March 19, 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# 876367; T-Mobile Site ID# CTNL282A
1439 Voluntown Road, Griswold, CT 06384
Latitude: 41° 34′ 33.99″/ Longitude: -71° 53′ 16.96″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 177-foot mount on the existing 179.5-foot Monopole Tower located at 1439 Voluntown Road in Griswold. The property is owned by Robert and Mildred Rose and the Tower is owned by Crown Castle. T-Mobile now intends to replace six (6) existing antennas and add 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) RFS/Celwave – APXVTMI4-ALU-I20 Antennas **(REMOVE)** - (3) RFS – APX16DWV-16DWV-S-E-A20 Antennas **(REPLACE)**

(3) Commscope – NNVV-65B-R4 Antennas **(REMOVE)** – (3) RFS – APXVAALL24_43-U-NA20 Antennas **(REPLACE)**

(6) Alcatel Lucent RRH2X50-800 Radios **(REMOVE)** – (3) Ericsson 4415 B66A Radios + (3) Ericsson – 4449 B71+B85 Radios **(REPLACE)**

(3) Alcatel Lucent – TD-RRH8X20-25 Radios **(REMOVE)** – (3) Ericsson – 4424 B25 Radios **(REPLACE)**

Install New:
(3) AIR6449 B41 Antennas
(4) 6/24 4AWG hybrid cable
(1) SitePro 1 – HRK12-U handrail kit

Remove:
(3) Alcatel Lucent – PCS 1900MHz 4X45W-65MHz Radio

Ground:

Install New:
(1) SSC 6160 cabinet
(1) B160 battery cabinet
(1) BB6648
(3) BB6630
(1) DUG20
(1) PSU 4813 voltage booster
(1) CSR IXRe V2 (Gen 2)
(1) RBS 6601 in 6160 cabinet

This facility was approved by the Town of Griswold Planning & Zoning Commission on November 8th, 1999. This approval was given with conditions which this proposed exempt modification is following.

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 Todd Babbitt, First Selectman for the Town of Griswold, as well as Jack Cipriano, Building and Zoning Enforcement Officer for the Town of Griswold. A copy will also be sent to the property owner.

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

cc:

Todd Babbitt, First Selectman *(via email to firstselectman@griswold-ct.org)*
Town of Griswold
Town Hall
28 Main Street
Jewett City, CT 06351
860-376-7060 ext. 2201

Jack Cipriano, Building & Zoning Enforcement Official *(via email to buildingofficial@griswold-ct.org)*
Town of Griswold
Town Hall
28 Main Street
Jewett City, CT 06351
860-376-7060

Robert & Rose Mildred
1439 Voluntown Road
Griswold, CT 06351

Zajac, Richard

From: Zajac, Richard
Sent: Friday, March 19, 2021 10:10 AM
To: firstselectman@griswold-ct.org
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 1439 Voluntown Rd.pdf

Good morning Mr. Babbitt,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 1439 Voluntown Road in Griswold .

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, March 19, 2021 10:14 AM
To: buildingofficial@griswold-ct.org
Subject: Connecticut Siting Council exempt modification application notification
Attachments: CSC Exempt Modification Application - 1439 Voluntown Rd.pdf

Good morning Mr. Cipriano,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 1439 Voluntown Road in Griswold.

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

ORIGIN ID:ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
629 KAYLEIGH DR
WEBSTER, NY 14580
UNITED STATES US

SHIP DATE: 19MAR21
ACTWGT: 1.00 LB
CAD: 112911364/INET4340

BILL SENDER

TO **ROBERT & ROSE MILDRED**

1439 VOLUNTOWN ROAD

GRISWOLD CT 06351
(585) 445-5896

REF: 799001.7680
INV:
PO:
DEPT:

J211121011901uv

FedEx Express

56DJ3/AC39/FE4A

MON - 22 MAR 4:30P
STANDARD OVERNIGHT

TRK# 0201 **7732 0863 3580**

XE GONA

06351
BDL
CT-US

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Exhibit A

Original Facility Approval

876367

TOWER/STRUCTURE REMOVAL BOND

Bond Number: **674013692**
Replaces Bond 6043692
Effective July 17 2008

KNOW ALL MEN BY THESE PRESENTS, THAT **STC Five LLC**, as Principal, and **Liberty Mutual Insurance Company**, a corporation duly organized under the laws of the State of **Massachusetts**, as Surety, are held and firmly bound unto **Town of Town of Griswold- Town Hall, 28 Main Street, Griswold, CT 06351**, as Obligee, in the sum of **Twenty Nine Thousand And 00/100** Dollars **($29,000.00)** lawful money of the United States, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents, the liability of the Surety being limited to the penal sum of this bond regardless of the number of years the bond is in effect.

WHEREAS the Principal has entered into a written agreement with the property owner for the placement of a tower or structure furnishing telephone, television or other electronic media service, which agreement sets forth the terms and conditions which govern the use of such towers or structures and which agreement is hereby specifically referred to and made part hereof, and

WHEREAS, the **Town of Griswold, CT** requires the submission of a bond guaranteeing the maintenance, replacement, removal or relocation of said tower or structure located at **1439 Voluntown Rd., Griswold, CT 06351- Site ID# CT33XC011.**

NOW THEREFORE, the condition of this obligation is such, that if the above bounden Principal shall perform in accordance with the aforesaid ordinance and/or agreement, and indemnify the Obligee against all loss caused by Principal's breech of any ordinance or agreement relating to maintenance, replacement, removal or relocations of a tower or structure, then this obligation shall be void, otherwise to remain in full force and effect unless cancelled as set forth below.

THIS BOND may be cancelled by Surety by giving thirty (30) days written notice to the Obligee. Such cancellation shall not affect any liability the Surety may have or incurred under this bond prior to the effective date of the termination. Provided that no action, suit or proceeding shall be maintained against the Surety on this bond unless action is brought within twelve (12) months of the cancellation date of this bond.

THIS BOND signed, sealed, dated on the **20th** day of **June, 2008**. This bond is effective the **17th** day of **July, 2008**.

STC Five LLC

By: _____ Principal
George A. Liddy
Manager, Risk Management

Liberty Mutual Insurance Company

By: _____ Surety
Kristy M Barber, Attorney-In-Fact

2295272

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

LIBERTY MUTUAL INSURANCE COMPANY
BOSTON, MASSACHUSETTS
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint

PAIGE M. TURNER, ROY R. YANCEY, KEITH A. STILES, MICHAEL J. GRANACHER, KRISTY M. BARBER, ALL OF THE CITY O KANSAS CITY, STATE OF MISSOURI

, each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations in the penal sum not exceeding FIFTY MILLION AND 00/100********** DOLLARS ($ 50,000,000.00*****) each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts; Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-Laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 28th day of February, 2008.

LIBERTY MUTUAL INSURANCE COMPANY

By _____
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 28th day of February, 2008, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires Mar. 28, 2009
Member, Pennsylvania Association of Notaries

By _____
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 20th day of June, 2008.

By _____
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call

Removal Bond

FYI

Wappinges Falls 876367

Town of Griswold

28 Main Street
Griswold, CT 06351
Phone (860) 376-7060, Fax (860) 376-7070

9/11/2008

To: Laura Tangenny - Wireless Planning Services FAX 863-644-6191

From: Carl Fontneau Cover + 2

Re: A Hanked Copy of Tower Removal Bond effective July 17, 2008.

As I mentioned over the phone, earlier, the Connecticut Siting Council has seized jurisdiction for new towers, modification to, or co-locations to wireless tower across the state rather than previously when they were through local zoning regulations.

Regards Carl

File: 10226/22676.011 42
cc: Susan Lester, CEM.

Town of Griswold

TOWN HALL, 32 SCHOOL STREET
JEWETT CITY, CONNECTICUT 06351

SELECTMEN	376-7061
ASSESSOR	376-7071
TAX COLLECTOR	376-7068
SOCIAL SERVICES	376-7067
PUBLIC HEALTH NURSES	376-7077

RECEIVED
NOV 24 1999

TOWN CLERK	376-7063
BUILDING INSPECTOR	376-7065
PLANNING & ZONING	376-7073
BOOKKEEPING	376-7074
SANITARIAN	376-7065

PLANNING & ZONING COMMISSION

November 22, 1999

CERTIFIED MAIL: Z 307 858 482
RETURN RECEIPT REQUESTED

Sprint Spectrum
9 Barnes Industrial Road
Wallingford, CT 06492

Re: Sprint Spectrum, LP, Special Exception Application SE 3-00
and Zoning Permit Application ZP 6-00
1439 Voluntown Road, Griswold, CT

Gentlemen:

The Griswold Planning & Zoning Commission, at its Regular Meeting held on November 8, 1999, reviewed the above-referenced applications to erect a 190 ft telecommunications tower and support facilities at 1439 Voluntown Road in accordance with Section 11.19 of the Griswold Zoning Regulations.

Following a public hearing and a discussion on the proposed facility, the commission unanimously voted to approve applications SE 3-00 and ZP 6-00 with the following conditions:

1. The proposed equipment cabinets shall be designed to stand alone or shall be placed in a structure that conforms to Section 11.19.3.n. of the Griswold Zoning Regulations. The metal roof structure over the equipment cabinets as proposed is not permitted by the Regulations and, therefore, must be removed from the site plan.

2. A $29,000.00 cash bond shall be made payable to the Treasurer of the Town of Griswold in accordance with Section 11.19.7 of the Griswold Zoning Regulations.

Please be advised that it will be necessary for your engineer to file one set of fixed line mylars, one set of regular mylars, and five sets of paper prints with the above-noted corrections and with original seals and signatures for endorsement by the undersigned.

Should you have any questions regarding the above, please contact Mario J. Tristany, Jr., at (860)376-7084.

Very truly yours,

F. Clyde Seaman
Chairman

cc: Atty. Tom Regan, Brown, Rudnick, Freed & Gesmer, P.C.
Donald Duthaler, P.E., O'Brien & Geer Engineers, Inc.

Exhibit B

Property Card

qPublic.net™ Town of Griswold, CT

Summary

ParcelId	100036
Account Number	R0359301
Location Address	1439 A VOLUNTOWN RD
Map-Block-Lot	61 /113 /11A
Use Class/Description	4310 TEL REL TW
Assessing Neighborhood	0050A
Census Tract	
Acreage	0.08
Utilities	

Owner

ROSE ROBERT E & MILDRED
PMB 331
4017 WASHINGTON RD MCMURRAY, PA 15317

Current Appraised Value

		2017	2015
+	Building Value	$0	$0
+	XF Value	$0	$0
+	OB Value	$102,200	$102,288
+	Land Value	$162,000	$150,000
+	Special Land Value		
+	Total Appraised Value	$264,200	$252,288
+	Net Appraised Value	$264,200	$252,288
+	Current Assessment	$184,940	$176,602

Assessment History

		2017	2015
+	Building Value	$0	$0
+	OB/Misc	$71,540	$71,602
+	Land	$113,400	$105,000
+	Total Assessment	$184,940	$176,602

Land

Use	Class	Zoning	Area	Value
4310 TEL REL TW	I	r80	3600 SF	$162,000

Out Buildings\Extra Features

Description	Sub Description	Area	Year Built	Value
CELL TOWER		180HEIGHT	2000	$81,000
CONC PAD/CELL SITES		170S.F.	2000	$200
CELL EQUIP SHELTER		360S.F.	2007	$18,000
FENCE-8' CHAIN		255L.F.	2000	$3,000
CONC PAD/CELL SITES		35S.F.	2005	$0
CONC PAD/CELL SITES		35S.F.	2005	$0

Sales History

Sales Date	Type of Document	Grantee	Vacant/Improved	Book/Page	Amount
11-30-1976		ROSE ROBERT E & MILDRED	Vacant	080/ 040	$0

Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
134-19	11-14-2018	MN	MAINTENANCE	$20,000		100	03-28-2019	CC#-223-19. SPRINT TO REMOVE AND REPLACE SIX ANTENNAS AND ADD TWELVE REMOTE RADIO HEADS ON EXISTING SITE
366-16	01-27-2016	AD	ADDITION	$15,000		0		REPLACE ANTENNA PANELS & RADIO HEADS
109-13	12-19-2012	AD	NEW ANT/EQUIP	$25,000		100	01-30-2014	68-14 CC
110-13	12-19-2012	MN	MAINTENANCE	$8,000		100	01-30-2014	67-14 CC
197-09	01-22-2009	AD	Addition	$15,000		100	07-13-2009	FINAL INSP
92-08	09-13-2007	AD	CELL ANTENNA	$150,000		100	04-02-2008	68-14 CC
172-99	02-24-2000	CM	Commercial	$0		100	09-30-2000	TOWER

Sketch

Photos

No data available for the following modules: Building Data, Building Data, Commercial Building.

Developed by Schneider GEOSPATIAL

Last Data Upload: 3/16/2021, 8:47:46 PM

Version 2.3.112

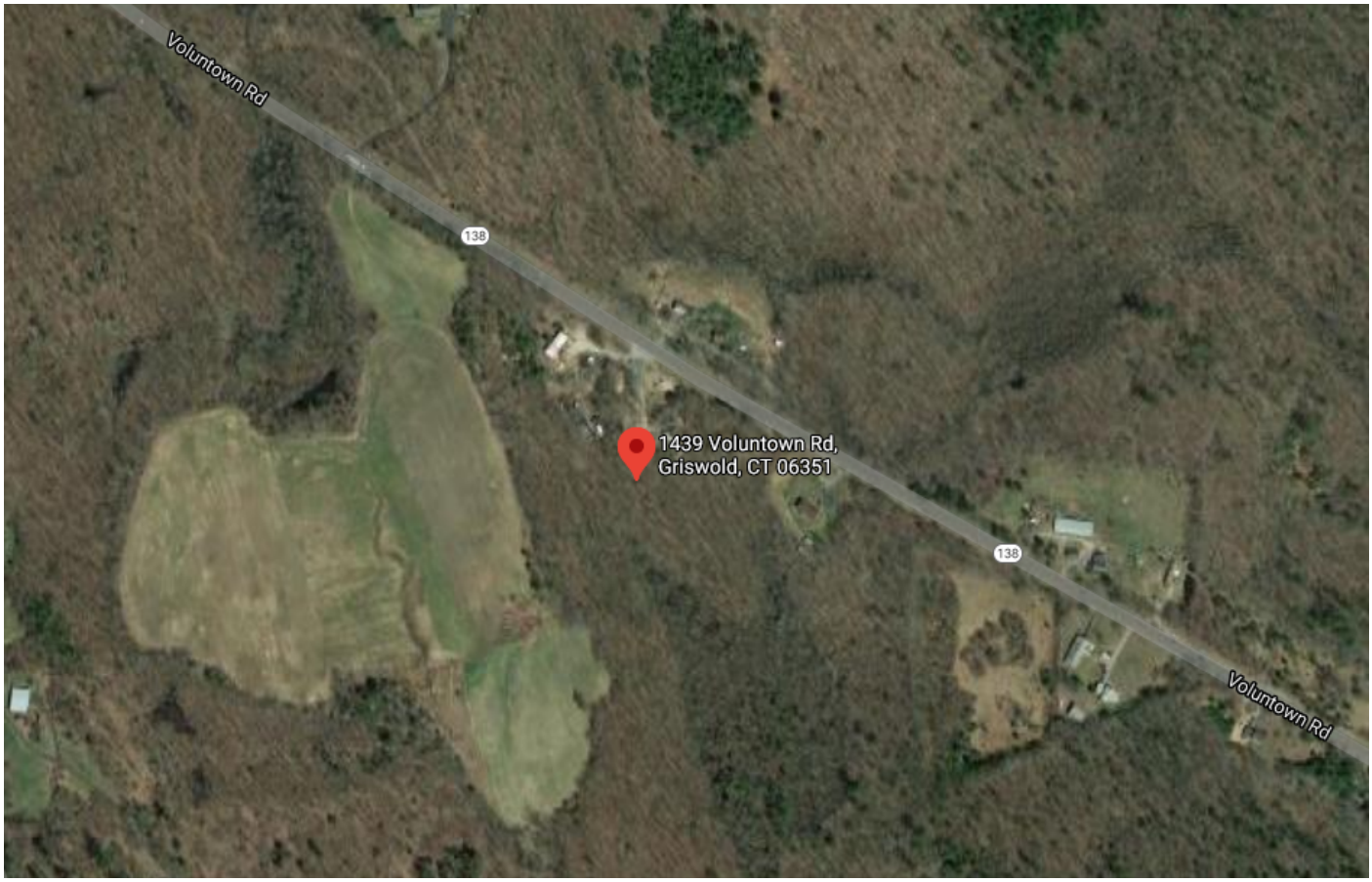


Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CTNL282A
T-MOBILE SITE NAME: CTNL282A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 179'-6"

BUSINESS UNIT #: 876367
SITE ADDRESS: 1439 VOLUNTOWN RD, GRISWOLD, CT 06384
COUNTY: NEW LONDON
JURISDICTION: TOWN OF GRISWOLD

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67D5A998C 6160 (GSM only)

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WAPPINGERS FALLS / BOB'S ANTIQ
SITE ADDRESS:	1439 VOLUNTOWN RD GRISWOLD, CT 06384
COUNTY:	NEW LONDON
MAP/PARCEL #:	100036
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.576122147°
LONGITUDE:	-71.88755798°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	302.00FT
CURRENT ZONING:	R-80
JURISDICTION:	TOWN OF GRISWOLD
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	ROSE ROBERT E & MILDRED PMB 331, 4017 WASHINGTON RD MCMURRAY, PA 15317
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
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:	1500 CORPORATE DRIVE CANONSBURG, PA 15317

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

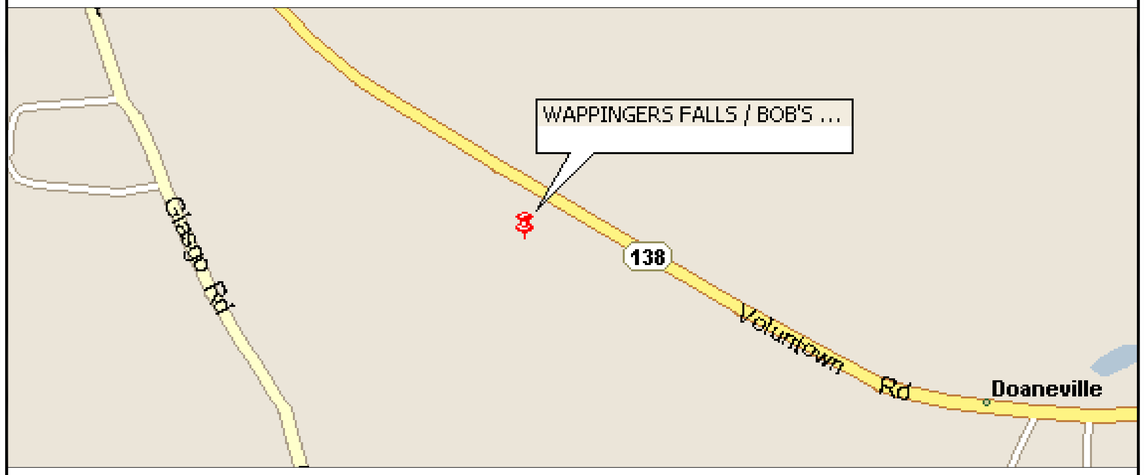
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) ANTENNAS
- REMOVE (12) RADIOS
- INSTALL (9) ANTENNAS
- INSTALL (9) RADIOS
- INSTALL (4) 6/24" HYBRID CABLE
- INSTALL (1) SITE PRO 1 - HRK12-U HANDRAIL KIT

GROUND SCOPE OF WORK:
- INSTALL (1) SSC 6160 CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) BB 6648
- INSTALL (3) BB 6630s
- INSTALL (1) DUG20
- INSTALL (1) PSU 4813 VOLTAGE BOOSTER
- INSTALL (1) CSR IXRe V2 (Gen 2)
- INSTALL (1) RBS 6601 IN 6160 CABINET

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.

LOCATION MAP



NO SCALE

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:	B+T GROUP
DATED:	16/2/21
MOUNT ANALYSIS:	KIMLEY-HORN AND ASSOCIATES, INC.
DATED:	3/2/21
AC ELECTRICAL POWER DESIGN:	N/A
DATED:	N/A
RFDS REVISION:	1
DATED:	1/15/21
ORDER ID:	538780
REVISION:	1

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.

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:
CTNL282A

BU #: **876367**
WAPPINGERS FALLS / BOB'S ANTIQ

1439 VOLUNTOWN RD
GRISWOLD, CT 06384

EXISTING
179'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	2/22/21	JTS	CONSTRUCTION	MTJ
1	3/4/21	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/4/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: T-1
REVISION: 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. 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.
2. "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.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND 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).
5. 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."
6. 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.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. 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.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. 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.
4. 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.
5. 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
6. 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"
7. 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.

