 z	44784...	58320	3.954	2.55	H1-1b*
39	M81 LL2.5x2.5x...	.137	0	26	.002	0 y	44784...	58320	3.954	2.55	H1-1b*

**Envelope AISC 15th(360-16): LRFD Steel Code Checks**

Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
1	M91	L4X4X4	0.853	1.05	0.812*	34.09	29	0.095	1.05	0.09*	34.09	48250.371	62532	3.138	6.097	1.302	H2-1
2	M92	L4X4X4	0.85	1.05	0.81*	33.41	34	0.094	1.05	0.09*	34.09	48250.371	62532	3.138	6.103	1.309	H2-1
3	M93	L4X4X4	0.819	1.05	0.78*	34.09	26	0.091	1.05	0.087*	34.09	48250.329	62532	3.138	6.093	1.299	H2-1
4	C2	P2 STD	0.668	1.05	0.636*	57.82	11	0.08	1.05	0.076*	56.73	12894.412	33847.758	1.997	1.997	1.702	H1-1b
5	M12	PL1/2"x6-1/2"	0.587	1.05	0.559*	7.034	36	0.235	1.05	0.224*	6.894	98853.582	105300	1.097	14.259	1.317	H1-1b
6	A2	P2 STD	0.563	1.05	0.536*	63.27	16	0.116	1.05	0.11*	62.18	12894.412	33847.758	1.997	1.997	1.699	H1-1b
7	M11	PL1/2"x6-1/2"	0.528	1.05	0.503*	7.034	32	0.216	1.05	0.206*	6.894	98853.582	105300	1.097	14.259	1.282	H1-1b
8	M10	PL1/2"x6-1/2"	0.527	1.05	0.502*	6.894	29	0.204	1.05	0.194*	7.034	98853.582	105300	1.097	14.259	1.306	H1-1b
9	B3	P2 STD	0.316	1.05	0.301*	52.36	2	0.095	1.05	0.09*	52.36	12894.412	33847.758	1.997	1.997	1.476	H1-1b
10	FM-H3	L6X3.5X5	0.296	1.05	0.282*	119.5	29	0.206	1.05	0.196*	152.2	62958.91	93636	3.396	10.653	2.286	H2-1
11	M22	L2.5x2.5x4	0.291	1.05	0.277*	13.93	22	0.064	1.05	0.061*	0.281	36898.018	38556	1.114	2.537	2.071	H2-1
12	FM-H1	L6X3.5X5	0.288	1.05	0.274*	106.4	26	0.187	1.05	0.178*	152.2	62958.91	93636	3.396	10.011	1.784	H2-1
13	M86	P2 STD	0.286	1.05	0.272*	121.3	24	0.162	1.05	0.154*	151.2	4967.654	34814.837	2.054	2.054	1.865	H1-1b
14	FM-H2	L6X3.5X5	0.285	1.05	0.271*	106.4	33	0.188	1.05	0.179*	152.2	62958.91	93636	3.396	10.141	1.871	H2-1
15	H1	HSS4x4x1/4_HRA_HRA	0.282	1.05	0.269*	30.1	34	0.104	1.05	0.099*	29.35	148849.17	155250	18.22	18.22	1.795	H1-1b
16	M16	PL3/8"x4"	0.267	1.05	0.254*	0	29	0.438	1.05	0.417*	0	47193.946	48600	0.38	4.05	1.577	H1-1b
17	A3	P2 STD	0.261	1.05	0.249*	52.73	20	0.082	1.05	0.078*	52.73	25140.493	33847.758	1.997	1.997	2.572	H1-1b
18	H2	HSS4x4x1/4_HRA_HRA	0.259	1.05	0.247*	30.1	29	0.093	1.05	0.089*	29.35	148849.17	155250	18.22	18.22	1.826	H1-1b
19	C3	P2 STD	0.256	1.05	0.244*	52.36	12	0.075	1.05	0.071*	52.36	12894.412	33847.758	1.997	1.997	3.29	H1-1b
20	M14	PL3/8"x4"	0.255	1.05	0.243*	2.556	37	0.421	1.05	0.401*	2.556	47194.645	48600	0.38	4.05	1.59	H1-1b
21	C1	P2 STD	0.253	1.05	0.241*	52.36	22	0.08	1.05	0.076*	52.36	12894.412	33847.758	1.997	1.997	2.01	H1-1b
22	A1	P2 STD	0.248	1.05	0.236*	52.36	6	0.087	1.05	0.083*	52.36	12894.412	33847.758	1.997	1.997	2.131	H1-1b
23	B1	P2 STD	0.247	1.05	0.235*	52.36	14	0.139	1.05	0.132*	27.27	12894.412	33847.758	1.997	1.997	2.002	H1-1b
24	M18	PL3/8"x4"	0.246	1.05	0.234*	0	37	0.427	1.05	0.407*	0	47194.285	48600	0.38	4.05	1.598	H1-1b
25	M17	PL3/8"x4"	0.242	1.05	0.23*	2.556	32	0.453	1.05	0.431*	2.556	47193.946	48600	0.38	4.05	1.519	H1-1b
26	M15	PL3/8"x4"	0.237	1.05	0.226*	2.556	28	0.447	1.05	0.426*	2.556	47194.285	48600	0.38	4.05	1.554	H1-1b
27	H3	HSS4x4x1/4_HRA_HRA	0.235	1.05	0.224*	30.1	26	0.089	1.05	0.085*	29.35	148849.15	155250	18.22	18.22	1.842	H1-1b
28	M13	PL3/8"x4"	0.223	1.05	0.212*	0	36	0.431	1.05	0.41*	0	47194.645	48600	0.38	4.05	1.481	H1-1b
29	M87	P2 STD	0.215	1.05	0.205*	159.9	199	0.118	1.05	0.112*	151.2	4967.642	34814.837	2.054	2.054	4.199	H1-1b
30	HR-H1	P2 STD	0.215	1.05	0.205*	159.9	193	0.14	1.05	0.133*	151.2	4967.645	34814.837	2.054	2.054	4.168	H1-1b
31	B2	P2 STD	0.212	1.05	0.202*	52.73	2	0.102	1.05	0.097*	17.58	25140.493	33847.758	1.997	1.997	2.129	H1-1b
32	M23	L2.5x2.5x4	0.185	1.05	0.176*	13.93	14	0.045	1.05	0.043*	0	36898.018	38556	1.114	2.537	2.159	H2-1
33	M24	L2.5x2.5x4	0.182	1.05	0.173*	13.93	26	0.048	1.05	0.046*	0	36898.322	38556	1.114	2.537	1.09	H2-1
34	C4	P2 STD	0.17	1.05	0.162*	52.36	14	0.067	1.05	0.064*	52.36	12894.412	33847.758	1.997	1.997	1.862	H1-1b
35	A4	P2 STD	0.167	1.05	0.159*	52.36	20	0.105	1.05	0.1*	52.36	12894.412	33847.758	1.997	1.997	4.842	H1-1b
36	B4	P2 STD	0.164	1.05	0.156*	52.36	2	0.065	1.05	0.062*	52.36	12894.412	33847.758	1.997	1.997	1.636	H1-1b
37	M80	LL2.5x2.5x3x3	0.159	1.05	0.151*	0	35	0.002	1.05	0.002*	46.86	44784.16	58320	3.954	2.55	1.14	H1-1b*
38	M79	LL2.5x2.5x3x3	0.148	1.05	0.141*	0	30	0.003	1.05	0.003*	0	44784.16	58320	3.954	2.55	1.14	H1-1b*
39	M81	LL2.5x2.5x3x3	0.137	1.05	0.13*	0	26	0.002	1.05	0.002*	0	44784.16	58320	3.954	2.55	1	H1-1b*