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT 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. VERYIFY 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.
5. 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.
6. 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).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. 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.
10. 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.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. 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.
13. 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).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. 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 LOCKNUT ON OUTSIDE AND INSIDE.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. 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
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

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

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

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
RET	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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SUITE 300
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T-MOBILE SITE NUMBER:
CTNL282A

BU #: **876367**
WAPPINGERS FALLS / BOB'S ANTIQ

1439 VOLUNTOWN RD
GRISWOLD, CT 06384

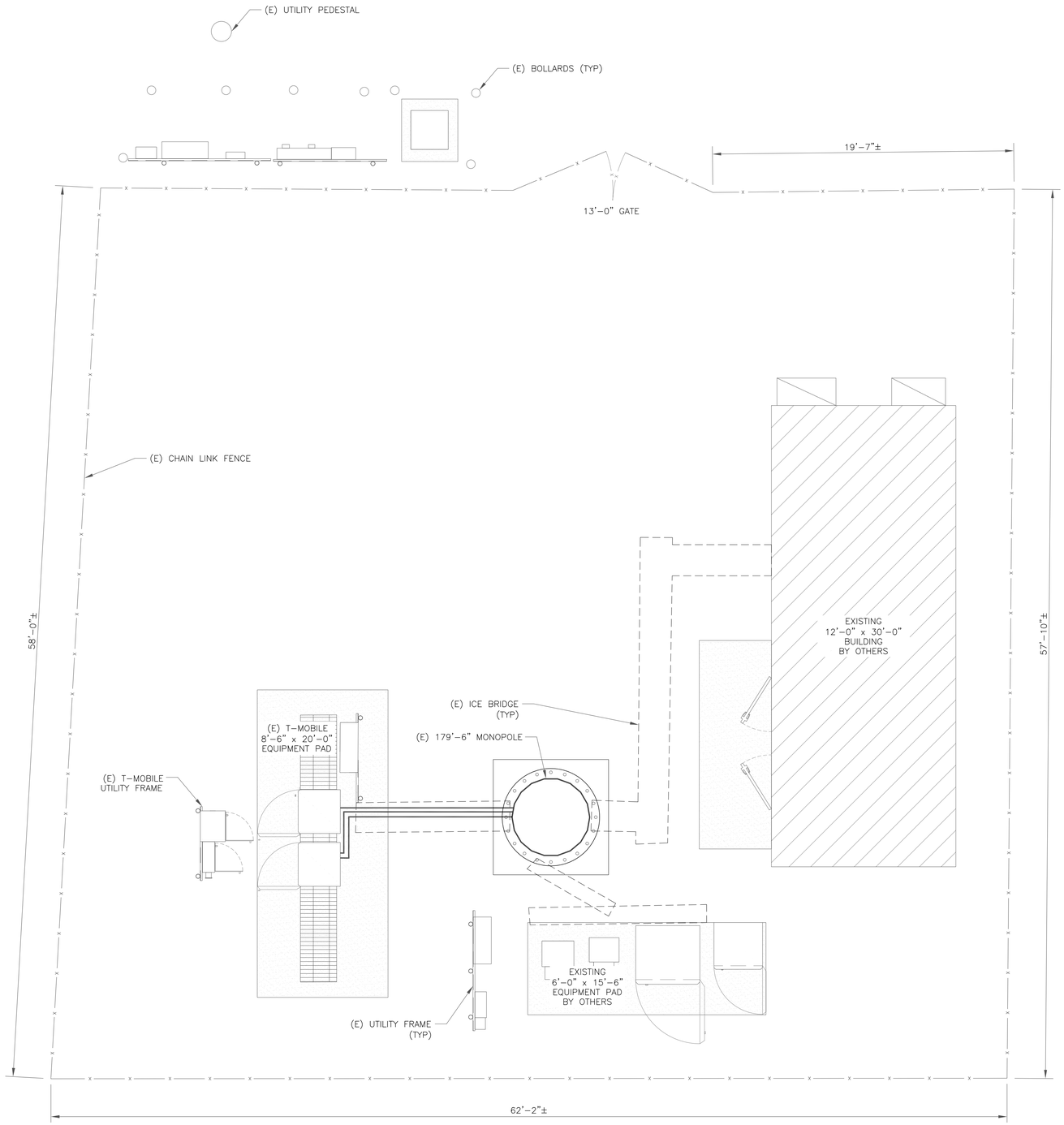
EXISTING
179'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	2/22/21	JTS	CONSTRUCTION	MTJ
1	3/4/21	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: T-4
REVISION: 1



1 OVERALL SITE PLAN

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

N

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. 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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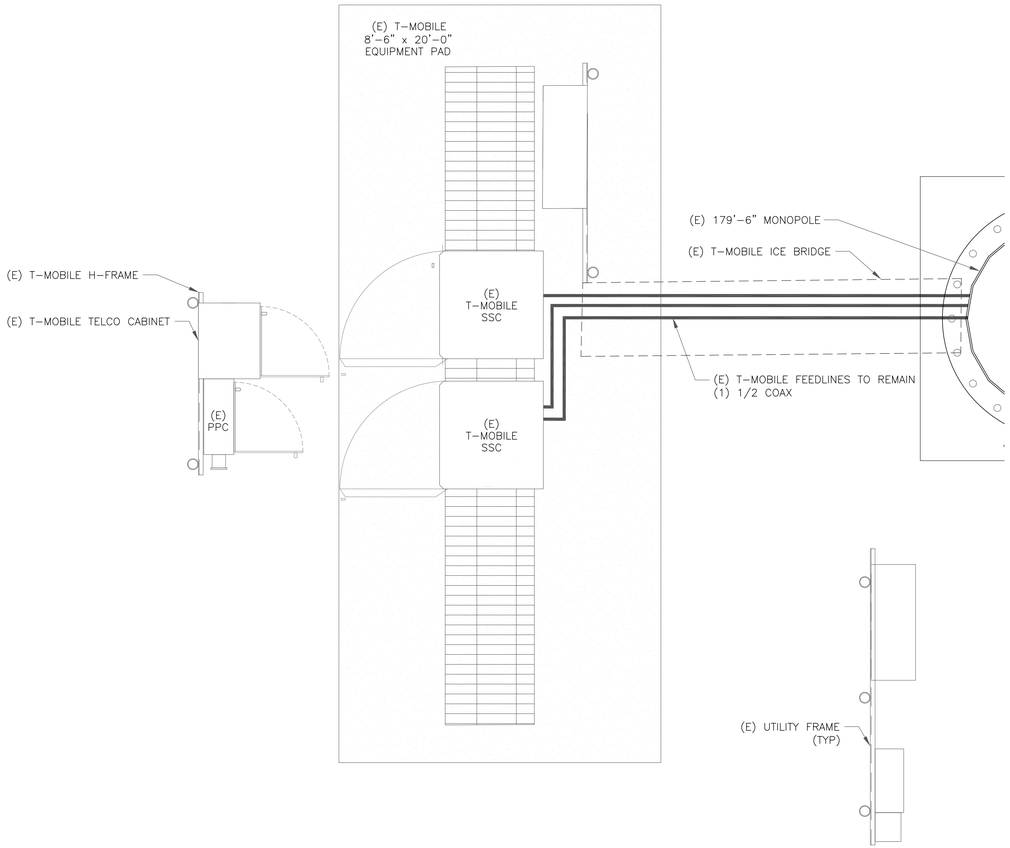
STATE OF CONNECTICUT
MICHAEL T. JONES
No. 23924
LICENSED PROFESSIONAL ENGINEER
3/4/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: C-1.1

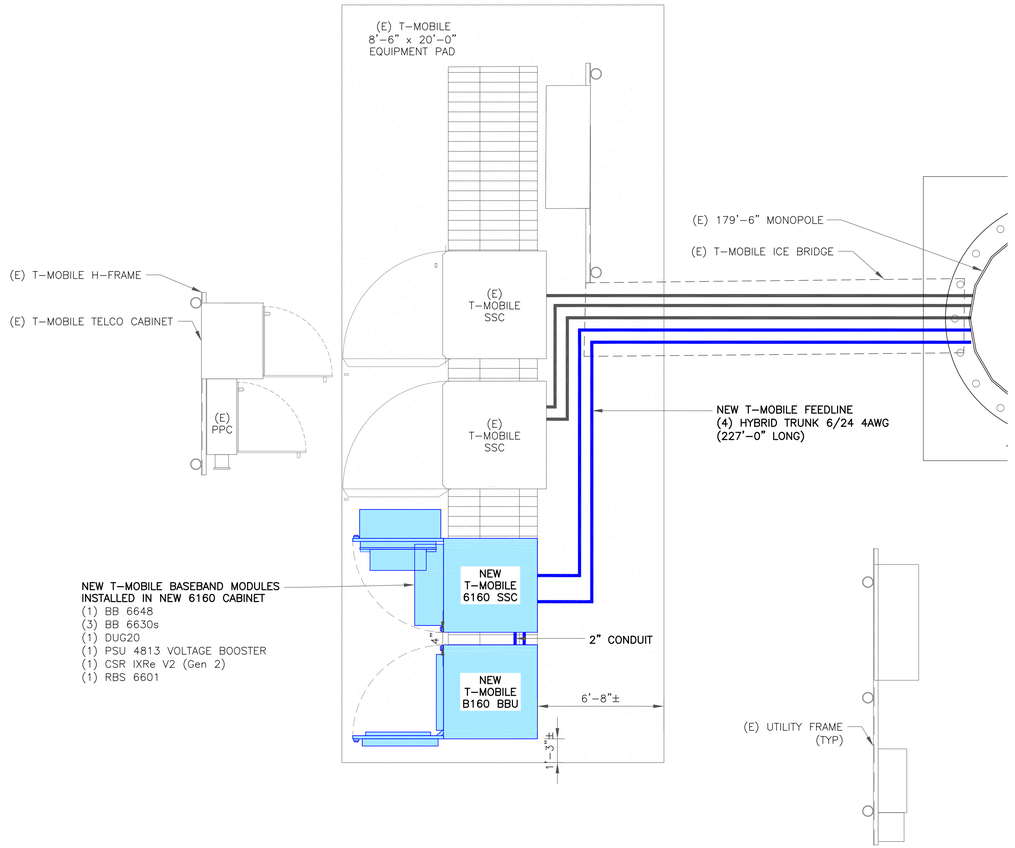
REVISION: 1

147464.003.01_WAPPINGERS_FALLS_BOB'S_ANTIQ_ETA_T-MOBILE_10.21.2020.dwg — Sheet:C-1.1 — User: mjones — Mar 04, 2021 — 12:14pm



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

N



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

N

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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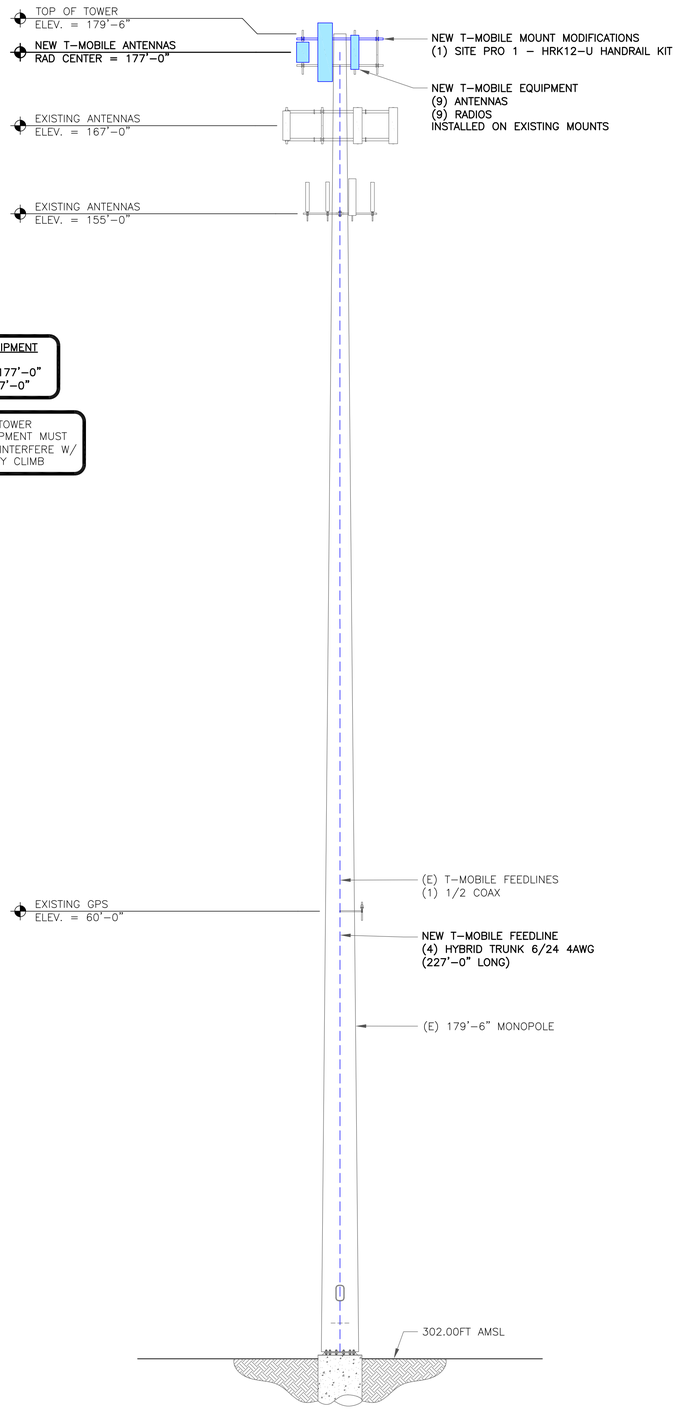
SHEET NUMBER: C-1.2

REVISION: 1

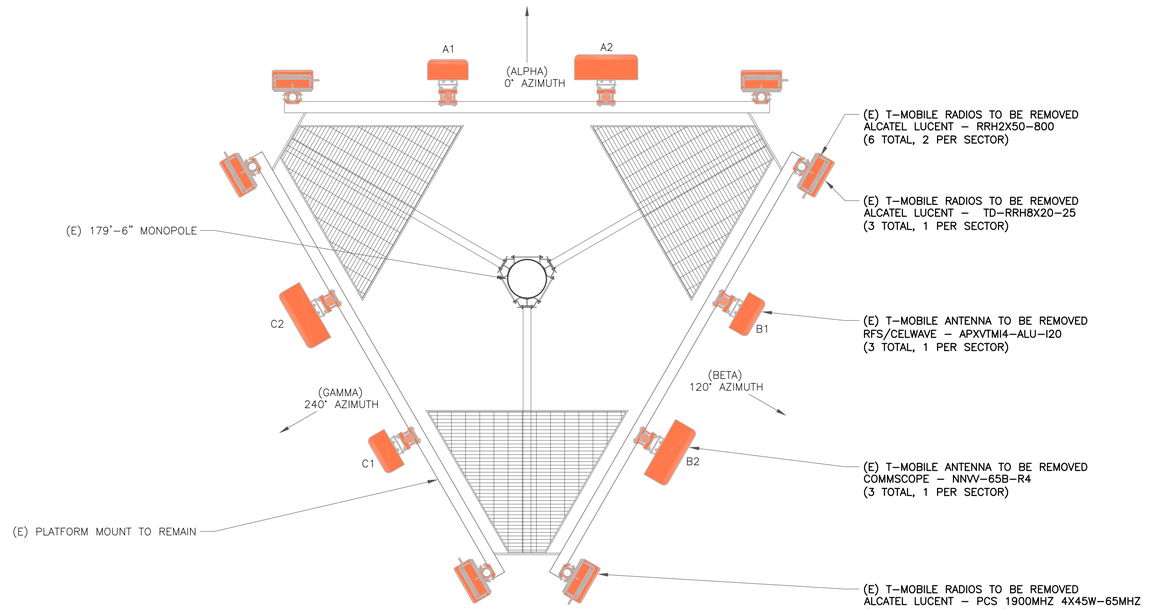


T-MOBILE EQUIPMENT

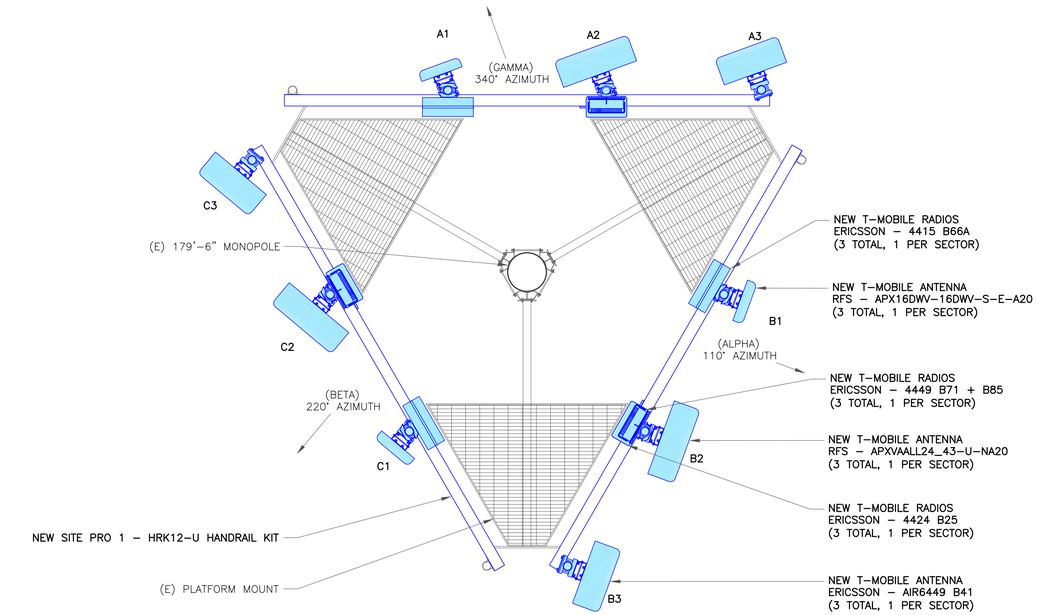
ANTENNA CL: 177'-0"
MOUNT CL: 177'-0"

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

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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SHEET NUMBER: C-2

REVISION: 1

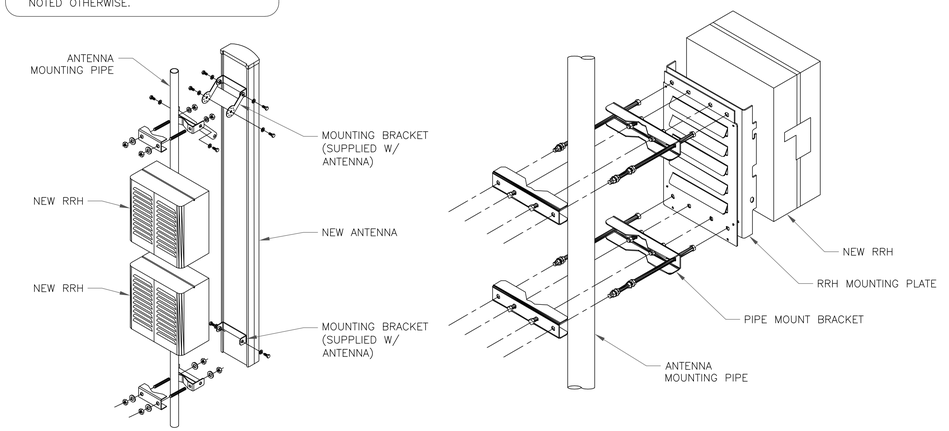
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	110°	0°	2°	177'-0"	(1) ERICSSON - RADIO 4415 B66A	(1) 6/24 4AWG HYBRID TRUNK
	A-2	L700/L600/N600/ L1900/G1900	RFS	APXVAALL24_43-U-NA20	110°	0°	2° / 2°	177'-0"	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25	
	A-3	L2500/N2500	ERICSSON	AIR6449 B41	110°	0°	2°	177'-0"	-	
BETA	B-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	220°	0°	2°	177'-0"	(1) ERICSSON - RADIO 4415 B66A	(1) 6/24 4AWG HYBRID TRUNK
	B-2	L700/L600/N600/ L1900/G1900	RFS	APXVAALL24_43-U-NA20	220°	0°	2° / 2°	177'-0"	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25	
	B-3	L2500/N2500	ERICSSON	AIR6449 B41	220°	0°	2°	177'-0"	-	
GAMMA	C-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	340°	0°	2°	177'-0"	(1) ERICSSON - RADIO 4415 B66A	(2) 6/24 4AWG HYBRID TRUNK
	C-2	L700/L600/N600/ L1900/G1900	RFS	APXVAALL24_43-U-NA20	340°	0°	2° / 2°	177'-0"	(1) ERICSSON - RADIO 4449 B71+B85 (1) ERICSSON - RADIO 4424 B25	
	C-3	L2500/N2500	ERICSSON	AIR6449 B41	340°	0°	2°	177'-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

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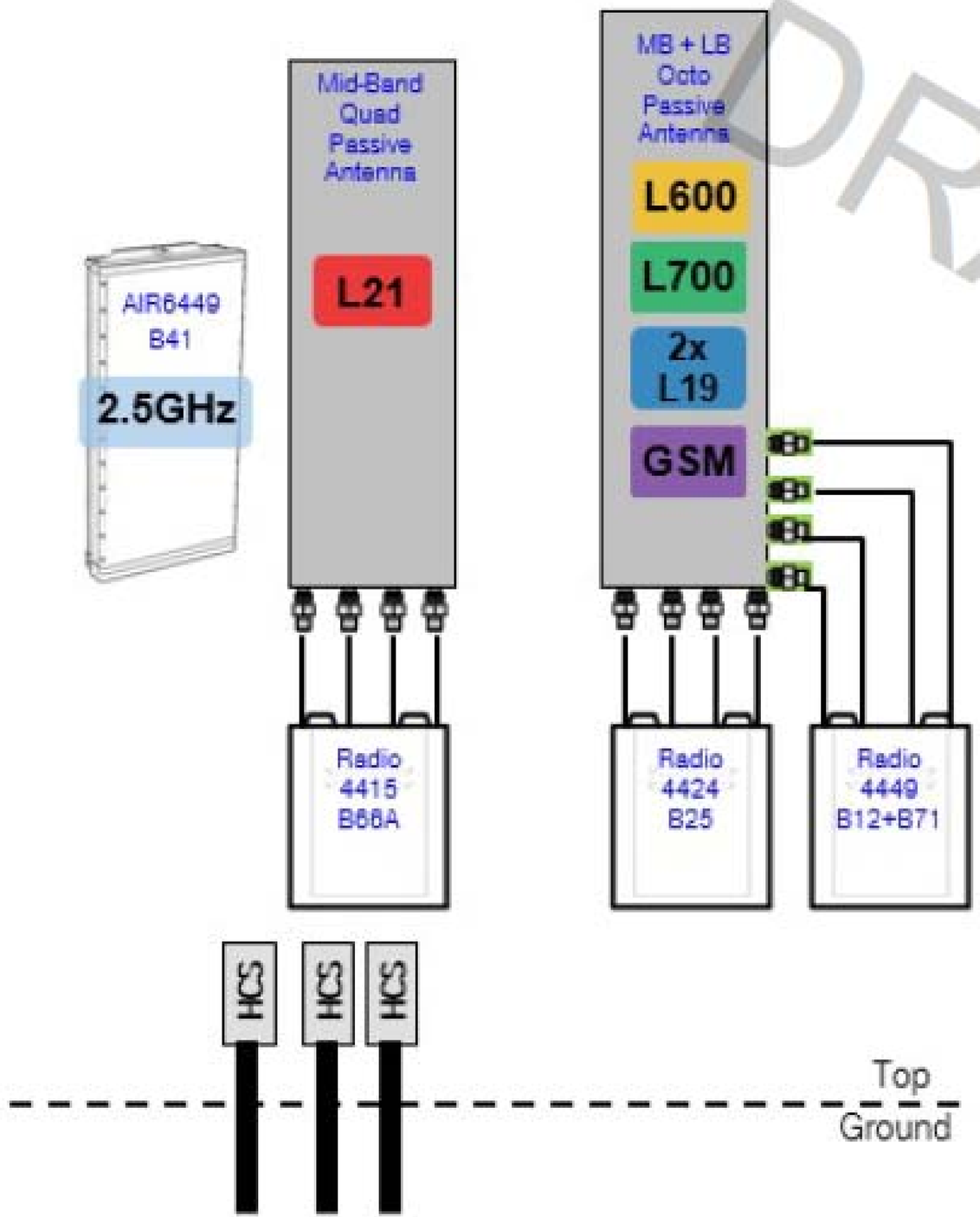
SHEET NUMBER: C-3

REVISION: 1



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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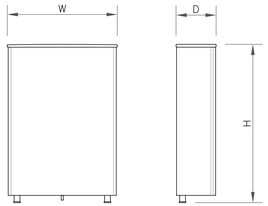
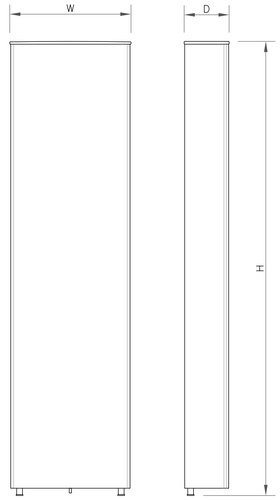
SHEET NUMBER: C-4
REVISION: 1



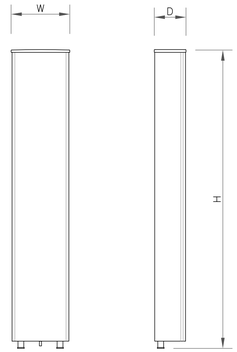
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



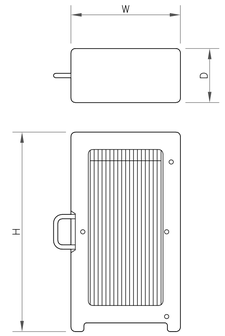
ANTENNA SPECS	
MANUFACTURER	RFS/CELWAVE
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24.00"
DEPTH	8.50"
HEIGHT	95.90"
WEIGHT	149.90 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



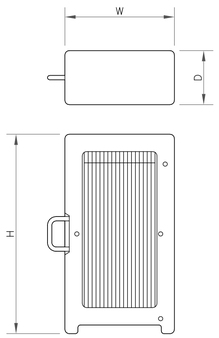
ANTENNA SPECS	
MANUFACTURER	RFS/CELWAVE
MODEL #	APX16DWV-16DWVS-E-A20
WIDTH	13.30"
DEPTH	3.15"
HEIGHT	55.90"
WEIGHT	40.70 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



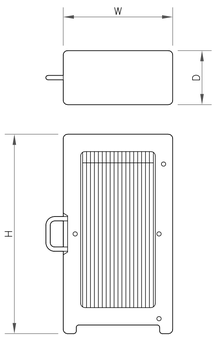
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4415 B66A
WIDTH	13.50"
DEPTH	6.30"
HEIGHT	16.50"
WEIGHT	49.60 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4424 B25
WIDTH	14.40"
DEPTH	11.30"
HEIGHT	17.10"
WEIGHT	86.00 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4449 B71+B85A
WIDTH	13.20"
DEPTH	10.63"
HEIGHT	17.91"
WEIGHT	73.21 LBS

6 RRU SPECS
SCALE: NOT TO SCALE

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SHEET NUMBER: C-5

REVISION: 1

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
PCS EQUIPMWNT	2	100A	1	7	60A	2	SURGE ARESTOR
			2	8			
SERVICE LIGHTS	1	20A	3	9	60A	2	APARE
PHONE PLUG	1	20A	4	10	20A	2	APARE
6160	2	100A	5	11	15A	2	FAN
			6	12	20A	1	GFCI

■120/240 □_____, 1 PHASE, 3 WIRE	BRANCH POLES:
□100 ■200 □400 □_____,	CABINET: ■SURFACE
MAIN LUGS ONLY | MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR
CIRCUIT BREAKER BRANCH DEVICES	□_____ TO BE GFCI BREAKERS
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL	

ADD NEW BREAKER IN POSITION 5 AND 6 WITH A NEW 2P 100A BREAKER
ADD NEW BREAKER IN POSITION 12 WITH A NEW 1P 20A BREAKER
REPLACE EXISTING WIRES FOR NEW 6102 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 200A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (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 PHOTOS

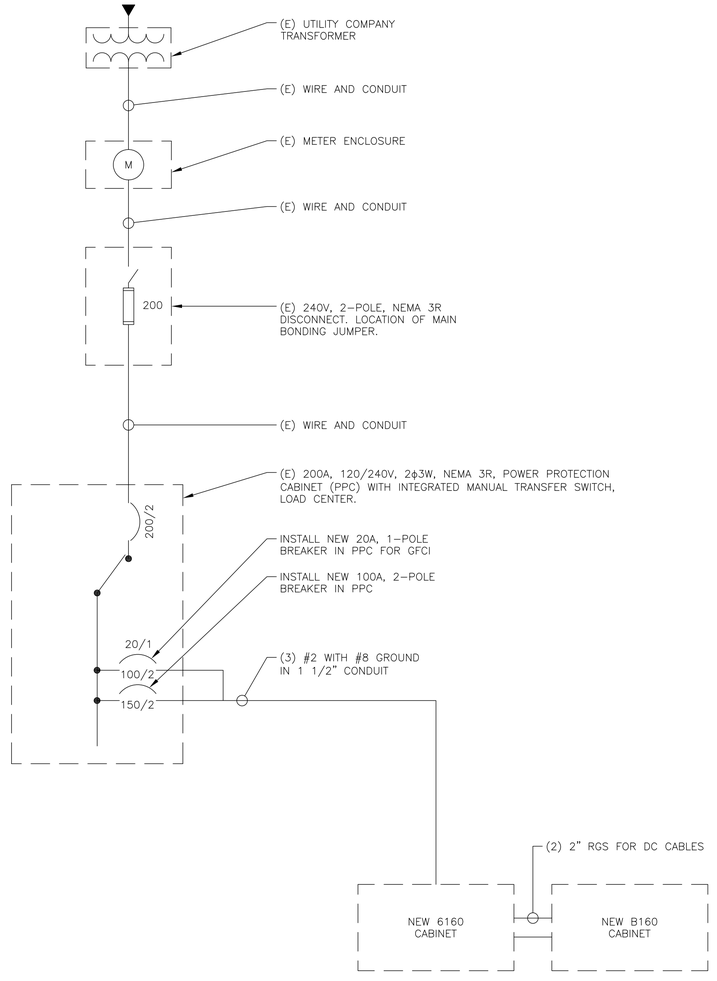
■12 □24 □30 □42
□FLUSH
■SURFACE

APPROVED MF'RS
NEMA □1 ■3R □4X
■HINGED DOOR □LATCH
FULL NEUTRAL BUS GROUND BAR

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

NOTES:

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



NOTES:

1. 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.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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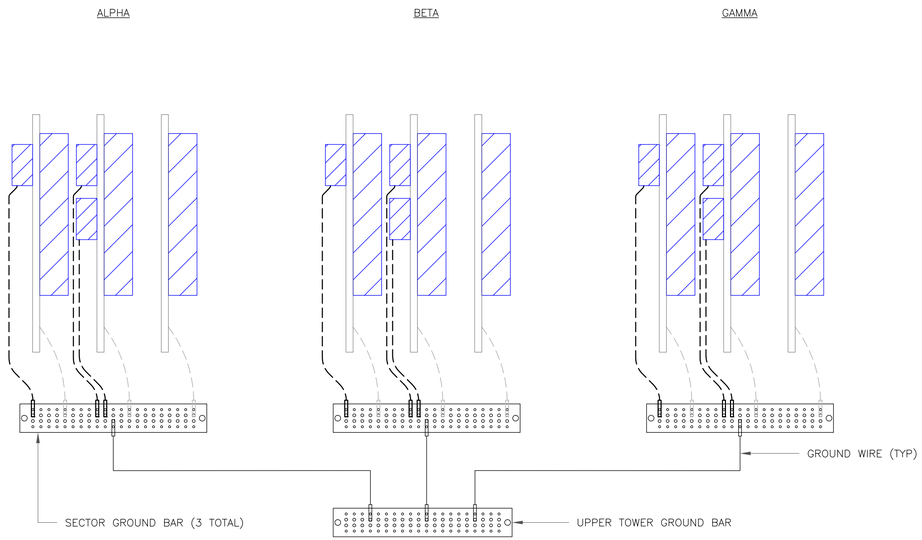
SHEET NUMBER: E-1
REVISION: 1



NOTE:

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

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

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WAPPINGERS FALLS / BOB'S ANTIQ

1439 VOLUNTOWN RD
GRISWOLD, CT 06384

EXISTING
179'-6" MONOPOLE

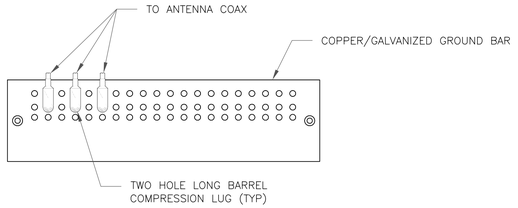
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	2/22/21	JTS	CONSTRUCTION	MTJ
1	3/4/21	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
MICHAEL T. JONES
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/4/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

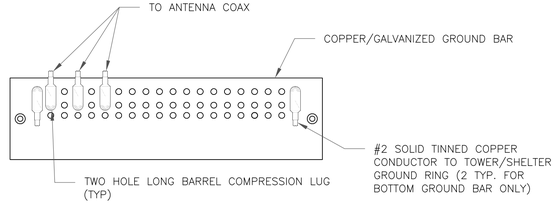
SHEET NUMBER: G-1
REVISION: 1



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.

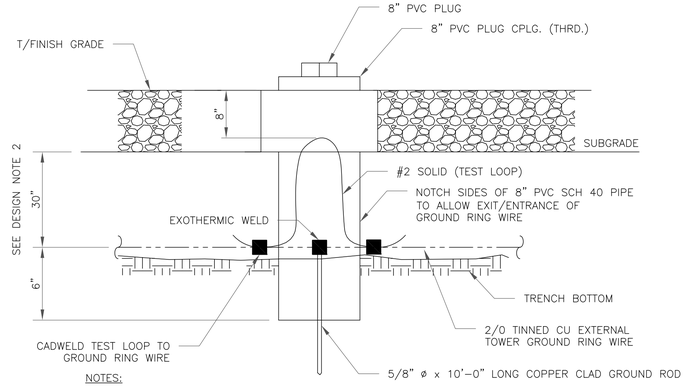
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



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.

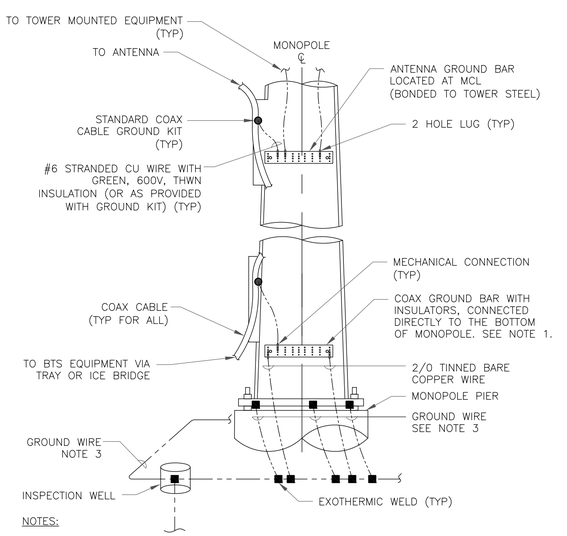
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



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)

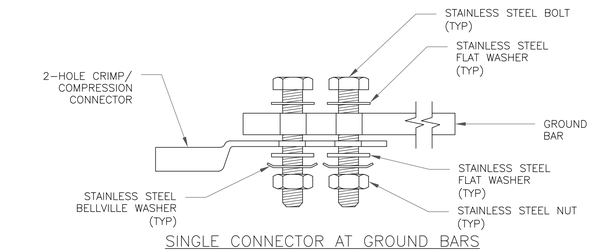
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



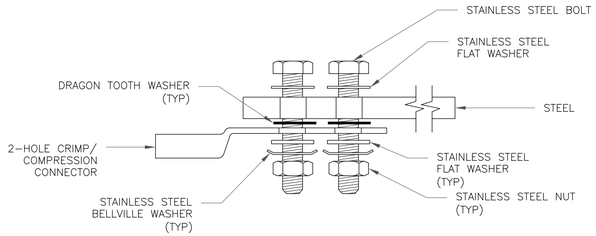
NOTES:

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.

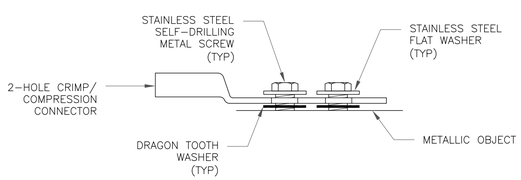
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

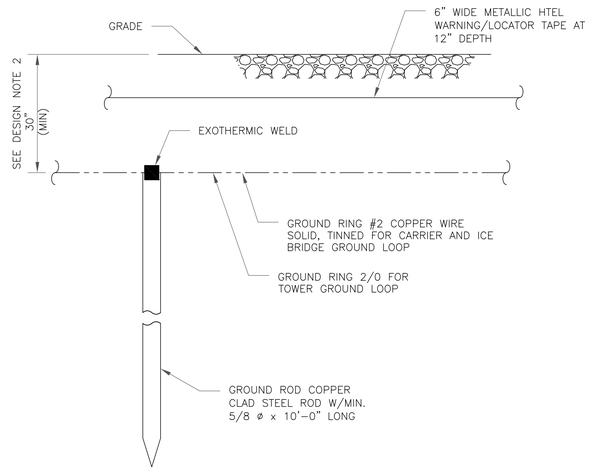


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

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
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:
CTNL282A

BU #: **876367**
WAPPINGERS FALLS / BOB'S ANTIQ

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1	3/4/21	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

SHEET NUMBER: G-2
REVISION: 1

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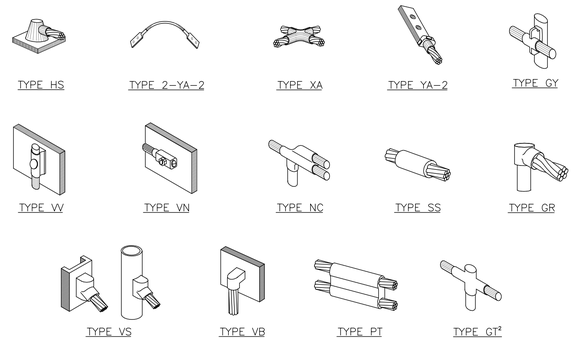
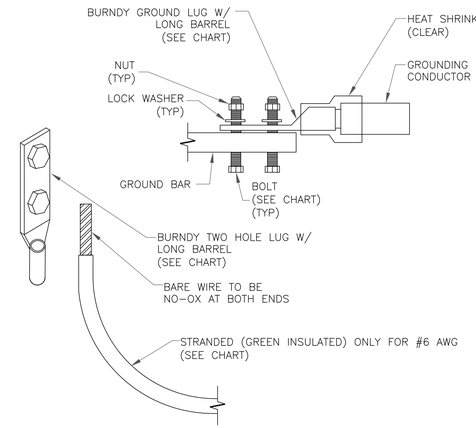


NOTE:

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

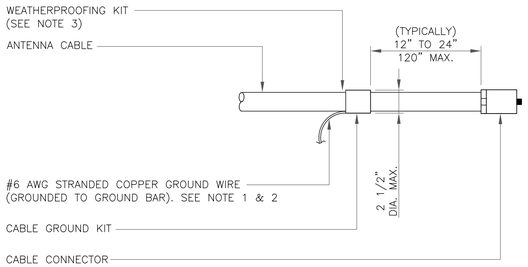
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



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.

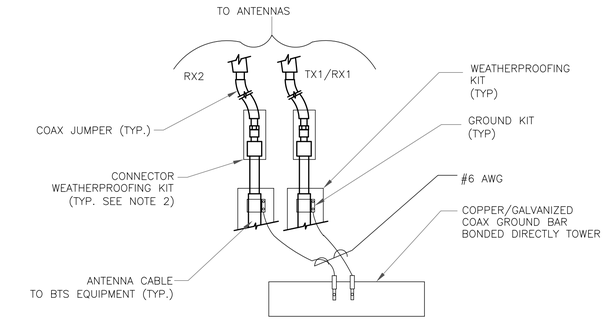
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



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.

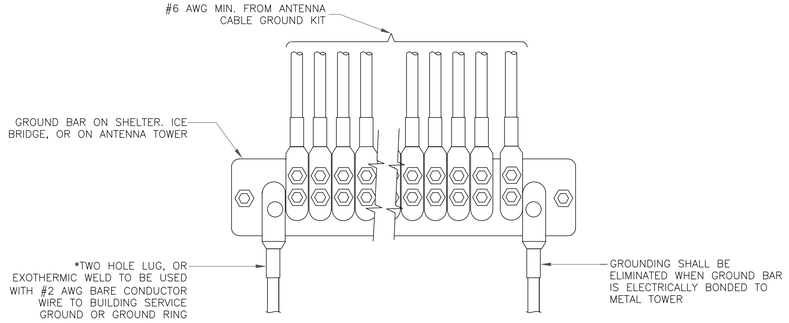
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



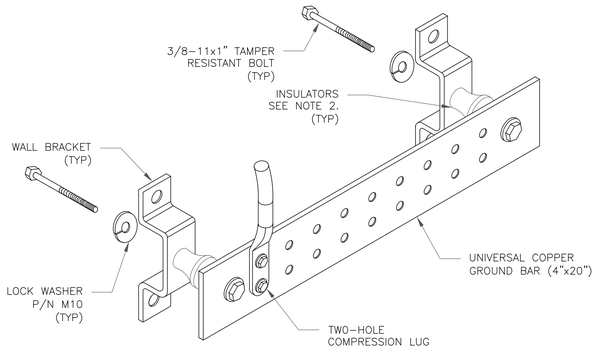
NOTES:

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



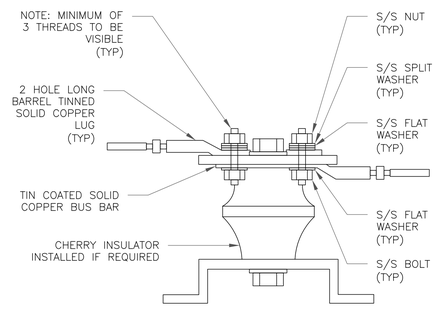
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



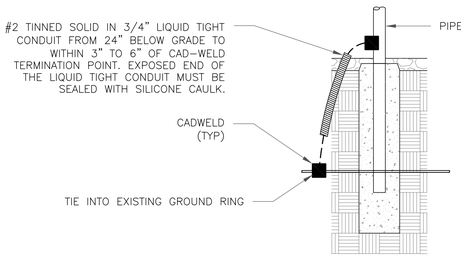
NOTES:

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



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
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1	3/4/21	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

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.