\*Rating per TIA-222-H, Section 15.5&

**APPENDIX D**  
**ADDITIONAL CALCULATIONS**





**TIA-222-H CONNECTION CHECK**  
**Kicker to Tower Connection - Typ. All Sectors**  
**2021777.803175.02**

Bolt Information		
Bolt Diameter (d)	0.625	in
Net Tensile Area (A <sub>n</sub> )	0.226	in <sup>2</sup>
# of Bolts Total (n)	4	
Bolt Distance Up-Down	6	in
Bolt Distance Left-Right	6	in
Bolt Grade	A325N	
Bolt Tensile Strength (F <sub>ub</sub> )	120	ksi

RISA 3D Reactions		
Moment (M)	0.00	k-ft
Axial (T)	2.27	kips
Shear (V)	6.76	kips

Bolt Capacity		
Nominal Tensile Strength (R <sub>nt</sub> )	27.120	kips
Nominal Shear Strength (R <sub>nv</sub> )	18.41	kips
Bolt Tensile Force (T <sub>ub</sub> )	0.57	kips
Bolt Shear Force (V <sub>ub</sub> )	1.690	kips
T <sub>ub</sub> /φR <sub>nt</sub>	0.02652	
V <sub>ub</sub> /φR <sub>nv</sub>	0.11655	
(V <sub>ub</sub> /φR <sub>nv</sub> ) <sup>2</sup> +(T <sub>ub</sub> /φR <sub>nt</sub> ) <sup>2</sup>	0.01500	
<b>Bolt Capacity =</b>	<b>11.7%</b>	<b>OK</b>

\*Rating per TIA-222-H, Section 15.5



**TIA-222-H CONNECTION CHECK**  
**Mount to Tower Connection - Typ. All Sectors**  
**2021777.803175.02**

Bolt Information	
Bolt Diameter (d)	0.625 in
Net Tensile Area (A <sub>n</sub> )	0.226 in <sup>2</sup>
# of Bolts Total (n)	4
Bolt Distance Up-Down	6 in
Bolt Distance Left-Right	6 in
Bolt Grade	A325N
Bolt Tensile Strength (F <sub>ub</sub> )	120 ksi

Flange Information	
Height (h)	8.5 in
Width (w)	8.5 in
Thickness (t)	0.75 in
Steel Grade	A36
Plate Yield Strength (F <sub>y</sub> )	36 ksi
Support Arm Height	4 in
Support Arm Width	4 in

RISA 3D Reactions (Up-Down)	
Moment (M)	0.35 k-ft
Axial (T)	3.54 kips
Shear (V)	0.85 kips

RISA 3D Reactions (Left -Right)	
Moment (M)	1.83 k-ft
Axial (T)	0.06 kips
Shear (V)	1.62 kips

Bolt Capacity (Up-Down)	
Nominal Tensile Strength (R <sub>nt</sub> )	27.120 kips
Nominal Shear Strength (R <sub>nv</sub> )	18.41 kips
Bolt Tensile Force (T <sub>ub</sub> )	1.23 kips
Bolt Shear Force (V <sub>ub</sub> )	0.213 kips
T <sub>ub</sub> /φR <sub>nt</sub>	0.05779
V <sub>ub</sub> /φR <sub>nv</sub>	0.01469
(V <sub>ub</sub> /φR <sub>nv</sub> ) <sup>2</sup> +(T <sub>ub</sub> /φR <sub>nt</sub> ) <sup>2</sup>	0.00373
<b>Bolt Capacity =</b>	5.8% <b>OK</b>

Bolt Capacity (Left-Right)	
Nominal Tensile Strength (R <sub>nt</sub> )	27.120 kips
Nominal Shear Strength (R <sub>nv</sub> )	18.41 kips
Bolt Tensile Force (T <sub>ub</sub> )	1.84 kips
Bolt Shear Force (V <sub>ub</sub> )	0.405 kips
T <sub>ub</sub> /φR <sub>nt</sub>	0.08633
V <sub>ub</sub> /φR <sub>nv</sub>	0.02794
(V <sub>ub</sub> /φR <sub>nv</sub> ) <sup>2</sup> +(T <sub>ub</sub> /φR <sub>nt</sub> ) <sup>2</sup>	0.00865
<b>Bolt Capacity =</b>	8.6% <b>OK</b>

\*Rating per TIA-222-H, Section 15.5

\*Rating per TIA-222-H, Section 15.5

Plate Capacity (Up-Down)	
Bolt Circle (D <sub>BC</sub> )	8.485 in
Effective Width (B <sub>eff</sub> )	7.48 in
Flexural Moment (M <sub>u</sub> )	2.47 k-in
Flexural Strength (φM <sub>n</sub> )	34.10 k-in
<b>Plate Capacity=</b>	6.9% <b>OK</b>

Plate Capacity (Left-Right)	
Bolt Circle (D <sub>BC</sub> )	8.485 in
Effective Width (B <sub>eff</sub> )	7.48 in
Flexural Moment (M <sub>u</sub> )	3.69 k-in
Flexural Strength (φM <sub>n</sub> )	34.10 k-in
<b>Plate Capacity=</b>	10.3% <b>OK</b>

\*Rating per TIA-222-H, Section 15.5

\*Rating per TIA-222-H, Section 15.5

**APPENDIX E**  
**MOUNT MODIFICATION DESIGN DRAWINGS (MDD)**

# MOUNT DESIGN DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: CT NEW BRITAIN 3 CAC 803175  
BU NUMBER: 803175

SITE ADDRESS:  
167 COCCOMO  
NEW BRITAIN, CT 06051  
HARTFORD COUNTY, USA

## TOWER INFORMATION

TOWER HEIGHT / TYPE: 188.0 FT MONOPOLE  
TOWER LOCATION: LAT: 41° 41' 11.80"  
DATUM: (NAD 1983) LONG: -72° 45' 27.80"  
WORK ORDER #: CCI/WO #: N/A  
ORDER #: 541332 REV #: 0  
SITE ADDRESS: 167 COCCOMO  
NEW BRITAIN, CT 06051  
HARTFORD COUNTY, USA

## CODE COMPLIANCE

GOVERNING CODES: TIA-222-H  
WIND SPEEDS: 125 MPH 3 SECOND GUST  
50 MPH 3 SECOND GUST (W/ ICE)  
ICE THICKNESS: NA  
RISK CATEGORY: II  
EXPOSURE CATEGORY: C  
TOPO CATEGORY: 1.0

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

PERFORMED WORK SHALL NOT DAMAGE ANY EXISTING STRUCTURE, MOUNTS, SAFETY CLIMB, OR EQUIPMENT WHILE ON SITE. SHOULD DAMAGE OCCUR, CONTACT CROWN EOR AT EORAPPROVAL@CROWNCastle.COM



### SAFETY CLIMB: 'LOOK UP'

THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENT AND EQUIPMENT INSTALLATION SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, OR IMPACT THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

## DRAWINGS INCLUDED

SHEET NUMBER	DESCRIPTION
S-1	TITLE PAGE
S-2	GENERAL NOTES
S-3	MOUNT MODIFICATION SCHEDULE
S-4	DETAILS/PARTS

## PROJECT CONTACTS:

### 1. CROWN PROJECT MANAGER:

PATRICIA PELON  
(518) 373-3507  
PATRICIA.PELON@CROWNCastle.COM  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065