SHEET NUMBER: G-3
REVISION: 1

Exhibit D

Structural Analysis Report

Date: **February 16, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate**	
	Site Number:	CTNL282A
	Site Name:	CTNL282A
Crown Castle Designation:	**BU Number:**	876367
	Site Name:	WAPPINGERS FALLS / BOB'S ANTIQ
	JDE Job Number:	628848
	Work Order Number:	1919063
	Order Number:	538780 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	147464.002.01
Site Data:	**1439 Voluntown Rd, Griswold, New London County, CT** **Latitude *41° 34' 33.99"*, Longitude *-71° 53' 16.96"*** **179.5 Foot - Monopole Tower**	

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

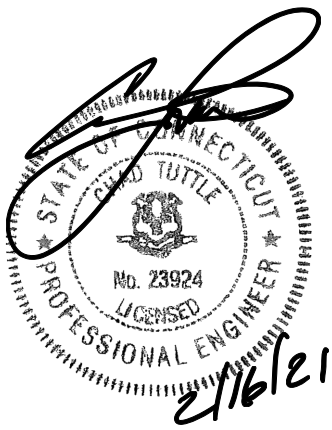
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Brandon Sevier, P.E.

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 2/10/2021



Chad E. Tuttle, P.E.

tnxTower Report - version 8.0.7.5

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 179.5 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	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)
177.0	177.0	3	Ericsson	AIR6449 B41_T-MOBILE	4	1-5/8
		3	Ericsson	RADIO 4415 B66A		
		3	Ericsson	RADIO 4424 B25_TMO		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	Rfs Celwave	APX16DWV-16DWV-S-E-A20		
		3	Rfs Celwave	APXVAALL24_43-U-NA20_TMO		
		1	SITE PRO1	HRK12-U		
		1	--	Platform Mount [LP 303-1]		
60.0	60.0	1	--	Side Arm Mount [SO 701-1]	1	1/2
		1	Gps	GPS_A		

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)
167.0	169.0	3	Kathrein	782 10253	12 2 2 4	1-1/4 3/8 7/16 3/4
		3	Powerwave Tech	7770.00		
		6	Powerwave Tech	LGP 17201		
	167.0	3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		3	Ericsson	RRUS 8843 B2/B66A		
		2	Kathrein	80010964		
		4	Kathrein	80010966		
		3	Raycap	DC6-48-60-18-8F		
		1	--	Platform Mount [LP 303-1_HR-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
151.0	153.0	3	Alcatel Lucent	RRH2X60-700	8	1-5/8
		3	Alcatel Lucent	RRH2X60-AWS		
		3	Alcatel Lucent	RRH2X60-PCS		
		6	Andrew	CBC721-DF		
		2	Antel	LPA-80063/4CF		
		4	Antel	LPA-80080/4CF		
		3	Commscope	HBXX-6516DS-A2M		
		3	Commscope	HBXX-6517DS-A2M		
		3	Commscope	LNX-6514DS-A1M		
		1	Rfs Celwave	DB-T1-6Z-8AB-0Z		
	151.0	1	--	Platform Mount [LP 303-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	1999079	CCI Sites
Mount Analysis	9550299	CCI Sites
Foundation Drawing	1613910	CCI Sites
Geotech Report	1613525	CCI Sites
Crown CAD Package	Date: 01/28/2021	CCI Sites

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. B+T Group 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)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	179.5 - 129.75	Pole	TP31.86x19.59x0.313	1	-15.510	1854.447	38.9	Pass
L2	129.75 - 84.58	Pole	TP42.26x30.125x0.375	2	-25.654	2958.123	50.3	Pass
L3	84.58 - 40.7	Pole	TP52.21x40.086x0.438	3	-39.956	4268.712	49.9	Pass
L4	40.7 - 0	Pole	TP61.25x49.608x0.5	4	-61.564	5922.000	47.3	Pass
							Summary	
						Pole (L2)	50.3	Pass
						Rating =	50.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	52.5	Pass
1,2	Base Plate	Base	55.1	Pass
1,2	Base Foundation (Structure)	Base	59.2	Pass
1,2	Base Foundation (Soil Interaction)	Base	50.3	Pass

Structure Rating (max from all components) =	**59.2%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H Section 15.5.

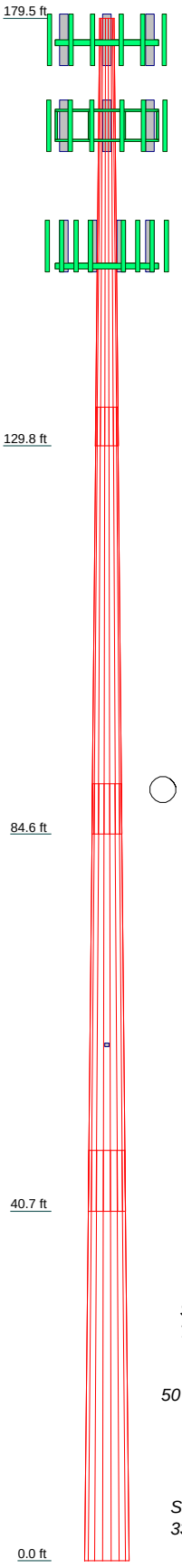
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	49.750	18	0.313	4.500	19.590	31.860	A572-65	4.3
2	49.670	18	0.375	5.830	30.125	42.260		7.2
3	49.710	18	0.438	7.080	40.086	52.210		10.7
4	47.780	18	0.500		49.608	61.250		14.2
								36.4



ALL REACTIONS ARE FACTORED

AXIAL 90 K

SHEAR 7 K

MOMENT 884 kip-ft

TORQUE 0 kip-ft

50 mph WIND - 1.500 in ICE

AXIAL 62 K

SHEAR 33 K

MOMENT 4049 kip-ft

TORQUE 1 kip-ft

REACTIONS - 135 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 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 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 50.3%

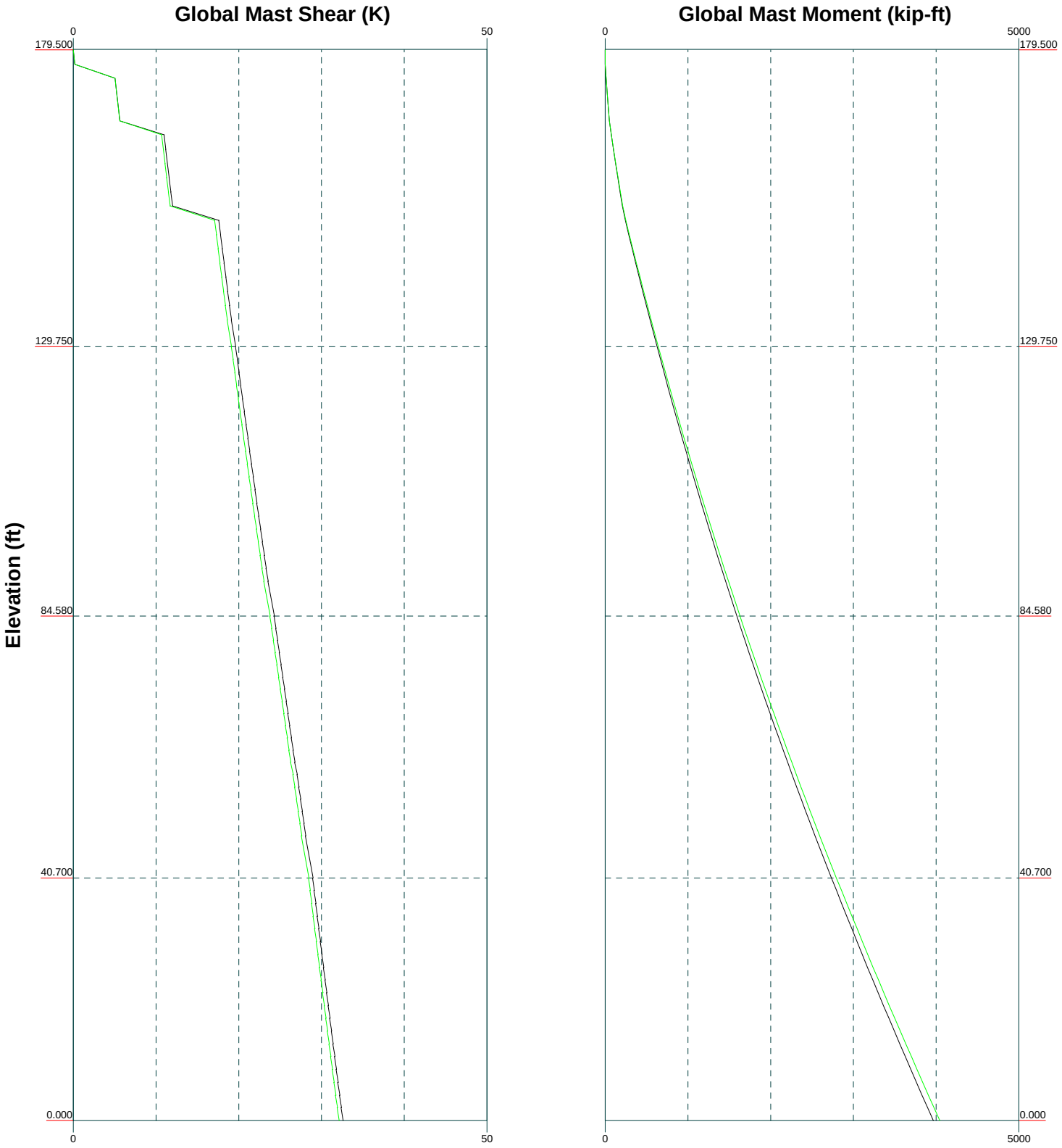
B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 147464.002.01 - WAPPINGERS FALLS, CT (BU# 87636			
Project:			
Client: Crown Castle	Drawn by: Rakshak	App'd:	
Code: TIA-222-H	Date: 02/16/21	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 135 mph/50 mph 1.500 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz



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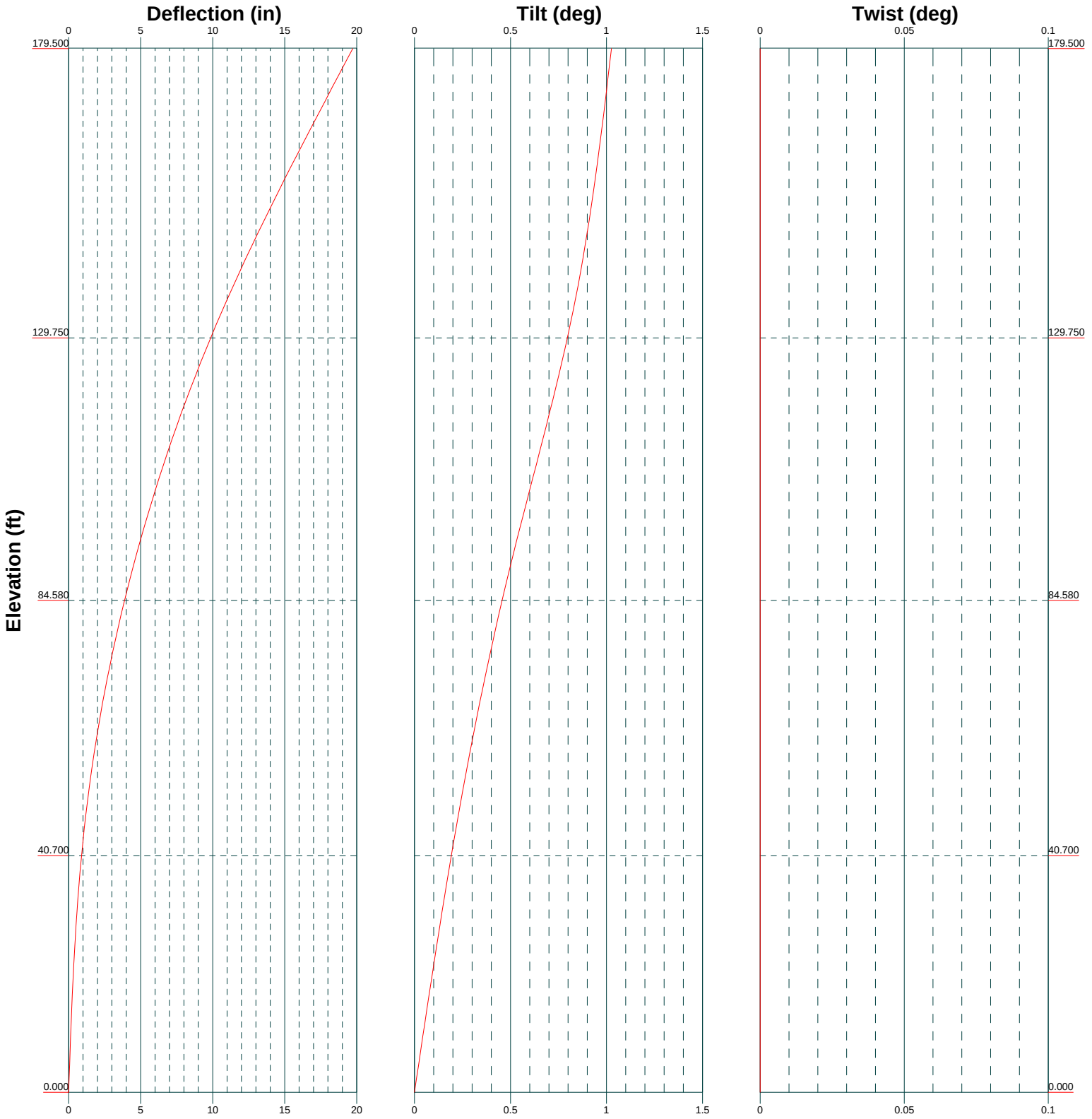
Job: 147464.002.01 - WAPPINGERS FALLS, CT (BU# 87636			
Project:			
Client: Crown Castle	Drawn by: Rakshak	App'd:	
Code: TIA-222-H	Date: 02/16/21	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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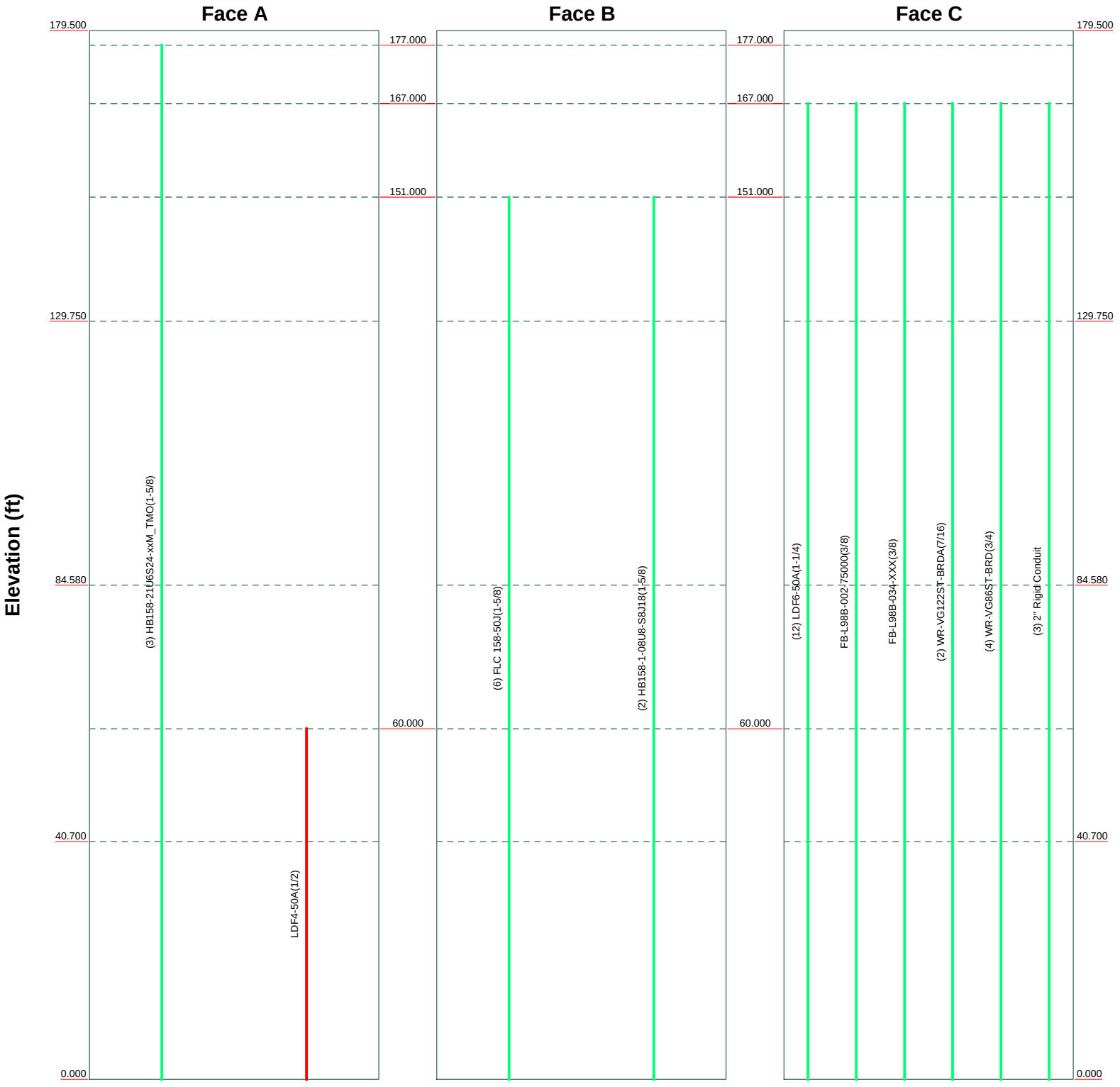
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 147464.002.01 - WAPPINGERS FALLS, CT (BU# 876361			
Project:			
Client: Crown Castle	Drawn by: Rakshak	App'd:	
Code: TIA-222-H	Date: 02/16/21	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 179'6"

Round | Flat | App In Face | App Out Face | Truss Leg



B+T Group
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Phone: (918) 587-4630
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Job:	***147464.002.01 - WAPPINGERS FALLS, CT (BU# 87636)***		
Project:			
Client: Crown Castle	Drawn by: Rakshak	App'd:	
Code: TIA-222-H	Date: 02/16/21	Scale: NTS	
Path:		Dwg No. E-7	

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 New London County, Connecticut.
Tower base elevation above sea level: 286.000 ft.
Basic wind speed of 135 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
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

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

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	179.500-129.750	49.750	4.500	18	19.590	31.860	0.313	1.250	A572-65 (65 ksi)
L2	129.750-84.580	49.670	5.830	18	30.125	42.260	0.375	1.500	A572-65 (65 ksi)
L3	84.580-40.700	49.710	7.080	18	40.086	52.210	0.438	1.750	A572-65 (65 ksi)
L4	40.700-0.000	47.780		18	49.608	61.250	0.500	2.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	19.844	19.121	897.732	6.844	9.952	90.209	1796.645	9.562	2.898	9.273
	32.303	31.291	3934.497	11.199	16.185	243.097	7874.172	15.649	5.057	16.184
L2	31.648	35.410	3959.526	10.561	15.304	258.732	7924.261	17.708	4.642	12.379
	42.854	49.854	11049.718	14.869	21.468	514.705	22113.976	24.932	6.778	18.074
L3	42.080	55.056	10934.327	14.075	20.364	536.957	21883.042	27.533	6.285	14.366
	52.948	71.893	24345.564	18.379	26.523	917.915	48723.163	35.953	8.419	19.243
L4	52.048	77.935	23745.203	17.433	25.201	942.234	47521.651	38.975	7.851	15.702
	62.118	96.410	44952.435	21.566	31.115	1444.719	89964.020	48.214	9.900	19.8

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 179.500-129.750				1	1	1			
L2 129.750-84.580				1	1	1			
L3 84.580-40.700				1	1	1			
L4 40.700-0.000				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 klf
* LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	60.000 - 0.000	1	1	-0.420 -0.400	0.630		0.000
* Safety Line 3/8	C	No	Surface Ar	0.000 -	1	1	0.000	0.375		0.000

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 klf
			(CaAa)	0.000			0.000			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
HB158-21U6S24-xx M_TMO(1-5/8)	A	No	No	Inside Pole	177.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
*									
LDF6-50A(1-1/4)	C	No	No	Inside Pole	167.000 - 0.000	12	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
FB-L98B-002-75000 (3/8)	C	No	No	Inside Pole	167.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	167.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG122ST-BRD A(7/16)	C	No	No	Inside Pole	167.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	167.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
2" Rigid Conduit	C	No	No	Inside Pole	167.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
*									
FLC 158-50J(1-5/8)	B	No	No	Inside Pole	151.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB158-1-08U8-S8J 18(1-5/8)	B	No	No	Inside Pole	151.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	179.500-129.750	A	0.000	0.000	0.000	0.000	0.354
		B	0.000	0.000	0.000	0.000	0.173
		C	0.000	0.000	0.000	0.000	0.682
L2	129.750-84.580	A	0.000	0.000	0.000	0.000	0.339
		B	0.000	0.000	0.000	0.000	0.367
		C	0.000	0.000	0.000	0.000	0.828
L3	84.580-40.700	A	0.000	0.000	1.216	0.000	0.332
		B	0.000	0.000	0.000	0.000	0.356
		C	0.000	0.000	0.000	0.000	0.804
L4	40.700-0.000	A	0.000	0.000	2.564	0.000	0.311
		B	0.000	0.000	0.000	0.000	0.330
		C	0.000	0.000	0.000	0.000	0.746