### 2. ENGINEER OF RECORD:

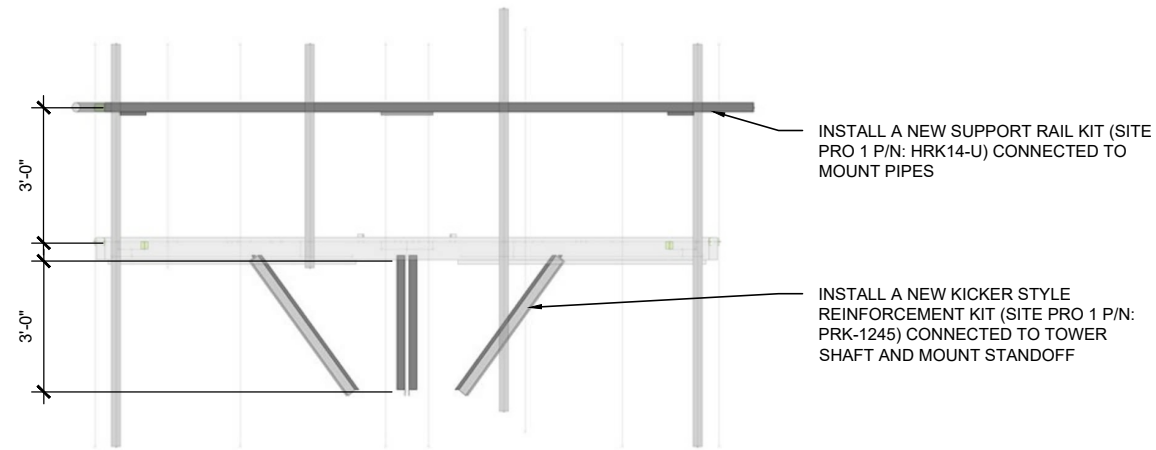
GPD ENGINEERING AND ARCHITECTURE  
PROFESSIONAL CORPORATION  
520 SOUTH MAIN STREET, SUITE 2531  
AKRON, OH 44311  
(330) 572-2100  
FOR QUESTIONS PLEASE EMAIL:  
CROWNMODS@GPDGROUP.COM

				 <small>520 South Main Street, Suite 2531 Akron, OH 44311 330.572.2100 Fax 330.572.2102</small>	
NO.	DATE	DESCRIPTION	BY		
REVISIONS					
				CARRIER: T-MOBILE	
				SITE NAME: CT NEW BRITAIN 3 CAC 803175	
				BU NUMBER: 803175 WO NUMBER: N/A	
				ENG/QA BY: MM DATE: 3/15/21	
				DFT BY: MM DATE: 3/15/21	
DFT/QA BY: DP DATE: 3/15/21					
APRVD BY: CJS DATE: 3/15/21					
SCALE: N.T.S.					
TITLE PAGE					
S-1				REV	0

**GENERAL NOTES**

1. DETAILED DRAWINGS AND NOTES SHALL GOVERN GENERAL NOTES AND TYPICAL DETAILS. CONTACT VENDOR POINT OF CONTACT (POC) AND ENGINEER OF RECORD (EOR) FOR CLARIFICATION AS NEEDED.
2. DO NOT SCALE DRAWINGS.
3. FOR THIS MODIFICATION, THE TOWER AND MOUNT HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY STRUCTURAL DEFECTS, UNO. IF THE GC DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE CROWN POC AND EOR IMMEDIATELY.
4. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR AND THE POC.
5. CONTRACTOR PERSONNEL SHALL NOT DRILL HOLES IN ANY NEW OR EXISTING STRUCTURAL MEMBERS, OTHER THAN THOSE DRILLED HOLES SHOWN ON STRUCTURAL DRAWINGS, WITHOUT THE APPROVAL OF THE EOR.
6. ANY HARDWARE REMOVED FROM THE EXISTING MOUNT SHALL BE REPLACED WITH NEW HARDWARE OF EQUAL SIZE AND QUALITY, UNO. NO EXISTING FASTENERS SHALL BE REUSED.
7. ALL JOINTS USING ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS SHALL BE SNUG TIGHTENED, UNO.
8. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED SNUG TIGHTENED ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS.
9. ALL JOINTS ARE BEARING TYPE CONNECTIONS UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANES, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT.
10. IF ASTM A325 OR A490 BOLTS, AND/OR THREADED RODS ARE SPECIFIED TO BE PRE-TENSIONED, THESE SHALL BE INSTALLED AND TIGHTENED TO THE PRE-TENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

				 <p>GPD Engineering and Architecture Professional Corporation</p> <p>520 South Main Street, Suite 2531 Akron, OH 44311 330.572.2100 Fax 330.572.2102</p>					
						GPD PROJECT NUMBER		2021777.803175.02	
						CARRIER: T-MOBILE			
						SITE NAME: CT NEW BRITAIN 3 CAC		803175	
						BU NUMBER: 803175		WO NUMBER: N/A	
NO.		DATE		DESCRIPTION		BY			
REVISIONS									
 <i>Christopher J. Schekels</i> 3/15/21				ENG/QA BY: MM		DATE: 3/15/21			
				DFT BY: MM		DATE: 3/15/21			
				DFT/QA BY: DP		DATE: 3/15/21			
				APRVD BY: CJS		DATE: 3/15/21			
				SCALE: N.T.S.					
				GENERAL NOTES					
S-2				REV		0			

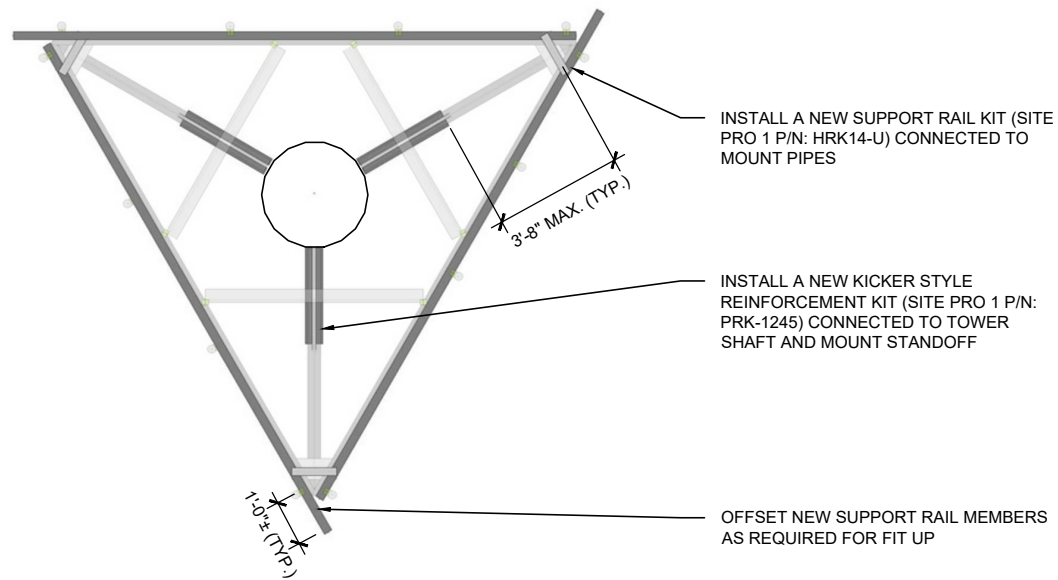


INSTALL A NEW SUPPORT RAIL KIT (SITE PRO 1 P/N: HRK14-U) CONNECTED TO MOUNT PIPES

INSTALL A NEW KICKER STYLE REINFORCEMENT KIT (SITE PRO 1 P/N: PRK-1245) CONNECTED TO TOWER SHAFT AND MOUNT STANDOFF

**1 ELEVATION**  
S-3

**NOTE:**  
1. DETAIL IS TYPICAL OF ALL (3) SECTORS, ONLY ONE SECTOR SHOWN FOR CLARITY.



INSTALL A NEW SUPPORT RAIL KIT (SITE PRO 1 P/N: HRK14-U) CONNECTED TO MOUNT PIPES

INSTALL A NEW KICKER STYLE REINFORCEMENT KIT (SITE PRO 1 P/N: PRK-1245) CONNECTED TO TOWER SHAFT AND MOUNT STANDOFF

OFFSET NEW SUPPORT RAIL MEMBERS AS REQUIRED FOR FIT UP

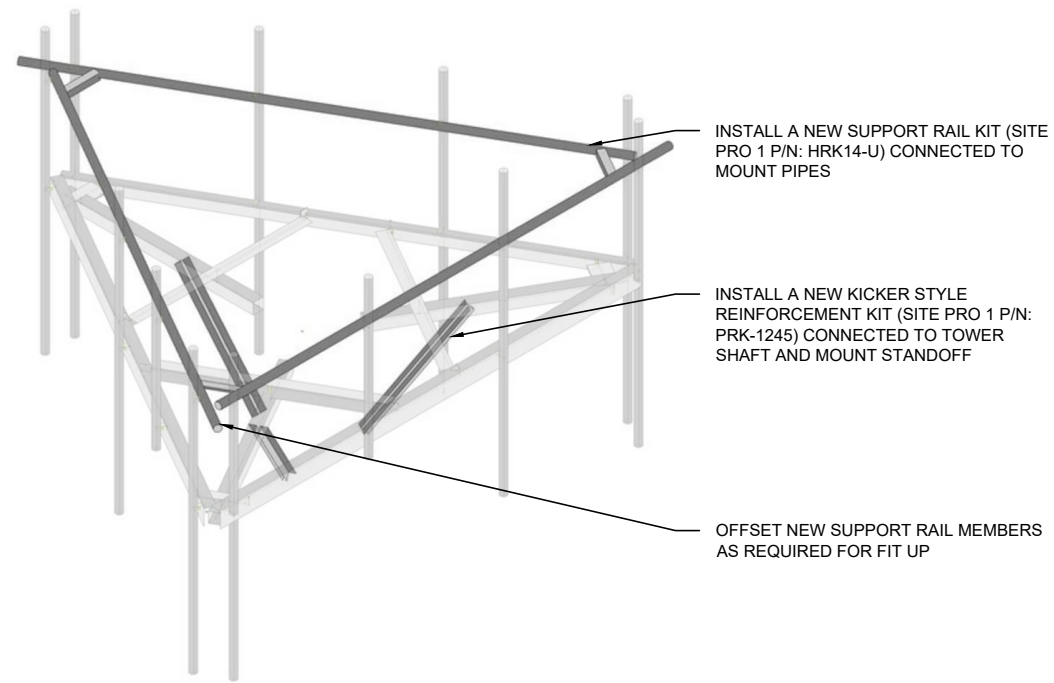
**2 PLAN VIEW**  
S-3

MOUNT MODIFICATION SCHEDULE			
	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
<b>A</b>	161.0	INSTALL A NEW SUPPORT RAIL KIT CONNECTED TO MOUNT PIPES.	S-3 & S-4
<b>B</b>	161.0	INSTALL A NEW KICKER STYLE REINFORCEMENT KIT CONNECTED TO TOWER SHAFT AND MOUNT STANDOFF.	S-3 & S-4
PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.			