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	179.500-129.750	A	1.486	0.000	0.000	0.000	0.000	0.354
		B		0.000	0.000	0.000	0.000	0.173
		C		0.000	0.000	0.000	0.000	0.682
L2	129.750-84.580	A	1.433	0.000	0.000	0.000	0.000	0.339
		B		0.000	0.000	0.000	0.000	0.367
		C		0.000	0.000	0.000	0.000	0.828
L3	84.580-40.700	A	1.359	0.000	0.000	6.748	0.000	0.402
		B		0.000	0.000	0.000	0.000	0.356
		C		0.000	0.000	0.000	0.000	0.804
L4	40.700-0.000	A	1.211	0.000	0.000	13.625	0.000	0.446
		B		0.000	0.000	0.000	0.000	0.330
		C		0.000	0.000	0.000	0.000	0.746

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	179.500-129.750	0.000	0.000	0.000	0.000
L2	129.750-84.580	0.000	0.000	0.000	0.000
L3	84.580-40.700	-0.226	0.079	-0.708	0.247
L4	40.700-0.000	-0.479	0.167	-1.432	0.499

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L3	16	LDF4-50A(1/2)	40.70 - 60.00	1.0000	1.0000
L4	16	LDF4-50A(1/2)	0.00 - 40.70	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.290 6.860 7.450 8.680	2.760 3.270 3.790 4.900	0.061 0.105 0.157 0.290
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.290 6.860 7.450 8.680	2.760 3.270 3.790 4.900	0.061 0.105 0.157 0.290
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.290 6.860 7.450 8.680	2.760 3.270 3.790 4.900	0.061 0.105 0.157 0.290
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.690 15.460 16.230 17.820	6.870 7.550 8.250 9.670	0.183 0.311 0.453 0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.690 15.460 16.230 17.820	6.870 7.550 8.250 9.670	0.183 0.311 0.453 0.782
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.690 15.460 16.230 17.820	6.870 7.550 8.250 9.670	0.183 0.311 0.453 0.782
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.870 6.233 6.606 7.382	3.270 3.728 4.203 5.200	0.128 0.177 0.232 0.359
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.870 6.233 6.606 7.382	3.270 3.728 4.203 5.200	0.128 0.177 0.232 0.359
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.870 6.233 6.606 7.382	3.270 3.728 4.203 5.200	0.128 0.177 0.232 0.359
RADIO 4415 B66A	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.856 2.027 2.204 2.582	0.870 0.997 1.134 1.432	0.050 0.064 0.081 0.124
RADIO 4415 B66A	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice	1.856 2.027 2.204	0.870 0.997 1.134	0.050 0.064 0.081

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.582	1.432	0.124
RADIO 4415 B66A	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.856 2.027 2.204 2.582	0.870 0.997 1.134 1.432	0.050 0.064 0.081 0.124
RADIO 4424 B25_TMO	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.052 2.231 2.417 2.811	1.610 1.772 1.941 2.301	0.086 0.107 0.131 0.188
RADIO 4424 B25_TMO	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.052 2.231 2.417 2.811	1.610 1.772 1.941 2.301	0.086 0.107 0.131 0.188
RADIO 4424 B25_TMO	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.052 2.231 2.417 2.811	1.610 1.772 1.941 2.301	0.086 0.107 0.131 0.188
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.970 2.147 2.331 2.721	1.587 1.749 1.918 2.280	0.073 0.093 0.116 0.170
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.970 2.147 2.331 2.721	1.587 1.749 1.918 2.280	0.073 0.093 0.116 0.170
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.970 2.147 2.331 2.721	1.587 1.749 1.918 2.280	0.073 0.093 0.116 0.170
Platform Mount [LP 303-1_HR-1]	C	None		0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	17.090 21.470 25.720 33.960	17.090 21.470 25.720 33.960	1.495 1.881 2.346 3.518
*									
(2) 80010964 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.610 9.180 9.770 10.980	4.100 4.590 5.100 6.160	0.116 0.186 0.265 0.453
(2) 80010966 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.610 15.470 16.350 18.140	6.840 7.630 8.420 10.060	0.159 0.267 0.389 0.677
(2) 80010966 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.610 15.470 16.350 18.140	6.840 7.630 8.420 10.060	0.159 0.267 0.389 0.677
7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	167.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							2" Ice	7.488	7.155	0.287
DC6-48-60-18-8F	A	From Leg	4.000	0.000	0.000	167.000	No Ice	0.791	0.791	0.020
			0.000				1/2" Ice	1.274	1.274	0.035
			0.000				1" Ice	1.450	1.450	0.053
							2" Ice	1.831	1.831	0.095
(2) DC6-48-60-18-8F	B	From Leg	4.000	0.000	0.000	167.000	No Ice	0.791	0.791	0.020
			0.000				1/2" Ice	1.274	1.274	0.035
			0.000				1" Ice	1.450	1.450	0.053
							2" Ice	1.831	1.831	0.095
RRUS 4478 B14	A	From Leg	4.000	0.000	0.000	167.000	No Ice	1.843	1.059	0.060
			0.000				1/2" Ice	2.012	1.197	0.076
			0.000				1" Ice	2.190	1.342	0.094
							2" Ice	2.566	1.656	0.140
RRUS 4478 B14	B	From Leg	4.000	0.000	0.000	167.000	No Ice	1.843	1.059	0.060
			0.000				1/2" Ice	2.012	1.197	0.076
			0.000				1" Ice	2.190	1.342	0.094
							2" Ice	2.566	1.656	0.140
RRUS 4478 B14	C	From Leg	4.000	0.000	0.000	167.000	No Ice	1.843	1.059	0.060
			0.000				1/2" Ice	2.012	1.197	0.076
			0.000				1" Ice	2.190	1.342	0.094
							2" Ice	2.566	1.656	0.140
RRUS 8843 B2/B66A	A	From Leg	4.000	0.000	0.000	167.000	No Ice	1.639	1.353	0.072
			0.000				1/2" Ice	1.799	1.500	0.090
			0.000				1" Ice	1.966	1.655	0.110
							2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	B	From Leg	4.000	0.000	0.000	167.000	No Ice	1.639	1.353	0.072
			0.000				1/2" Ice	1.799	1.500	0.090
			0.000				1" Ice	1.966	1.655	0.110
							2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	C	From Leg	4.000	0.000	0.000	167.000	No Ice	1.639	1.353	0.072
			0.000				1/2" Ice	1.799	1.500	0.090
			0.000				1" Ice	1.966	1.655	0.110
							2" Ice	2.323	1.986	0.159
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	0.000	167.000	No Ice	1.968	1.408	0.071
			0.000				1/2" Ice	2.144	1.564	0.090
			0.000				1" Ice	2.328	1.727	0.111
							2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	0.000	167.000	No Ice	1.968	1.408	0.071
			0.000				1/2" Ice	2.144	1.564	0.090
			0.000				1" Ice	2.328	1.727	0.111
							2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	0.000	167.000	No Ice	1.968	1.408	0.071
			0.000				1/2" Ice	2.144	1.564	0.090
			0.000				1" Ice	2.328	1.727	0.111
							2" Ice	2.718	2.075	0.163
(2) LGP 17201	A	From Leg	4.000	0.000	0.000	167.000	No Ice	1.668	0.467	0.031
			0.000				1/2" Ice	1.829	0.568	0.042
			2.000				1" Ice	1.997	0.675	0.055
							2" Ice	2.356	0.912	0.089
(2) LGP 17201	B	From Leg	4.000	0.000	0.000	167.000	No Ice	1.668	0.467	0.031
			0.000				1/2" Ice	1.829	0.568	0.042
			2.000				1" Ice	1.997	0.675	0.055
							2" Ice	2.356	0.912	0.089
(2) LGP 17201	C	From Leg	4.000	0.000	0.000	167.000	No Ice	1.668	0.467	0.031
			0.000				1/2" Ice	1.829	0.568	0.042
			2.000				1" Ice	1.997	0.675	0.055
							2" Ice	2.356	0.912	0.089

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
782 10253	A	From Leg	4.000 0.000 2.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.108 0.152 0.203 0.329	0.061 0.098 0.142 0.254	0.003 0.004 0.006 0.013
782 10253	B	From Leg	4.000 0.000 2.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.108 0.152 0.203 0.329	0.061 0.098 0.142 0.254	0.003 0.004 0.006 0.013
782 10253	C	From Leg	4.000 0.000 2.000	0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.108 0.152 0.203 0.329	0.061 0.098 0.142 0.254	0.003 0.004 0.006 0.013
Platform Mount [LP 303-1_HR-1] *	C	None		0.000	167.000	No Ice 1/2" Ice 1" Ice 2" Ice	17.090 21.470 25.720 33.960	17.090 21.470 25.720 33.960	1.495 1.881 2.346 3.518
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.856 3.220 3.592 4.337	6.569 7.195 7.837 9.170	0.030 0.076 0.128 0.253
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.856 3.220 3.592 4.337	6.569 7.195 7.837 9.170	0.030 0.076 0.128 0.253
(2) LPA-80063/4CF w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.385 6.784 7.192 8.035	6.603 7.232 7.876 9.214	0.038 0.104 0.176 0.344
(2) CBC721-DF	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.385 0.465 0.552 0.749	0.111 0.165 0.226 0.369	0.004 0.007 0.011 0.023
(2) CBC721-DF	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.385 0.465 0.552 0.749	0.111 0.165 0.226 0.369	0.004 0.007 0.011 0.023
(2) CBC721-DF	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.385 0.465 0.552 0.749	0.111 0.165 0.226 0.369	0.004 0.007 0.011 0.023
HBXX-6516DS-A2M w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.180 5.700 6.240 7.360	3.970 4.470 4.980 6.060	0.050 0.094 0.147 0.280
HBXX-6516DS-A2M w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.180 5.700 6.240 7.360	3.970 4.470 4.980 6.060	0.050 0.094 0.147 0.280
HBXX-6516DS-A2M w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.180 5.700 6.240 7.360	3.970 4.470 4.980 6.060	0.050 0.094 0.147 0.280
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.970 8.730 9.500 11.110	5.990 6.720 7.470 9.020	0.078 0.141 0.216 0.399

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.970 8.730 9.500 11.110	5.990 6.720 7.470 9.020	0.078 0.141 0.216 0.399
HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.970 8.730 9.500 11.110	5.990 6.720 7.470 9.020	0.078 0.141 0.216 0.399
LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.490 4.890 5.710	3.300 3.680 4.060 4.870	0.065 0.128 0.202 0.383
LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.490 4.890 5.710	3.300 3.680 4.060 4.870	0.065 0.128 0.202 0.383
LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.490 4.890 5.710	3.300 3.680 4.060 4.870	0.065 0.128 0.202 0.383
RRH2X60-PCS	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.200 2.393 2.593 3.015	1.723 1.901 2.087 2.480	0.055 0.075 0.099 0.155
RRH2X60-PCS	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.200 2.393 2.593 3.015	1.723 1.901 2.087 2.480	0.055 0.075 0.099 0.155
RRH2X60-PCS	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.200 2.393 2.593 3.015	1.723 1.901 2.087 2.480	0.055 0.075 0.099 0.155
RRH2X60-700	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-700	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-700	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-AWS	A	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-AWS	B	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2X60-AWS	C	From Leg	4.000 0.000 2.000	0.000	151.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	151.000	No Ice	4.800	2.000	0.044

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	5.070	2.193	0.080
			2.000			1" Ice	5.348	2.393	0.120
						2" Ice	5.926	2.815	0.213
Platform Mount [LP 303-1]	C	None		0.000	151.000	No Ice	14.690	14.690	1.250
						1/2" Ice	18.010	18.010	1.569
						1" Ice	21.340	21.340	1.942
						2" Ice	28.080	28.080	2.852
*									
GPS_A	A	From Leg	3.000	0.000	60.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			0.000			1" Ice	0.393	0.393	0.010
						2" Ice	0.561	0.561	0.025
Side Arm Mount [SO 701-1]	A	None		0.000	60.000	No Ice	0.850	1.670	0.065
						1/2" Ice	1.140	2.340	0.079
						1" Ice	1.430	3.010	0.093
						2" Ice	2.010	4.350	0.121
*									

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

Comb. No.	Description
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
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	179.5 - 129.75	Pole	Max Tension	8	0.000	0.000	0.001
			Max. Compression	26	-33.425	0.773	-2.820
			Max. Mx	20	-15.510	554.757	-4.183
			Max. My	14	-15.580	3.651	-541.800
			Max. Vy	20	-19.119	554.757	-4.183
			Max. Vx	14	18.619	3.651	-541.800
			Max. Torque	20			1.376
L2	129.75 - 84.58	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.389	0.800	-2.910
			Max. Mx	20	-25.656	1489.564	-12.280
			Max. My	14	-25.703	11.696	-1454.621
			Max. Vy	8	23.562	-1489.306	10.869
			Max. Vx	14	23.063	11.696	-1454.621
			Max. Torque	20			1.374
L3	84.58 - 40.7	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.166	0.912	-2.769
			Max. Mx	20	-39.957	2592.186	-20.047
			Max. My	14	-39.980	19.453	-2536.021
			Max. Vy	8	28.113	-2591.906	18.601
			Max. Vx	14	27.620	19.453	-2536.021
			Max. Torque	20			1.370
L4	40.7 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.997	1.224	-2.589
			Max. Mx	20	-61.564	4044.960	-28.514
			Max. My	14	-61.565	27.942	-3965.602
			Max. Vy	8	32.618	-4044.640	27.078
			Max. Vx	14	32.144	27.942	-3965.602
			Max. Torque	20			1.318

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	35	89.997	6.161	-3.539
	Max. H_x	21	46.185	32.589	-0.173
	Max. H_z	2	61.580	-0.173	32.115
	Max. M_x	2	3964.145	-0.173	32.115
	Max. M_z	8	4044.640	-32.589	0.173
	Max. Torsion	20	1.317	32.589	-0.173
	Min. Vert	13	46.185	-16.144	-27.726
	Min. H_x	8	61.580	-32.589	0.173
	Min. H_z	14	61.580	0.173	-32.115
	Min. M_x	14	-3965.602	0.173	-32.115
	Min. M_z	20	-4044.960	32.589	-0.173
	Min. Torsion	8	-1.273	-32.589	0.173

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	51.317	0.000	0.000	0.556	0.112	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	61.580	0.173	-32.115	-3964.145	-27.653	-0.092
0.9 Dead+1.0 Wind 0 deg - No Ice	46.185	0.173	-32.115	-3919.310	-27.356	-0.086
1.2 Dead+1.0 Wind 30 deg - No Ice	61.580	16.445	-27.899	-3446.780	-2046.384	0.566
0.9 Dead+1.0 Wind 30 deg - No Ice	46.185	16.445	-27.899	-3407.797	-2023.102	0.570
1.2 Dead+1.0 Wind 60 deg - No Ice	61.580	28.309	-16.208	-2005.692	-3516.656	1.059
0.9 Dead+1.0 Wind 60 deg - No Ice	46.185	28.309	-16.208	-1983.076	-3476.643	1.061
1.2 Dead+1.0 Wind 90 deg - No Ice	61.580	32.589	-0.173	-27.078	-4044.640	1.273
0.9 Dead+1.0 Wind 90 deg - No Ice	46.185	32.589	-0.173	-26.936	-3998.644	1.272
1.2 Dead+1.0 Wind 120 deg - No Ice	61.580	28.136	15.907	1959.047	-3488.975	1.162
0.9 Dead+1.0 Wind 120 deg - No Ice	46.185	28.136	15.907	1936.622	-3449.289	1.158
1.2 Dead+1.0 Wind 150 deg - No Ice	61.580	16.144	27.726	3420.538	-1998.308	0.751
0.9 Dead+1.0 Wind 150 deg - No Ice	46.185	16.144	27.726	3381.496	-1975.601	0.745
1.2 Dead+1.0 Wind 180 deg - No Ice	61.580	-0.173	32.115	3965.602	27.942	0.136
0.9 Dead+1.0 Wind 180 deg - No Ice	46.185	-0.173	32.115	3920.376	27.569	0.129
1.2 Dead+1.0 Wind 210 deg - No Ice	61.580	-16.445	27.899	3448.232	2046.682	-0.533
0.9 Dead+1.0 Wind 210 deg - No Ice	46.185	-16.445	27.899	3408.860	2023.322	-0.538
1.2 Dead+1.0 Wind 240 deg - No Ice	61.580	-28.309	16.208	2007.132	3516.955	-1.070
0.9 Dead+1.0 Wind 240 deg -	46.185	-28.309	16.208	1984.130	3476.863	-1.072

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
No Ice						
1.2 Dead+1.0 Wind 270 deg - No Ice	61.580	-32.589	0.173	28.514	4044.960	-1.317
0.9 Dead+1.0 Wind 270 deg - No Ice	46.185	-32.589	0.173	27.986	3998.858	-1.316
1.2 Dead+1.0 Wind 300 deg - No Ice	61.580	-28.136	-15.907	-1957.607	3489.256	-1.196
0.9 Dead+1.0 Wind 300 deg - No Ice	46.185	-28.136	-15.907	-1935.568	3449.496	-1.191
1.2 Dead+1.0 Wind 330 deg - No Ice	61.580	-16.144	-27.726	-3419.087	1998.588	-0.741
0.9 Dead+1.0 Wind 330 deg - No Ice	46.185	-16.144	-27.726	-3380.433	1975.807	-0.735
1.2 Dead+1.0 Ice+1.0 Temp	89.997	-0.000	0.000	2.589	1.224	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	89.997	0.025	-7.034	-866.758	-2.863	-0.008
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	89.997	3.572	-6.104	-752.339	-442.929	0.113
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	89.997	6.161	-3.539	-435.584	-763.964	0.203
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	89.997	7.100	-0.025	-1.367	-879.950	0.239
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	89.997	6.137	3.495	433.964	-759.808	0.211
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	89.997	3.529	6.079	753.763	-435.728	0.127
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	89.997	-0.025	7.034	872.339	5.452	0.010
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	89.997	-3.572	6.104	757.920	445.518	-0.111
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	89.997	-6.161	3.539	441.165	766.553	-0.203
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	89.997	-7.100	0.025	6.948	882.539	-0.240
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	89.997	-6.137	-3.495	-428.383	762.396	-0.212
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	89.997	-3.529	-6.079	-748.182	438.317	-0.127
Dead+Wind 0 deg - Service	51.317	0.032	-5.975	-732.204	-5.016	-0.020
Dead+Wind 30 deg - Service	51.317	3.059	-5.190	-636.593	-378.131	0.105
Dead+Wind 60 deg - Service	51.317	5.267	-3.015	-370.247	-649.894	0.200
Dead+Wind 90 deg - Service	51.317	6.063	-0.032	-4.533	-747.486	0.243
Dead+Wind 120 deg - Service	51.317	5.234	2.959	362.558	-644.759	0.221
Dead+Wind 150 deg - Service	51.317	3.003	5.158	632.665	-369.237	0.140
Dead+Wind 180 deg - Service	51.317	-0.032	5.975	733.410	5.254	0.021
Dead+Wind 210 deg - Service	51.317	-3.059	5.190	637.799	378.370	-0.103
Dead+Wind 240 deg - Service	51.317	-5.267	3.015	371.453	650.132	-0.201
Dead+Wind 270 deg - Service	51.317	-6.063	0.032	5.738	747.725	-0.244
Dead+Wind 300 deg - Service	51.317	-5.234	-2.959	-361.353	644.997	-0.222
Dead+Wind 330 deg - Service	51.317	-3.003	-5.158	-631.459	369.475	-0.139