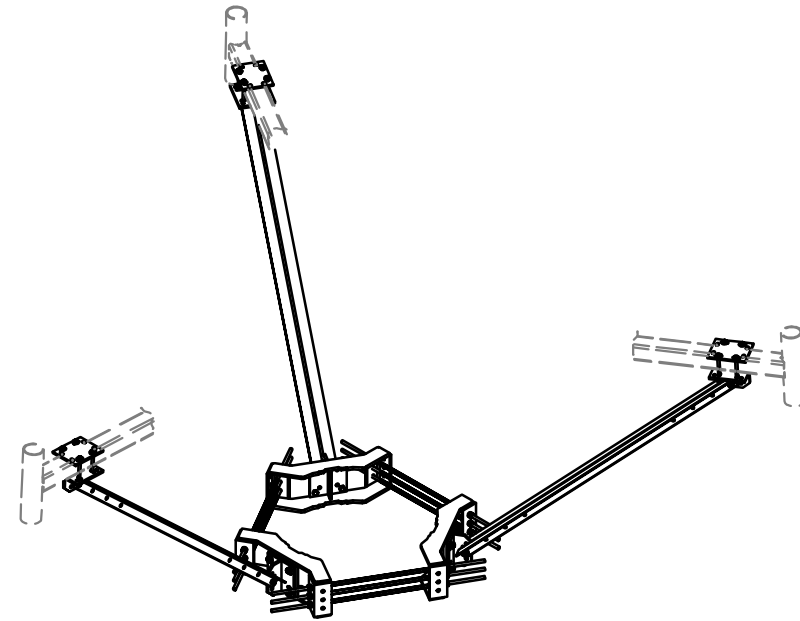
- NOTES:**
- ANY SUBSTITUTION OF PARTS SPECIFIED IN THIS DESIGN PACKAGE SHALL REQUIRE ENGINEER APPROVAL PRIOR TO FABRICATION.
  - ALL MATERIAL REMOVED FROM MOUNT SHALL BE DISPOSED OF BY CONTRACTOR OFF SITE.

- NOTES:**
- ALL PIPE TO BE ASTM A53 GRADE B (Fy = 35 KSI) MATERIAL. MATERIAL TEST REPORTS ARE REQUIRED.
  - ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A153 / A153M OR A123, AS APPLICABLE. FIELD DRILLED OR CUT MATERIAL TO BE COATED WITH TWO BRUSH COATS OF CROWN APPROVED ZINC RICH PAINT IN ACCORDANCE WITH ENG-BUL-10149 TOWER PROTECTIVE COATINGS BULLETIN.

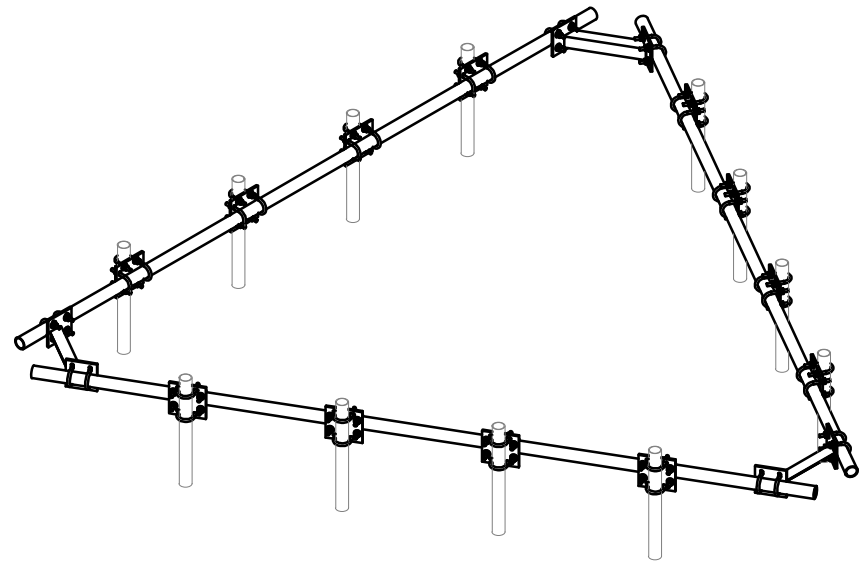
 520 South Main Street, Suite 2531 Akron, OH 44311 330.572.2100 Fax 330.572.2102			
GPD PROJECT NUMBER 2021777.803175.02			
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SCALE: N.T.S.			
 3/15/21			
<b>MOUNT MODIFICATION SCHEDULE</b>			
<b>S-3</b>			REV 0





3 ISOMETRIC VIEW  
S-4



4 PRK-1245 KICKER STYLE REINFORCEMENT  
S-4



5 HRK14-U SUPPORT RAIL KIT  
S-4

				 <b>GPD Engineering and Architecture</b> Professional Corporation <small>520 South Main Street, Suite 2531          Akron, OH 44311          330.572.2100 Fax 330.572.2102</small>	
				GPD PROJECT NUMBER 2021777.803175.02	
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				DFT/QA BY: DP    DATE: 3/15/21	
				APRVD BY: CJS    DATE: 3/15/21	
				SCALE: N.T.S.	
				 <i>Christopher J. Schekes</i> 3/15/21	
				<b>DETAILS/PARTS</b>	
				<b>S-4</b>	REV <b>0</b>

# Exhibit F

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





## Non-Ionizing Radiation Report

Compiled For: Northeast Site Solutions on behalf of T-Mobile

Site Name: CT11783B

Site ID: CT11783B

167 Cocomo Circle, New Britain, CT 06051

Latitude: 41.68667900; Longitude: -72.75785700

Structure Type: Monopole

Report Date: March 30, 2021

Report Written By: Tim Harris

Status: T-Mobile will be compliant with FCC rules on RF Exposure.

## Table of Contents

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## 1. Executive Summary:

Northeast Site Solutions on behalf of T-Mobile has contracted Infinigy Solutions, LLC to determine whether the site CT11783B located at 167 Cocomo Circle in New Britain, CT Will Be Compliant with all Federal Communications Commission (FCC) rules and regulations for radio frequency (RF) exposure as indicated in **47CFR§1.1310**.