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-51.317	0.000	0.000	51.317	0.000	0.000%
2	0.173	-61.580	-32.115	-0.173	61.580	32.115	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
3	0.173	-46.185	-32.115	-0.173	46.185	32.115	0.000%
4	16.445	-61.580	-27.899	-16.445	61.580	27.899	0.000%
5	16.445	-46.185	-27.899	-16.445	46.185	27.899	0.000%
6	28.309	-61.580	-16.208	-28.309	61.580	16.208	0.000%
7	28.309	-46.185	-16.208	-28.309	46.185	16.208	0.000%
8	32.589	-61.580	-0.173	-32.589	61.580	0.173	0.000%
9	32.589	-46.185	-0.173	-32.589	46.185	0.173	0.000%
10	28.136	-61.580	15.907	-28.136	61.580	-15.907	0.000%
11	28.136	-46.185	15.907	-28.136	46.185	-15.907	0.000%
12	16.144	-61.580	27.726	-16.144	61.580	-27.726	0.000%
13	16.144	-46.185	27.726	-16.144	46.185	-27.726	0.000%
14	-0.173	-61.580	32.115	0.173	61.580	-32.115	0.000%
15	-0.173	-46.185	32.115	0.173	46.185	-32.115	0.000%
16	-16.445	-61.580	27.899	16.445	61.580	-27.899	0.000%
17	-16.445	-46.185	27.899	16.445	46.185	-27.899	0.000%
18	-28.309	-61.580	16.208	28.309	61.580	-16.208	0.000%
19	-28.309	-46.185	16.208	28.309	46.185	-16.208	0.000%
20	-32.589	-61.580	0.173	32.589	61.580	-0.173	0.000%
21	-32.589	-46.185	0.173	32.589	46.185	-0.173	0.000%
22	-28.136	-61.580	-15.907	28.136	61.580	15.907	0.000%
23	-28.136	-46.185	-15.907	28.136	46.185	15.907	0.000%
24	-16.144	-61.580	-27.726	16.144	61.580	27.726	0.000%
25	-16.144	-46.185	-27.726	16.144	46.185	27.726	0.000%
26	0.000	-89.997	0.000	0.000	89.997	-0.000	0.000%
27	0.025	-89.997	-7.034	-0.025	89.997	7.034	0.000%
28	3.572	-89.997	-6.104	-3.572	89.997	6.104	0.000%
29	6.161	-89.997	-3.539	-6.161	89.997	3.539	0.000%
30	7.100	-89.997	-0.025	-7.100	89.997	0.025	0.000%
31	6.137	-89.997	3.495	-6.137	89.997	-3.495	0.000%
32	3.529	-89.997	6.079	-3.529	89.997	-6.079	0.000%
33	-0.025	-89.997	7.034	0.025	89.997	-7.034	0.000%
34	-3.572	-89.997	6.104	3.572	89.997	-6.104	0.000%
35	-6.161	-89.997	3.539	6.161	89.997	-3.539	0.000%
36	-7.100	-89.997	0.025	7.100	89.997	-0.025	0.000%
37	-6.137	-89.997	-3.495	6.137	89.997	3.495	0.000%
38	-3.529	-89.997	-6.079	3.529	89.997	6.079	0.000%
39	0.032	-51.317	-5.975	-0.032	51.317	5.975	0.000%
40	3.059	-51.317	-5.190	-3.059	51.317	5.190	0.000%
41	5.267	-51.317	-3.015	-5.267	51.317	3.015	0.000%
42	6.063	-51.317	-0.032	-6.063	51.317	0.032	0.000%
43	5.234	-51.317	2.959	-5.234	51.317	-2.959	0.000%
44	3.003	-51.317	5.158	-3.003	51.317	-5.158	0.000%
45	-0.032	-51.317	5.975	0.032	51.317	-5.975	0.000%
46	-3.059	-51.317	5.190	3.059	51.317	-5.190	0.000%
47	-5.267	-51.317	3.015	5.267	51.317	-3.015	0.000%
48	-6.063	-51.317	0.032	6.063	51.317	-0.032	0.000%
49	-5.234	-51.317	-2.959	5.234	51.317	2.959	0.000%
50	-3.003	-51.317	-5.158	3.003	51.317	5.158	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	4	0.00000001	0.00057085
3	Yes	4	0.00000001	0.00024359

4	Yes	5	0.00000001	0.00093663
5	Yes	5	0.00000001	0.00043274
6	Yes	5	0.00000001	0.00091843
7	Yes	5	0.00000001	0.00042252
8	Yes	4	0.00000001	0.00064364
9	Yes	4	0.00000001	0.00030887
10	Yes	5	0.00000001	0.00092149
11	Yes	5	0.00000001	0.00042679
12	Yes	5	0.00000001	0.00088587
13	Yes	5	0.00000001	0.00040989
14	Yes	4	0.00000001	0.00061713
15	Yes	4	0.00000001	0.00028486
16	Yes	5	0.00000001	0.00092192
17	Yes	5	0.00000001	0.00042491
18	Yes	5	0.00000001	0.00095387
19	Yes	5	0.00000001	0.00044003
20	Yes	5	0.00000001	0.00005662
21	Yes	4	0.00000001	0.00066372
22	Yes	5	0.00000001	0.00088339
23	Yes	5	0.00000001	0.00040792
24	Yes	5	0.00000001	0.00090596
25	Yes	5	0.00000001	0.00042020
26	Yes	4	0.00000001	0.00002004
27	Yes	5	0.00000001	0.00028666
28	Yes	5	0.00000001	0.00032465
29	Yes	5	0.00000001	0.00032629
30	Yes	5	0.00000001	0.00029321
31	Yes	5	0.00000001	0.00032803
32	Yes	5	0.00000001	0.00032567
33	Yes	5	0.00000001	0.00029199
34	Yes	5	0.00000001	0.00033089
35	Yes	5	0.00000001	0.00033348
36	Yes	5	0.00000001	0.00029470
37	Yes	5	0.00000001	0.00032385
38	Yes	5	0.00000001	0.00032197
39	Yes	4	0.00000001	0.00003358
40	Yes	4	0.00000001	0.00014025
41	Yes	4	0.00000001	0.00012913
42	Yes	4	0.00000001	0.00004146
43	Yes	4	0.00000001	0.00014332
44	Yes	4	0.00000001	0.00012601
45	Yes	4	0.00000001	0.00003394
46	Yes	4	0.00000001	0.00013278
47	Yes	4	0.00000001	0.00014825
48	Yes	4	0.00000001	0.00004393
49	Yes	4	0.00000001	0.00012304
50	Yes	4	0.00000001	0.00013615

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179.5 - 129.75	19.724	47	1.023	0.002
L2	134.25 - 84.58	10.631	47	0.827	0.001
L3	90.41 - 40.7	4.481	47	0.496	0.000
L4	47.78 - 0	1.195	47	0.230	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.000	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	47	19.190	1.015	0.002	64143
167.000	(2) 80010964 w/ Mount Pipe	47	17.065	0.980	0.002	25657
151.000	(2) LPA-80080/4CF w/ Mount Pipe	47	13.777	0.916	0.001	11252
60.000	GPS_A	47	1.876	0.298	0.000	8565

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179.5 - 129.75	106.668	18	5.541	0.011
L2	134.25 - 84.58	57.530	18	4.479	0.005
L3	90.41 - 40.7	24.255	18	2.685	0.002
L4	47.78 - 0	6.465	18	1.246	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.000	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	18	103.781	5.496	0.012	12041
167.000	(2) 80010964 w/ Mount Pipe	18	92.300	5.307	0.010	4815
151.000	(2) LPA-80080/4CF w/ Mount Pipe	18	74.537	4.961	0.007	2109
60.000	GPS_A	18	10.151	1.611	0.001	1584

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	179.5 - 129.75 (1)	TP31.86x19.59x0.313	49.750	0.000	0.0	30.190	-15.510	1766.140	0.009
L2	129.75 - 84.58 (2)	TP42.26x30.125x0.375	49.670	0.000	0.0	48.158	-25.654	2817.260	0.009
L3	84.58 - 40.7 (3)	TP52.21x40.086x0.438	49.710	0.000	0.0	69.495	-39.956	4065.440	0.010
L4	40.7 - 0 (4)	TP61.25x49.608x0.5	47.780	0.000	0.0	96.410	-61.564	5640.000	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	179.5 - 129.75 (1)	TP31.86x19.59x0.313	554.773	1392.325	0.398	0.000	1392.325	0.000
L2	129.75 - 84.58 (2)	TP42.26x30.125x0.375	1491.033	2877.033	0.518	0.000	2877.033	0.000
L3	84.58 - 40.7 (3)	TP52.21x40.086x0.438	2595.067	5051.425	0.514	0.000	5051.425	0.000
L4	40.7 - 0 (4)	TP61.25x49.608x0.5	4049.392	8351.667	0.485	0.000	8351.667	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	179.5 - 129.75 (1)	TP31.86x19.59x0.313	19.120	529.841	0.036	1.375	1412.333	0.001
L2	129.75 - 84.58 (2)	TP42.26x30.125x0.375	23.597	845.179	0.028	1.116	2994.758	0.000
L3	84.58 - 40.7 (3)	TP52.21x40.086x0.438	28.145	1219.630	0.023	1.071	5345.342	0.000
L4	40.7 - 0 (4)	TP61.25x49.608x0.5	32.651	1692.000	0.019	1.070	9001.750	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	179.5 - 129.75 (1)	0.009	0.398	0.000	0.036	0.001	0.409 ✔	1.050	4.8.2 ✔
L2	129.75 - 84.58 (2)	0.009	0.518	0.000	0.028	0.000	0.528 ✔	1.050	4.8.2 ✔
L3	84.58 - 40.7 (3)	0.010	0.514	0.000	0.023	0.000	0.524 ✔	1.050	4.8.2 ✔
L4	40.7 - 0 (4)	0.011	0.485	0.000	0.019	0.000	0.496 ✔	1.050	4.8.2 ✔

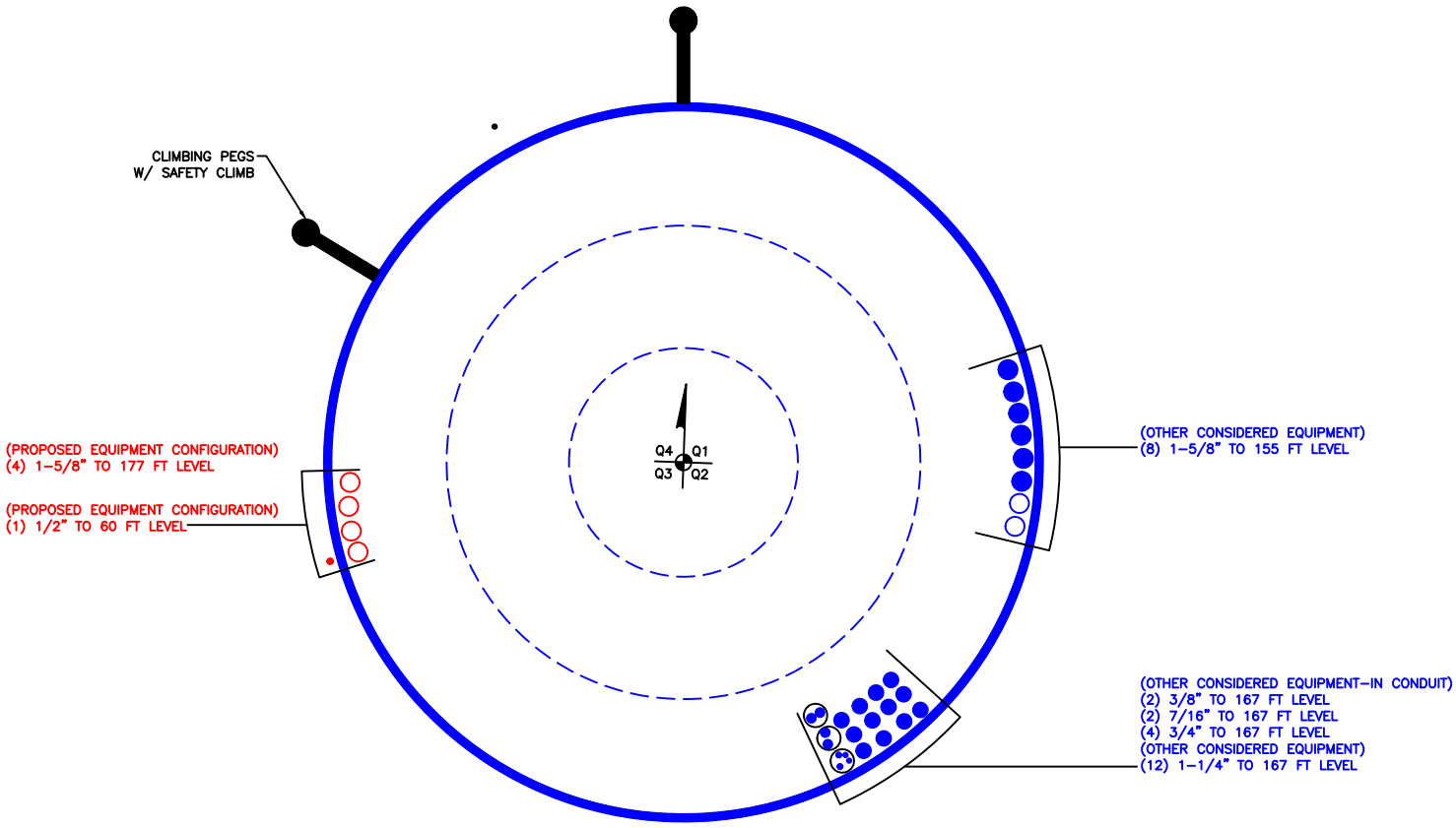
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	179.5 - 129.75	Pole	TP31.86x19.59x0.313	1	-15.510	1854.447	38.9	Pass
L2	129.75 - 84.58	Pole	TP42.26x30.125x0.375	2	-25.654	2958.123	50.3	Pass
L3	84.58 - 40.7	Pole	TP52.21x40.086x0.438	3	-39.956	4268.712	49.9	Pass
L4	40.7 - 0	Pole	TP61.25x49.608x0.5	4	-61.564	5922.000	47.3	Pass
							Summary	
							Pole (L2)	50.3	Pass
							RATING =	**50.3**	**Pass**

Program Version 8.0.7.5

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876367

APPENDIX C

ADDITIONAL CALCULATIONS

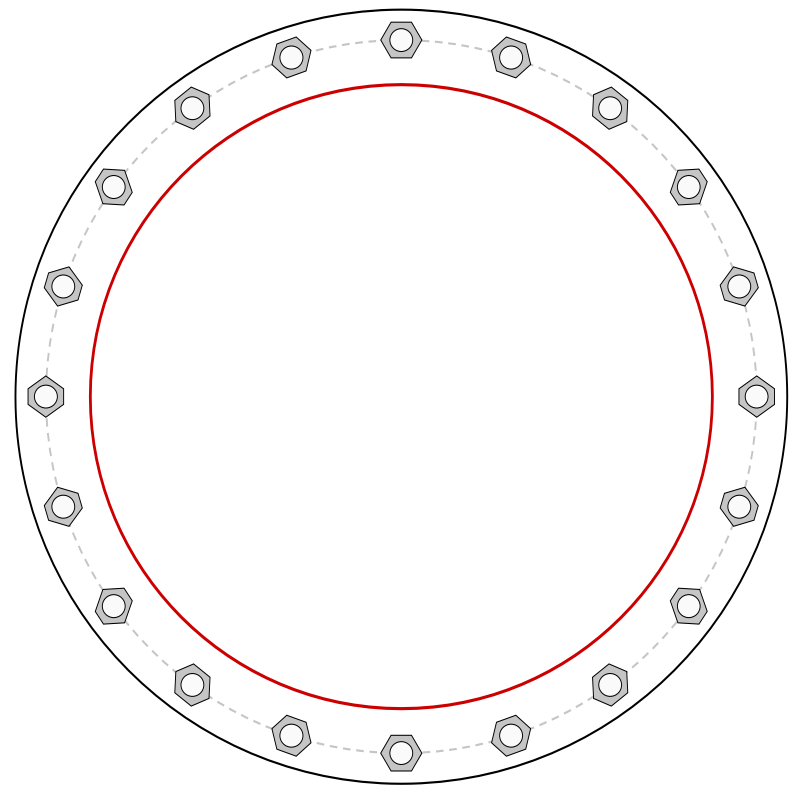
Monopole Base Plate Connection

Site Info	
BU #	876367
Site Name	GERS FALLS /BOB'S AN
Order #	538780;Rev.0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.75

Applied Loads	
Moment (kip-ft)	4049.39
Axial Force (kips)	61.56
Shear Force (kips)	32.65

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 70" BC

Base Plate Data

76" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

61.25" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 141.86	ϕPn_c = 268.39	**Stress Rating**
Vu = 1.63	ϕVn = 120.77	**52.5%**
Mu = 2.92	ϕMn = 128.14	**Pass**

Base Plate Summary

Max Stress (ksi):	31.24	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**55.1%**	**Pass**

Pier and Pad Foundation

BU # :	876367
Site Name:	WAPPINGERS
App. Number:	538780; Rev.0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	62	kips
Base Shear, Vu_comp:	33	kips
Moment, M_u:	4049	ft-kips
Tower Height, **H**:	179.5	ft
BP Dist. Above Fdn, bp_{dist}:	5	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	24	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	2	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.5	ft
Pad Width, W_1:	27	ft
Pad Thickness, **T**:	6	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	27	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	16.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.5	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	375.65	33.00	**8.4%**	**Pass**
Bearing Pressure (ksf)	12.00	2.18	**17.3%**	**Pass**
*Overturning (kip*ft)*	8572.32	4310.25	**50.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6594.75	4098.50	**59.2%**	**Pass**
Pier Compression (kip)	35802.00	77.19	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	12459.97	1448.46	**11.1%**	**Pass**
Pad Shear - 1-way (kips)	2055.87	141.47	**6.6%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.010	**5.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	23200.14	2459.10	**10.1%**	**Pass**

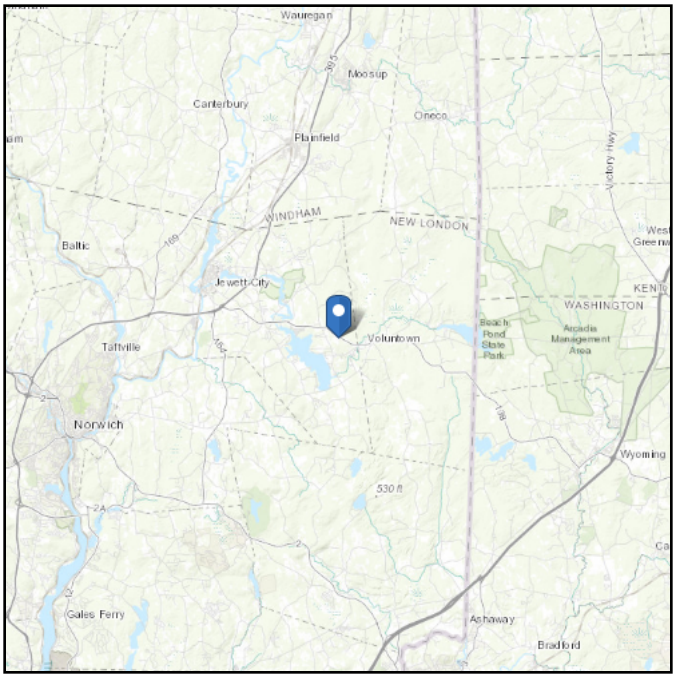
**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**50.3%**
Structural Rating*:	**59.2%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	285.92 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.576108
Soil Class:	D - Stiff Soil	**Longitude:**	-71.888044



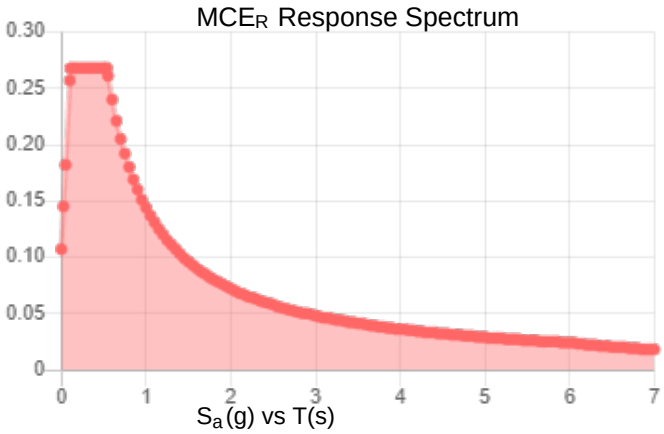
Seismic

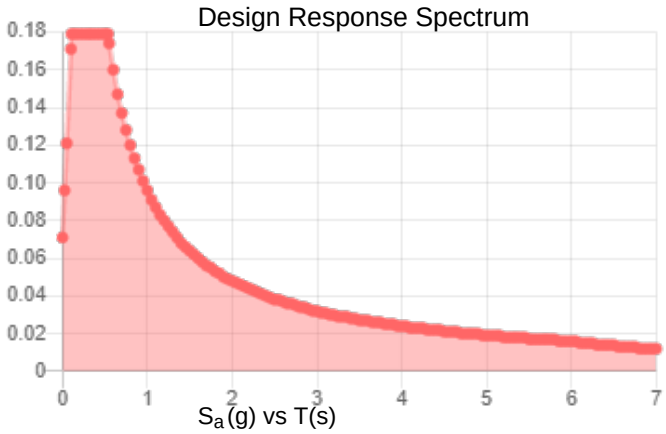
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.179
S_1 :	0.06	S_{D1} :	0.096
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.268	PGA_M :	0.134
S_{M1} :	0.144	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Feb 16 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:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Feb 16 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.

Exhibit E

Mount Analysis

Date: **February 3, 2021**

Michael McWilliams
Crown Castle
8000 Avalon Blvd., Suite 700
Alpharetta, GA 30009
(678) 259-2257

Kimley-Horn and Associates, Inc.
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000
CrownMounts@kimley-horn.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**Sprint PCS Equipment Change-Out**	
	Carrier Site Number:	CTNL282A
	Carrier Site Name:	CTNL282A
Crown Castle Designation:	**Crown Castle BU Number:**	876367
	Crown Castle Site Name:	WAPPINGERS FALLS - BOB'S ANTIQ
	Crown Castle JDE Job Number:	628848
	Crown Castle Order Number:	538780, Rev. 0
Engineering Firm Designation:	**Kimley-Horn Report Designation:**	019558051
Site Data:	**1439 Voluntown Rd, Griswold, New London County, CT 06384** **Latitude 41° 34' 33.99" Longitude -71° 53' 16.96"**	
Structure Information:	**Tower Height & Type:**	**179.5 ft Monopole**
	Mount Elevation:	**177 ft**
	Mount Type:	**12.5 ft Platform w/ Support Rails**

Dear Michael McWilliams,

Kimley-Horn is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of Sprint PCS's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned 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 w/ Support Rails **Sufficient ***

***Sufficient capacity once changes described in Section 4.1 Recommendations of this report are completed.**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Zachary A. Medoff, P.E. under supervision by Steven C. Ball, P.E., S.E.

Respectfully Submitted by:

Steven C. Ball, P.E., S.E.

2.3.21

TABLE OF CONTENTS

1) INTRODUCTION

The mounting configuration consists of an existing 12.5 ft Low Profile Platform w/ Proposed Support Rails designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC and 2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mount Pipes:	500 lb

Table 1 – Proposed Equipment Configuration

Elevation (ft)		Antennas			Mount / Modification Details
Mount	**Centerline**	**#**	**Manufacturer**	**Model**	
177	177	3	RFS Celwave	APXVAALL24_43-U-NA20_TMO	Existing 12.5 ft Low Profile Platform w/ Proposed Support Rails designed by Site Pro 1
		3	RFS Celwave	APX16DWV-16DWV-S-E-A20	
		3	Ericsson	AIR6449 B41_T-MOBILE	
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE	
		3	Ericsson	RADIO 4424 B25_TMO	
		3	Ericsson	RADIO 4415 B66A	

3) ANALYSIS PROCEDURE

Table 2 – Documents Provided

Document	Remarks	Reference	Source
Mount Design Drawings	Site Pro 1	RMQP-4XX, HRK12	On File
Supplemental Loading	Sprint RFDS	01/15/2021	TSA
Site Photos	-	-	CCISites

3.1) Analysis Method

RISA-3D (version 17.02.00), 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 proprietary tool internally developed by Kimley-Horn 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 *Mount Analysis*.

3.2) Assumptions

1) The antenna mounting system (including any considered modifications) was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA standards, and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the provided reference information.
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) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members that could not be verified at this time.
5) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (Gr. 36)
HSS (Rectangular)	ASTM A36 (Gr. 36)
Pipe	ASTM A53 (Gr. B-35)
Threaded Rods	ASTM A36 (Gr. 36)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1	Corner Plates	P726	177	85%	Pass
2	Connections	-		62%	Pass
1	Stand Off Horizontals	209		52%	Pass
1	Mount Pipes	267A		47%	Pass
1	Face Horizontals	72		22%	Pass

Structure Rating (max from all components) =	85%

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) Rating per TIA-222-H, Section 15.5.

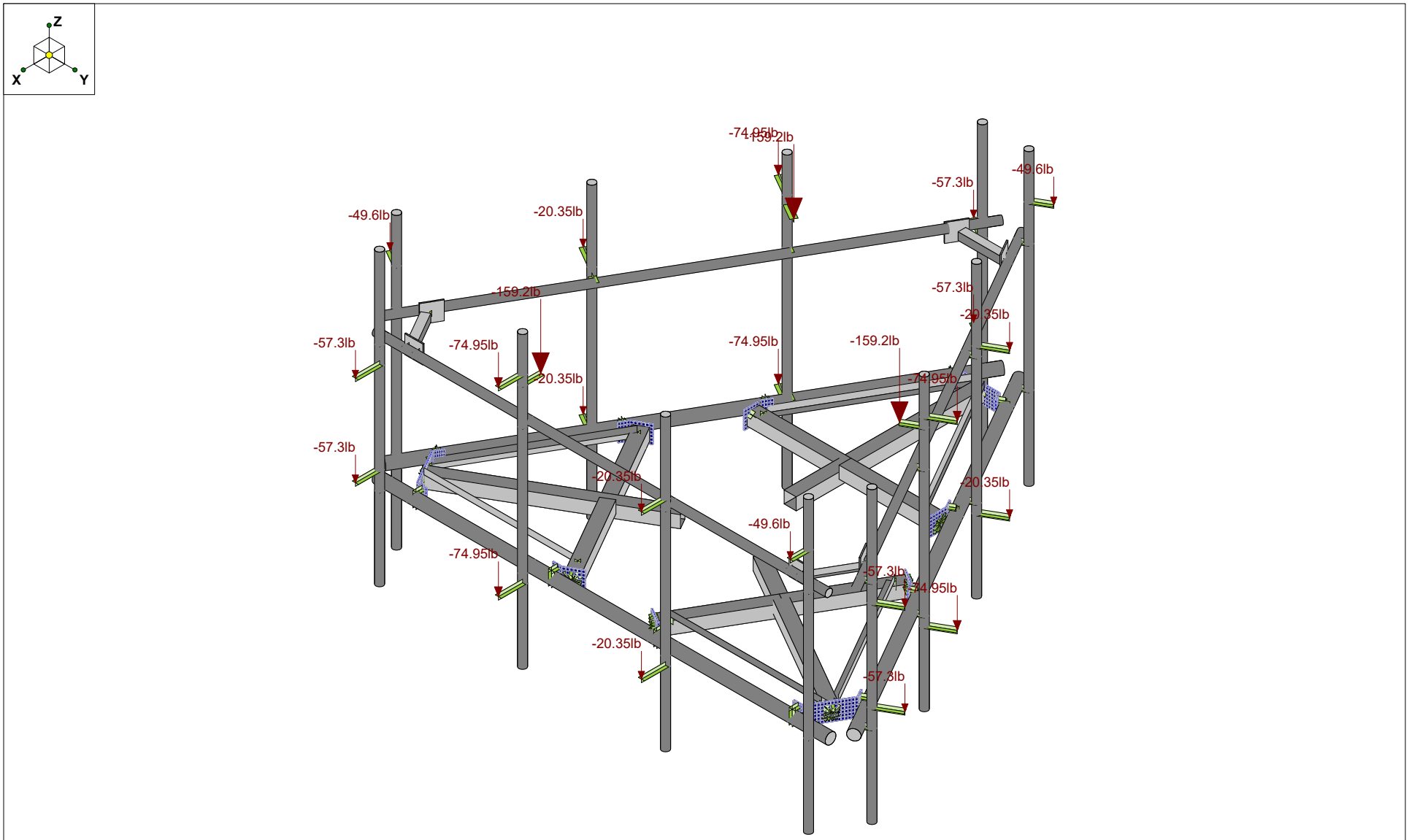
4.1) Recommendations

The mounting configuration will have sufficient design capacity to carry the referenced loading once the following modifications are completed:

- **A new support rail must be installed as per carrier request. Attach to all mount pipes at 3'-6" above platform base using provided crossovers. See Appendix E for cut-sheet.**
  - **(1) Site Pro 1 HRK12-U**

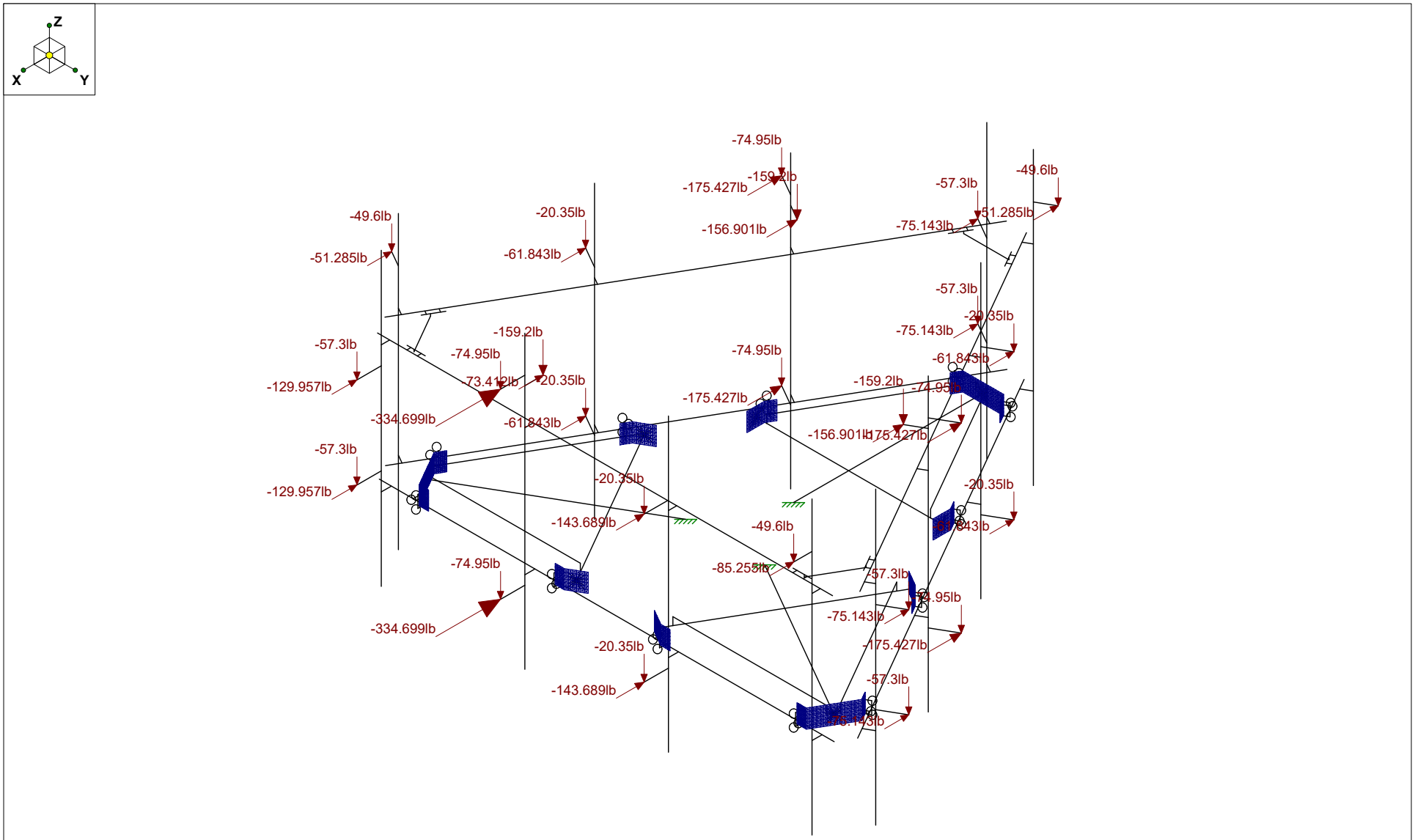
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Loads: BLC 1, Dead
Envelope Only Solution

Kimley-Horn and Associates, Inc.	876367	SK - 1
ZAM		Feb 3, 2021 at 12:17 PM
019558051		876367.r3d



Loads: LC 1, Summary: 1.0D + 1.0W
Envelope Only Solution

Kimley-Horn and Associates, Inc.	876367	SK - 2
ZAM		Feb 3, 2021 at 12:17 PM
019558051		876367.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

General Criteria	
TIA Standard	H
IBC Edition	2015
Structure Class	-
Risk Category	II

Site-Specific Criteria	
Exposure Category	B
Topographic Factor, K_{zt}	1.00
Structure Base Elev. (AMSL), z_s (ft)	286.00
Ground Effect Factor, K_e	0.99

Mount & Structure Criteria	
Mount Elevation (AGL) (ft)	177.00
Structure Height (ft)	179.50
Structure Type	Monopole

Constants	
Wind Direction Probability Factor, K_d	0.95
Gust Effect Factor, G_h	1
Shielding Factor, K_a **(antenna)**	0.9
Shielding Factor, K_a **(mount)**	0.9

Wind Summary	
Basic Wind Speed w/o Ice, **V** (mph)	135.00
Velocity Pressure Coeff., K_z	1.16
Velocity Pressure, q_z **(w/o Ice)** (psf)	51.03

Ice Load Summary	
Basic Wind Speed w/ Ice, V_i (mph)	50.00
Design Ice Thick. (ASCE 7-10) , t_i (in)	0.75
Velocity Pressure, q_z **(w/ Ice)** (psf)	7.00
Escalated Ice Thick. @ Mount, t_{iz} (in)	1.77

Seismic Load Summary	
Spectral Response (Short Periods), S_s	-
Spectral Response (1-Sec. Period), S_1	-
Site Class	-
Seismic Design Category	-
Seismic Risk Category	-

Snow Load Summary	
Ground Snow Load, p_g (psf)	-
Snow Load on Flat Roofs, p_f (psf)	-

Kimley»Horn

Date	February 03, 2021
Client	Crown Castle
Site #	876367
Site Name	Err
Project #	19558051

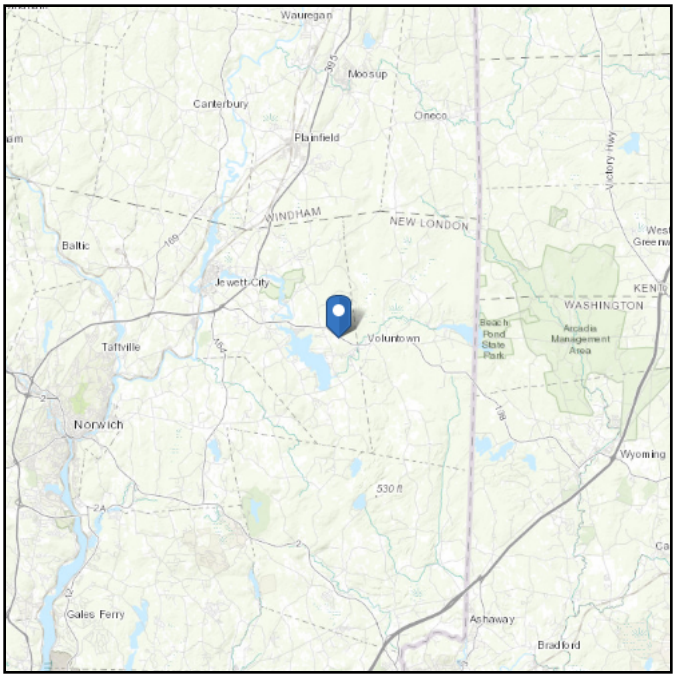
Antenna Name	Qty	Shape	Dimensions (in)			Weight (lb)	Joint Labels								EPA (ft^2)		Wind Force, F_A (lb)			
																	No Ice		With Ice	
			H	W	D		Alpha		Beta		Gamma		Delta		Front	Side	Front	Side	Front	Side
AIR6449 B41_T-MOBILE	3	Flat	33.1	20.5	8.5	114.6	A4B	A4T	B4B	B4T	G4B	G4T			5.66	2.48	259.91	113.74	46.3	23.73
APX16DWV-16DWV-S-E-A20	3	Flat	55.9	13.3	3.2	40.7	A2B	A2T	B2B	B2T	G2B	G2T			6.26	1.5	287.38	69.12	51.86	17.84
APXVAALL24_43-U-NA20_TMO	3	Flat	95.9	24	8.5	149.9	A3B	A3T	B3B	B3T	G3B	G3T			14.57	5.33	669.4	244.67	107.82	46.11
RADIO 4415 B66A	3	Flat	16.5	13.5	6.3	49.6	A1R		B1R		G1R				1.86	0.87	85.26	39.96	17.95	10.37
RADIO 4424 B25_TMO	3	Flat	17.1	14.4	11.3	86	A3R		B3R		G3R				0.81	2.05	36.98	94.25	8.05	19.46
RADIO 4449 B71 B85A_T-MOBILE	3	Flat	17.9	13.2	10.6	73.2	A3R		B3R		G3R				0.79	1.97	36.43	90.48	7.99	18.87

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 285.92 ft (NAVD 88)
Latitude: 41.576108
Longitude: -71.888044



Wind

Results:

Wind Speed:	**135 mph per 2018 Connecticut State Building Code Appendix N**
10-year MRI	
25-year MRI	
50-year MRI	
100-year MRI	
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Wed Feb 03 2021

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.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

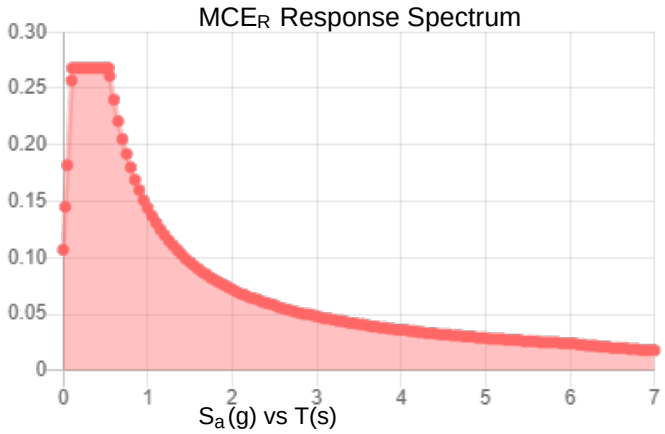
Seismic

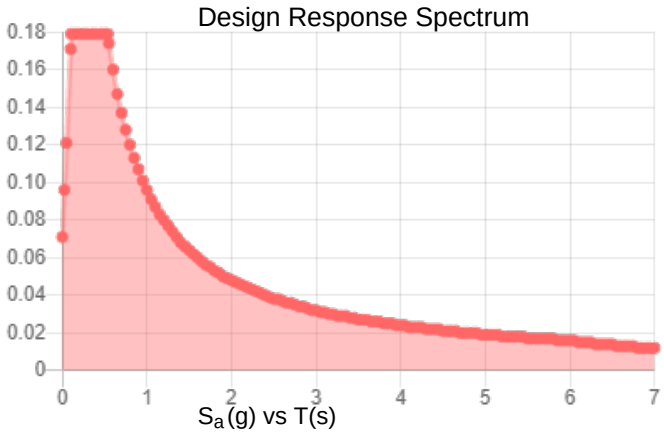
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.179
S_1 :	0.06	S_{D1} :	0.096
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.268	PGA_M :	0.134
S_{M1} :	0.144	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Feb 03 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:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Feb 03 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.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[lb/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3
8	Q235	29000	11154	.3	.65	490	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Face Horiz	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Stand-Off Horiz	HSS4X4X4	Beam	None	Q235	Typical	3.37	7.8	7.8	12.8
3	Offset Horiz	HSS4X4X4	Beam	None	Q235	Typical	3.37	7.8	7.8	12.8
4	Offset Side Plate	PL6x3/8	Beam	None	Q235	Typical	2.25	.026	6.75	.101
5	Grating Angle	L2x2x3	Beam	None	Q235	Typical	.722	.271	.271	.009
6	Mount Pipe	PIPE_2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	Offset End Plate	PL6x0.5	Beam	None	Q235	Typical	4.5	.094	30.375	.362
8	HRK12 Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
9	HRK12 Plate	PL6x3/8	Beam	None	Q235	Typical	2.25	.026	6.75	.101
10	HRK12 Angle	L2.5x2.5x4	Beam	None	Q235	Typical	1.19	.692	.692	.026

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M51	Offset Horiz	62.257									Lateral
2	M60	Offset Horiz	30.438			Lbyy						Lateral
3	M63	Offset Horiz	30.437			Lbyy						Lateral
4	M69	Face Horiz	150			Lbyy						Lateral
5	M72	Face Horiz	150			Lbyy						Lateral
6	M75	Face Horiz	150			Lbyy						Lateral
7	M92	Grating Angle	50.542			Lbyy						Lateral
8	M94	Grating Angle	50.542			Lbyy						Lateral
9	M98	Grating Angle	50.542			Lbyy						Lateral
10	M100	Grating Angle	50.542			Lbyy						Lateral
11	M104	Grating Angle	50.542			Lbyy						Lateral
12	M106	Grating Angle	50.542			Lbyy						Lateral
13	M109	HRK12 Angle	14.902			Lbyy						Lateral
14	M110	HRK12 Angle	14.902			Lbyy						Lateral
15	M111	HRK12 Angle	14.902			Lbyy						Lateral
16	M116	HRK12 Pipe	150			Lbyy						Lateral
17	M121	HRK12 Pipe	150			Lbyy						Lateral
18	M126	HRK12 Pipe	150			Lbyy						Lateral
19	M129	HRK12 Plate	6			Lbyy						Lateral
20	M133	HRK12 Plate	6			Lbyy						Lateral
21	M137	HRK12 Plate	6			Lbyy						Lateral
22	M141	HRK12 Plate	6			Lbyy						Lateral
23	M145	HRK12 Plate	6			Lbyy						Lateral
24	M149	HRK12 Plate	6			Lbyy						Lateral
25	M163	Mount Pipe	96			Lbyy						Lateral
26	M189A	Offset Horiz	62.257									Lateral
27	M209	Offset Horiz	62.257									Lateral
28	M245A	Offset Horiz	30.438			Lbyy						Lateral
29	M246A	Offset Horiz	30.437			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
30	M279	Offset Horiz	30.438			Lbyy						Lateral
31	M280	Offset Horiz	30.437			Lbyy						Lateral
32	M261A	Mount Pipe	96			Lbyy						Lateral
33	M267A	Mount Pipe	96			Lbyy						Lateral
34	M273A	Mount Pipe	96			Lbyy						Lateral
35	M279A	Mount Pipe	96			Lbyy						Lateral
36	M288B	Mount Pipe	96			Lbyy						Lateral
37	M294A	Mount Pipe	96			Lbyy						Lateral
38	M300B	Mount Pipe	96			Lbyy						Lateral
39	M306B	Mount Pipe	96			Lbyy						Lateral
40	M315	Mount Pipe	96			Lbyy						Lateral
41	M321	Mount Pipe	96			Lbyy						Lateral
42	M327	Mount Pipe	96			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area(Member)	Surfac...
1	Dead	DL			-1	27				
2	Dead of Ice	RL				27		42		
4	Structure Wind (0)	None						84		
5	Structure Wind (30)	None						84		
6	Structure Wind (45)	None						84		
7	Structure Wind (60)	None						84		
8	Structure Wind (90)	None						84		
9	Structure Wind (120)	None						84		
10	Structure Wind (135)	None						84		
11	Structure Wind (150)	None						84		
12	Structure Wind w/ Ice (0)	None						84		
13	Structure Wind w/ Ice (30)	None						84		
14	Structure Wind w/ Ice (45)	None						84		
15	Structure Wind w/ Ice (60)	None						84		
16	Structure Wind w/ Ice (90)	None						84		
17	Structure Wind w/ Ice (120)	None						84		
18	Structure Wind w/ Ice (135)	None						84		
19	Structure Wind w/ Ice (150)	None						84		
20	Antenna Wind (0)	None				54				
21	Antenna Wind (30)	None				54				
22	Antenna Wind (45)	None				54				
23	Antenna Wind (60)	None				54				
24	Antenna Wind (90)	None				54				
25	Antenna Wind (120)	None				54				
26	Antenna Wind (135)	None				54				
27	Antenna Wind (150)	None				54				
28	Antenna Wind w/ Ice (0)	None				54				
29	Antenna Wind w/ Ice (30)	None				54				
30	Antenna Wind w/ Ice (45)	None				54				
31	Antenna Wind w/ Ice (60)	None				54				
32	Antenna Wind w/ Ice (90)	None				54				
33	Antenna Wind w/ Ice (120)	None				54				
34	Antenna Wind w/ Ice (135)	None				54				
35	Antenna Wind w/ Ice (150)	None				54				
36	Maintenance Live Lm (1)	OL1				1				
37	Maintenance Live Lm (2)	OL2				1				
38	Maintenance Live Lm (3)	OL3				1				
39	Maintenance Live Lm (4)	OL4				1				