The report incorporates a theoretical RF field analysis in accordance with the FCC Rules and Regulations for all individuals classified as “Occupational or Controlled” and “General Public or Uncontrolled” (see Appendix A and B).

This document and the conclusions herein are based on information provided by Northeast Site Solutions on behalf of T-Mobile.

As a result of the analysis, **T-Mobile Will Be Compliant with FCC rules.**

T-Mobile, All Bands Cumulative Exposure %		
Uncontrolled / General Population	Exposure values at the site (mW/cm <sup>2</sup> )	0.164
	% Exposure	1.99 %
Controlled / Occupational	Exposure values at the site (mW/cm <sup>2</sup> )	0.164
	% Exposure	0.40 %

## 2. Site Summary:

Site Information	
Site Name: CT11783B	
Site Address: 167 Coccomo Circle, New Britain, CT 06051	
Site Type: Monopole	
Compliance Status	Will Be Compliant
Mitigation Required	No
Signage Required	Yes
Barriers Required	No
Access Locked	No
Area Controlled or Uncontrolled	Uncontrolled

## 3. Site Compliance

This report also incorporates overview of the site information:

- Antenna Inventory Table
- Calculation Tables showing exposure for each carrier transmit frequency
- Total exposure for all carriers existing and proposed at ground level considering the centerline of all antennas and horizontal distance from the tower.
- Maximum Effective Radiated Power Assumed as Worst Case for Calculations used in this study
- Calculations based on flat ground around base of the structure

## 4. Site Compliance Recommendations

Infinigy recommends the following upon the installation of antennas at the site:

### **Base of tower**

Install an RF caution sign. Note: The recommendation for alerting signage is moot if there is an RF caution, or greater already installed.

## 5. Antenna Inventory Table

Ant ID	Sector	Operator	Antenna manufacturer	Antenna Model	Operating Frequency/Technology	Rad Ctr (Ft)	Az (Deg)	Total ERP Power (Watts)
1a	Alpha	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	2100 MHz LTE	163	45	4308
1b	Alpha	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	1900 MHz LTE	163	45	4070
1c	Alpha	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	1900 MHz GSM	163	45	2034
2a	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	163	45	2256
2b	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	163	45	1128
2c	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	163	45	1128
2d	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz LTE	163	45	4308
3a	Alpha	T-Mobile	Ericsson	AIR6449 B41	2500 MHz LTE	163	45	3590
3b	Alpha	T-Mobile	Ericsson	AIR6449 B41	2500 MHz 5G	163	45	3591
4a	Beta	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	2100 MHz LTE	163	170	4308
4b	Beta	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	1900 MHz LTE	163	170	4070
4c	Beta	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	1900 MHz GSM	163	170	2034
5a	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	163	170	2256
5b	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	163	170	1128
5c	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	163	170	1128
5d	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz LTE	163	170	4308
6a	Beta	T-Mobile	Ericsson	AIR6449 B41	2500 MHz LTE	163	170	3590
6b	Beta	T-Mobile	Ericsson	AIR6449 B41	2500 MHz 5G	163	170	3591
7a	Gamma	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	2100 MHz LTE	163	300	4308
7b	Gamma	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	1900 MHz LTE	163	300	4070
7c	Gamma	T-Mobile	Ericsson	AIR32 KRD901146-1_B66A_B2A	1900 MHz GSM	163	300	2034
8a	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	163	300	2256
8b	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	163	300	1128
8c	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	163	300	1128

# INFINIGY

Ant ID	Sector	Operator	Antenna manufacturer	Antenna Model	Operating Frequency/Technology	Rad Ctr (Ft)	Az (Deg)	Total ERP Power (Watts)
8d	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz LTE	163	300	4308
9a	Gamma	T-Mobile	Ericsson	AIR6449 B41	2500 MHz LTE	163	300	3590
9b	Gamma	T-Mobile	Ericsson	AIR6449 B41	2500 MHz 5G	163	300	3591

## 6. RF Guidelines

To ensure safety of company workers, the following points need to be taken into consideration and implemented at wireless sites in accordance with the Carriers policies:

- a) **Worksite:** Any employee at the site should avoid working directly in front of the antenna or in areas predicted to exceed general population exposure limits by 100%. Workers should insist that the transmitters be switched off during the work period.
- b) **RF Safety Training and Awareness:** All employees working in areas exceeding the general population limits should have a basic awareness of RF safety measures. Videos, classroom lectures and online courses are all appropriate training methods on these topics.
- c) **Site Access:** Restricting access to transmitting antenna locations is one of the most important elements of RF safety. This can be done with:
  - Locked doors/gates/ladder access
  - Alarmed doors
  - Restrictive barriers
- d) **Three-foot Buffer:** There is an inverse relationship between the strength of the field and the distance from the antenna. The RF field diminishes with distance from the antenna. Workers should maintain a three-foot distance from the antennas.
- e) **Antennas:** Workers should always assume that the antenna is transmitting and should never stop right in front of the antenna. If someone must pass by an antenna, he/she should move quickly, thus reducing RF exposure.



## 7. T-Mobile Exposure Analysis By Band and Technology

T-Mobile 600 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>0.4</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0007</b>
	% Exposure	<b>0.18%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>2.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0007</b>
	% Exposure	<b>0.04%</b>

T-Mobile 600 MHz 5G		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>0.4</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0007</b>
	% Exposure	<b>0.18%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>2.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0007</b>
	% Exposure	<b>0.04%</b>

T-Mobile 700 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>0.5</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0014</b>
	% Exposure	<b>0.28%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>2.3</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0014</b>
	% Exposure	<b>0.06%</b>

T-Mobile 1900 MHz GSM		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>1.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0013</b>
	% Exposure	<b>0.13%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>5.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0013</b>
	% Exposure	<b>0.03%</b>

T-Mobile 1900 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>1.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0052</b>
	% Exposure	<b>0.52%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>5.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0052</b>
	% Exposure	<b>0.10%</b>

T-Mobile 2100 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>1.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0027</b>
	% Exposure	<b>0.27%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>5.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0027</b>
	% Exposure	<b>0.05%</b>

T-Mobile 2500 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>1.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0022</b>
	% Exposure	<b>0.22%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>5.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0022</b>
	% Exposure	<b>0.04%</b>

T-Mobile 2500 MHz 5G		
Uncontrolled / General Population	FCC's exposure limits (mW/cm <sup>2</sup> )	<b>1.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0022</b>
	% Exposure	<b>0.22%</b>
Controlled / Occupational	FCC's Exposure limits(mW/cm <sup>2</sup> )	<b>5.0</b>
	Exposure values at the site (mW/cm <sup>2</sup> )	<b>0.0022</b>
	% Exposure	<b>0.04%</b>

## 8. Appendix A: FCC Guidelines

### FCC Policies

The Federal Communications Commission (FCC) in 1996 implemented regulations and policies for analysis of RF propagation to evaluate RF emissions. All the analysis and results of this report are compared with FCC's (Federal Communications Commission) rules to determine whether a site is compliant for Occupational/Controlled or General Public/Uncontrolled exposure. All the analysis of RF propagation is done in terms of a percentage. The limits primarily indicate the power density and are generally expressed in terms of milliwatts per centimeter square, mW/cm<sup>2</sup>.

FCC guidelines incorporate two separate tiers of exposure limits that are dependent on the scenario/ situation in which that exposure takes place or the status of the individuals who are subjected to that exposure. The decision as to which tier is applied to a scenario is based on the following definitions:

#### Occupational / Controlled

These limits apply in situations when someone is exposed to RF energy through his/her occupation, is fully aware of the harmful effects of the RF exposure and has an ability to exercise control over this exposure. Occupational / controlled exposure limits also apply when 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. limits for Occupational/Controlled exposure can be found on Table 1(A).

#### General Population / Uncontrolled

These limits apply to situations in which the general public may be exposed or in which persons who are exposed because of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure to RF. Therefore, members of the general public would always be considered under this category, for example, in the case of a telecommunications tower that exposes people in a nearby residential area. Exposure limits for General Population/Uncontrolled can be found on Table 1(B).

**Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

**(A) Limits for Occupational/Controlled Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

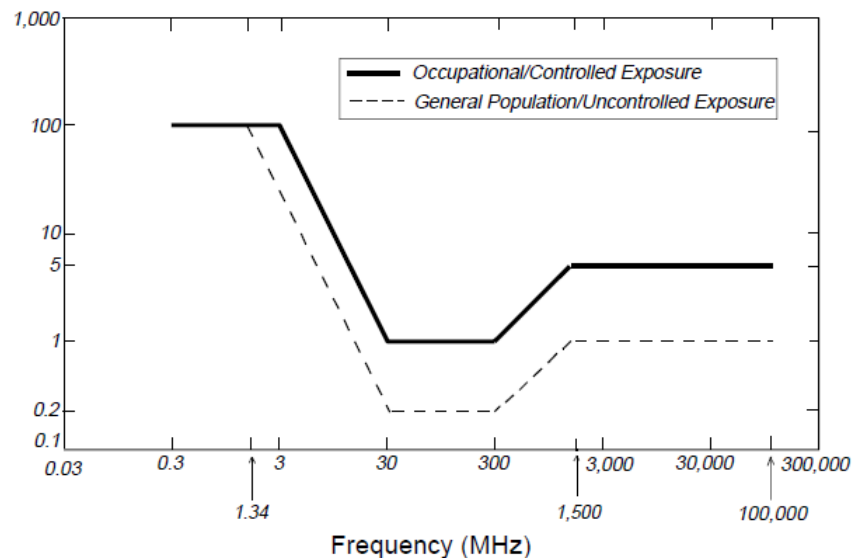
**(B) Limits for General Population/Uncontrolled Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

\*Plane-wave equivalent power density

**Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)**  
Plane-wave Equivalent Power Density



OSHA Statement:

The objective of the OSHA Act is to ensure the safety and health of the working men and women by enforcing certain standards. The act also assists and encourages the states in their efforts to ensure safe and healthy working conditions through means of research, information, education and training in the field of occupational safety and health and for other purposes.

According to OSHA Act section 5, important duties to be considered are:

(a) Each employer

- 1) Shall furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious harm to his employees
- 2) Shall comply with occupational safety and health standards promulgated under this act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

## 9. Preparer Certification

I, Tim Harris, preparer of this report, certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commission and the Occupational Safety and Health Administration regarding Human Exposure to Radio Frequency Radiation. In addition, I have been trained in RF safety practices, rules, and regulations.

I certify that the information contained in this report is true and correct to the best of my knowledge.

*Timothy A. Harris*

*3/30/2021*

---

Signature

Date