Load Combinations

	Description	S...	PD...	S...	B...	Fa...	BLC	Fact...	B...	Fact...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Summary: 1.0D + 1.0W	Y...	Y		DL	1	20	1																
2	1.4D	Y...	Y		DL	1.4																		
3	1.2D + 1.0W(0)	Y...	Y		DL	1.2	4	1	20	1														
4	1.2D + 1.0W(30)	Y...	Y		DL	1.2	5	1	21	1														
5	1.2D + 1.0W(45)	Y...	Y		DL	1.2	6	1	22	1														
6	1.2D + 1.0W(60)	Y...	Y		DL	1.2	7	1	23	1														
7	1.2D + 1.0W(90)	Y...	Y		DL	1.2	8	1	24	1														
8	1.2D + 1.0W(120)	Y...	Y		DL	1.2	9	1	25	1														
9	1.2D + 1.0W(135)	Y...	Y		DL	1.2	10	1	26	1														
10	1.2D + 1.0W(150)	Y...	Y		DL	1.2	11	1	27	1														
11	1.2D + 1.0W(180)	Y...	Y		DL	1.2	4	-1	20	-1														
12	1.2D + 1.0W(210)	Y...	Y		DL	1.2	5	-1	21	-1														
13	1.2D + 1.0W(225)	Y...	Y		DL	1.2	6	-1	22	-1														
14	1.2D + 1.0W(240)	Y...	Y		DL	1.2	7	-1	23	-1														
15	1.2D + 1.0W(270)	Y...	Y		DL	1.2	8	-1	24	-1														
16	1.2D + 1.0W(300)	Y...	Y		DL	1.2	9	-1	25	-1														
17	1.2D + 1.0W(315)	Y...	Y		DL	1.2	10	-1	26	-1														
18	1.2D + 1.0W(330)	Y...	Y		DL	1.2	11	-1	27	-1														
19	1.2D + 1.0Di + 1.0Wi(0)	Y...	Y		DL	1.2	RL	1	12	1	28	1												
20	1.2D + 1.0Di + 1.0Wi(30)	Y...	Y		DL	1.2	RL	1	13	1	29	1												
21	1.2D + 1.0Di + 1.0Wi(45)	Y...	Y		DL	1.2	RL	1	14	1	30	1												
22	1.2D + 1.0Di + 1.0Wi(60)	Y...	Y		DL	1.2	RL	1	15	1	31	1												
23	1.2D + 1.0Di + 1.0Wi(90)	Y...	Y		DL	1.2	RL	1	16	1	32	1												
24	1.2D + 1.0Di + 1.0Wi(120)	Y...	Y		DL	1.2	RL	1	17	1	33	1												
25	1.2D + 1.0Di + 1.0Wi(135)	Y...	Y		DL	1.2	RL	1	18	1	34	1												
26	1.2D + 1.0Di + 1.0Wi(150)	Y...	Y		DL	1.2	RL	1	19	1	35	1												
27	1.2D + 1.0Di + 1.0Wi(180)	Y...	Y		DL	1.2	RL	1	12	-1	28	-1												
28	1.2D + 1.0Di + 1.0Wi(210)	Y...	Y		DL	1.2	RL	1	13	-1	39	-1												
29	1.2D + 1.0Di + 1.0Wi(225)	Y...	Y		DL	1.2	RL	1	14	-1	30	-1												
30	1.2D + 1.0Di + 1.0Wi(240)	Y...	Y		DL	1.2	RL	1	15	-1	31	-1												
31	1.2D + 1.0Di + 1.0Wi(270)	Y...	Y		DL	1.2	RL	1	16	-1	32	-1												
32	1.2D + 1.0Di + 1.0Wi(300)	Y...	Y		DL	1.2	RL	1	17	-1	33	-1												
33	1.2D + 1.0Di + 1.0Wi(315)	Y...	Y		DL	1.2	RL	1	18	-1	34	-1												
34	1.2D + 1.0Di + 1.0Wi(330)	Y...	Y		DL	1.2	RL	1	19	-1	35	-1												
35	1.2D + 1.5Lm(1) + 1.0Wm(0)	Y...	Y		DL	1.2	4	.049	20	.049	O...	1.5												
36	1.2D + 1.5Lm(1) + 1.0Wm(30)	Y...	Y		DL	1.2	5	.049	21	.049	O...	1.5												
37	1.2D + 1.5Lm(1) + 1.0Wm(45)	Y...	Y		DL	1.2	6	.049	22	.049	O...	1.5												
38	1.2D + 1.5Lm(1) + 1.0Wm(60)	Y...	Y		DL	1.2	7	.049	23	.049	O...	1.5												
39	1.2D + 1.5Lm(1) + 1.0Wm(90)	Y...	Y		DL	1.2	8	.049	24	.049	O...	1.5												
40	1.2D + 1.5Lm(1) + 1.0Wm(120)	Y...	Y		DL	1.2	9	.049	25	.049	O...	1.5												
41	1.2D + 1.5Lm(1) + 1.0Wm(135)	Y...	Y		DL	1.2	10	.049	26	.049	O...	1.5												
42	1.2D + 1.5Lm(1) + 1.0Wm(150)	Y...	Y		DL	1.2	11	.049	27	.049	O...	1.5												
43	1.2D + 1.5Lm(1) + 1.0Wm(180)	Y...	Y		DL	1.2	4	-.049	20	-.049	O...	1.5												
44	1.2D + 1.5Lm(1) + 1.0Wm(210)	Y...	Y		DL	1.2	5	-.049	21	-.049	O...	1.5												
45	1.2D + 1.5Lm(1) + 1.0Wm(225)	Y...	Y		DL	1.2	6	-.049	22	-.049	O...	1.5												
46	1.2D + 1.5Lm(1) + 1.0Wm(240)	Y...	Y		DL	1.2	7	-.049	23	-.049	O...	1.5												
47	1.2D + 1.5Lm(1) + 1.0Wm(270)	Y...	Y		DL	1.2	8	-.049	24	-.049	O...	1.5												
48	1.2D + 1.5Lm(1) + 1.0Wm(300)	Y...	Y		DL	1.2	9	-.049	25	-.049	O...	1.5												
49	1.2D + 1.5Lm(1) + 1.0Wm(315)	Y...	Y		DL	1.2	10	-.049	26	-.049	O...	1.5												
50	1.2D + 1.5Lm(1) + 1.0Wm(330)	Y...	Y		DL	1.2	11	-.049	27	-.049	O...	1.5												
51	1.2D + 1.5Lm(2) + 1.0Wm(0)	Y...	Y		DL	1.2	4	.049	20	.049	O...	1.5												
52	1.2D + 1.5Lm(2) + 1.0Wm(30)	Y...	Y		DL	1.2	5	.049	21	.049	O...	1.5												
53	1.2D + 1.5Lm(2) + 1.0Wm(45)	Y...	Y		DL	1.2	6	.049	22	.049	O...	1.5												
54	1.2D + 1.5Lm(2) + 1.0Wm(60)	Y...	Y		DL	1.2	7	.049	23	.049	O...	1.5												
55	1.2D + 1.5Lm(2) + 1.0Wm(90)	Y...	Y		DL	1.2	8	.049	24	.049	O...	1.5												
56	1.2D + 1.5Lm(2) + 1.0Wm(120)	Y...	Y		DL	1.2	9	.049	25	.049	O...	1.5												

Load Combinations (Continued)

	Description	S...	PD...	S...	B...	Fa...	BLC	Fact...	B...	Fact...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
57	1.2D + 1.5Lm(2) + 1.0Wm(135)	Y...	Y		DL	1.2	10	.049	26	.049	O...	1.5												
58	1.2D + 1.5Lm(2) + 1.0Wm(150)	Y...	Y		DL	1.2	11	.049	27	.049	O...	1.5												
59	1.2D + 1.5Lm(2) + 1.0Wm(180)	Y...	Y		DL	1.2	4	-.049	20	-.049	O...	1.5												
60	1.2D + 1.5Lm(2) + 1.0Wm(210)	Y...	Y		DL	1.2	5	-.049	21	-.049	O...	1.5												
61	1.2D + 1.5Lm(2) + 1.0Wm(225)	Y...	Y		DL	1.2	6	-.049	22	-.049	O...	1.5												
62	1.2D + 1.5Lm(2) + 1.0Wm(240)	Y...	Y		DL	1.2	7	-.049	23	-.049	O...	1.5												
63	1.2D + 1.5Lm(2) + 1.0Wm(270)	Y...	Y		DL	1.2	8	-.049	24	-.049	O...	1.5												
64	1.2D + 1.5Lm(2) + 1.0Wm(300)	Y...	Y		DL	1.2	9	-.049	25	-.049	O...	1.5												
65	1.2D + 1.5Lm(2) + 1.0Wm(315)	Y...	Y		DL	1.2	10	-.049	26	-.049	O...	1.5												
66	1.2D + 1.5Lm(2) + 1.0Wm(330)	Y...	Y		DL	1.2	11	-.049	27	-.049	O...	1.5												
67	1.2D + 1.5Lm(3) + 1.0Wm(0)	Y...	Y		DL	1.2	4	.049	20	.049	O...	1.5												
68	1.2D + 1.5Lm(3) + 1.0Wm(30)	Y...	Y		DL	1.2	5	.049	21	.049	O...	1.5												
69	1.2D + 1.5Lm(3) + 1.0Wm(45)	Y...	Y		DL	1.2	6	.049	22	.049	O...	1.5												
70	1.2D + 1.5Lm(3) + 1.0Wm(60)	Y...	Y		DL	1.2	7	.049	23	.049	O...	1.5												
71	1.2D + 1.5Lm(3) + 1.0Wm(90)	Y...	Y		DL	1.2	8	.049	24	.049	O...	1.5												
72	1.2D + 1.5Lm(3) + 1.0Wm(120)	Y...	Y		DL	1.2	9	.049	25	.049	O...	1.5												
73	1.2D + 1.5Lm(3) + 1.0Wm(135)	Y...	Y		DL	1.2	10	.049	26	.049	O...	1.5												
74	1.2D + 1.5Lm(3) + 1.0Wm(150)	Y...	Y		DL	1.2	11	.049	27	.049	O...	1.5												
75	1.2D + 1.5Lm(3) + 1.0Wm(180)	Y...	Y		DL	1.2	4	-.049	20	-.049	O...	1.5												
76	1.2D + 1.5Lm(3) + 1.0Wm(210)	Y...	Y		DL	1.2	5	-.049	21	-.049	O...	1.5												
77	1.2D + 1.5Lm(3) + 1.0Wm(225)	Y...	Y		DL	1.2	6	-.049	22	-.049	O...	1.5												
78	1.2D + 1.5Lm(3) + 1.0Wm(240)	Y...	Y		DL	1.2	7	-.049	23	-.049	O...	1.5												
79	1.2D + 1.5Lm(3) + 1.0Wm(270)	Y...	Y		DL	1.2	8	-.049	24	-.049	O...	1.5												
80	1.2D + 1.5Lm(3) + 1.0Wm(300)	Y...	Y		DL	1.2	9	-.049	25	-.049	O...	1.5												
81	1.2D + 1.5Lm(3) + 1.0Wm(315)	Y...	Y		DL	1.2	10	-.049	26	-.049	O...	1.5												
82	1.2D + 1.5Lm(3) + 1.0Wm(330)	Y...	Y		DL	1.2	11	-.049	27	-.049	O...	1.5												
83	1.2D + 1.5Lm(4) + 1.0Wm(0)	Y...	Y		DL	1.2	4	.049	20	.049	O...	1.5												
84	1.2D + 1.5Lm(4) + 1.0Wm(30)	Y...	Y		DL	1.2	5	.049	21	.049	O...	1.5												
85	1.2D + 1.5Lm(4) + 1.0Wm(45)	Y...	Y		DL	1.2	6	.049	22	.049	O...	1.5												
86	1.2D + 1.5Lm(4) + 1.0Wm(60)	Y...	Y		DL	1.2	7	.049	23	.049	O...	1.5												
87	1.2D + 1.5Lm(4) + 1.0Wm(90)	Y...	Y		DL	1.2	8	.049	24	.049	O...	1.5												
88	1.2D + 1.5Lm(4) + 1.0Wm(120)	Y...	Y		DL	1.2	9	.049	25	.049	O...	1.5												
89	1.2D + 1.5Lm(4) + 1.0Wm(135)	Y...	Y		DL	1.2	10	.049	26	.049	O...	1.5												
90	1.2D + 1.5Lm(4) + 1.0Wm(150)	Y...	Y		DL	1.2	11	.049	27	.049	O...	1.5												
91	1.2D + 1.5Lm(4) + 1.0Wm(180)	Y...	Y		DL	1.2	4	-.049	20	-.049	O...	1.5												
92	1.2D + 1.5Lm(4) + 1.0Wm(210)	Y...	Y		DL	1.2	5	-.049	21	-.049	O...	1.5												
93	1.2D + 1.5Lm(4) + 1.0Wm(225)	Y...	Y		DL	1.2	6	-.049	22	-.049	O...	1.5												
94	1.2D + 1.5Lm(4) + 1.0Wm(240)	Y...	Y		DL	1.2	7	-.049	23	-.049	O...	1.5												
95	1.2D + 1.5Lm(4) + 1.0Wm(270)	Y...	Y		DL	1.2	8	-.049	24	-.049	O...	1.5												
96	1.2D + 1.5Lm(4) + 1.0Wm(300)	Y...	Y		DL	1.2	9	-.049	25	-.049	O...	1.5												
97	1.2D + 1.5Lm(4) + 1.0Wm(315)	Y...	Y		DL	1.2	10	-.049	26	-.049	O...	1.5												
98	1.2D + 1.5Lm(4) + 1.0Wm(330)	Y...	Y		DL	1.2	11	-.049	27	-.049	O...	1.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N35	max	1874.01	3	1688.461	14	3152.313	30	1545.828	6	1120.855	4	1869.74	18
2		min	-1404.196	11	-2482.45	6	-213.668	6	-5658.663	30	-3556.346	29	-1884.134	10
3	N61	max	1505.196	3	2551.345	16	3151.881	24	5864.965	24	1224.141	18	1869.724	12
4		min	-1053.304	12	-1748.852	8	-213.312	16	-1479.752	16	-3333.032	10	-1884.091	4
5	N88	max	1984.569	3	1554.045	15	3152.993	19	1255.413	7	6656.004	19	1869.654	7
6		min	-2906.281	11	-1563.189	7	-214.058	11	-1424.05	15	-1748.428	11	-1884.054	15
7	Totals:	max	5363.775	3	5363.343	15	8545.005	19						
8		min	-5363.722	11	-5363.285	7	2805.756	1						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Memb...	Shape	Code Check	Loc...	LC	Shear ...	Lo...		LC	phi*P...	phi*Pn...	phi*M...	phi*M...		Eqn
1	M209	HSS4X4X4	.547	0	25	.190	0	z	4	9743...	106155	12311...	1231...	...	H1-...
2	M51	HSS4X4X4	.545	0	19	.190	0	z	15	9743...	106155	12311...	1231...	...	H1-...
3	M189A	HSS4X4X4	.545	0	30	.190	0	z	10	9743...	106155	12311...	1231...	...	H1-...
4	M267A	PIPE_2.0	.494	68....	13	.123	68...		11	1491...	32130	1871....	1871....	....	H1-...
5	M288B	PIPE_2.0	.491	68....	8	.098	68...		17	1491...	32130	1871....	1871....	....	H1-...
6	M261A	PIPE_2.0	.491	68....	3	.095	68...		11	1491...	32130	1871....	1871....	....	H1-...
7	M315	PIPE_2.0	.491	68....	14	.095	68...		6	1491...	32130	1871....	1871....	....	H1-...
8	M294A	PIPE_2.0	.489	68....	3	.123	68...		16	1491...	32130	1871....	1871....	....	H1-...
9	M321	PIPE_2.0	.488	68....	8	.123	68...		6	1491...	32130	1871....	1871....	....	H1-...
10	M163	PIPE_2.0	.366	68....	9	.151	32...		10	1491...	32130	1871....	1871....	....	H1-...
11	M306B	PIPE_2.0	.360	68....	3	.153	27...		5	1491...	32130	1871....	1871....	....	H1-...
12	M279A	PIPE_2.0	.360	68....	14	.151	32...		15	1491...	32130	1871....	1871....	....	H1-...
13	M273A	PIPE_2.0	.355	68....	13	.125	68...		12	1491...	32130	1871....	1871....	....	H1-...
14	M300B	PIPE_2.0	.347	68....	3	.125	68...		18	1491...	32130	1871....	1871....	....	H1-...
15	M327	PIPE_2.0	.347	68....	8	.125	68...		7	1491...	32130	1871....	1871....	....	H1-...
16	M121	PIPE_2.0	.345	51....	4	.254	13...		14	6295...	32130	1871....	1871....	....	H1-...
17	M126	PIPE_2.0	.345	51....	15	.254	13...		8	6295...	32130	1871....	1871....	....	H1-...
18	M116	PIPE_2.0	.345	51....	10	.254	13...		3	6295...	32130	1871....	1871....	....	H1-...
19	M109	L2.5x2.5x4	.320	14....	13	.092	0	z	12	3569...	37485	1082....	2466....	....	H2-1
20	M111	L2.5x2.5x4	.318	14....	3	.092	0	z	18	3569...	37485	1082....	2466....	....	H2-1
21	M110	L2.5x2.5x4	.318	14....	8	.092	0	z	7	3569...	37485	1082....	2466....	....	H2-1
22	M280	HSS4X4X4	.279	0	25	.093	27...	z	3	1040...	106155	12311...	1231...	...	H1-...
23	M63	HSS4X4X4	.278	0	20	.093	27...	z	14	1040...	106155	12311...	1231...	...	H1-...
24	M245A	HSS4X4X4	.278	30....	29	.084	30...	y	27	1040...	106155	12311...	1231...	...	H1-...
25	M246A	HSS4X4X4	.278	0	30	.093	27...	z	8	1040...	106155	12311...	1231...	...	H1-...
26	M60	HSS4X4X4	.277	30....	34	.084	30...	y	33	1040...	106155	12311...	1231...	...	H1-...
27	M279	HSS4X4X4	.277	30....	23	.084	30...	y	23	1040...	106155	12311...	1231...	...	H1-...
28	M72	PIPE_3.0	.229	92....	34	.156	93...		15	2825...	65205	5748....	5748....	....	H1-...
29	M69	PIPE_3.0	.229	92....	23	.156	93...		4	2825...	65205	5748....	5748....	....	H1-...
30	M75	PIPE_3.0	.228	92....	29	.161	93...		9	2825...	65205	5748....	5748....	....	H1-...
31	M106	L2x2x3	.154	50....	16	.009	50...	z	31	9585...	22743	542.2...	1129....	....	H2-1
32	M94	L2x2x3	.154	50....	11	.009	50...	y	9	9585...	22743	542.2...	1129....	....	H2-1
33	M100	L2x2x3	.154	50....	6	.009	50...	z	20	9585...	22743	542.2...	1129....	....	H2-1
34	M92	L2x2x3	.145	50....	17	.009	0	z	3	9585...	22743	542.2...	1163....	....	H2-1
35	M104	L2x2x3	.142	50....	6	.009	0	z	8	9585...	22743	542.2...	1139....	....	H2-1
36	M98	L2x2x3	.142	50....	11	.009	50...	z	13	9585...	22743	542.2...	1139....	....	H2-1

Envelope Plate/Shell Principal Stresses

	Plate		Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
1	P726	max	T	31.122	11	6.931	11	12.439	3	2.296	88	28.943	3
2		min		-6.889	3	-31.766	3	.129	63	-.782	93	.35	89
3		max	B	26.034	3	7.408	3	9.313	3	2.355	51	23.234	3
4		min		-7.366	11	-25.858	11	.056	94	-.679	94	.107	94
5	P798	max	T	31.128	6	6.933	6	12.438	14	2.035	28	28.942	14
6		min		-6.889	14	-31.765	14	.006	70	-.465	25	.241	68
7		max	B	26.033	14	7.408	14	9.313	14	2.263	51	23.233	14
8		min		-7.368	6	-25.864	6	.088	72	-.782	67	.156	72
9	P655	max	T	31.123	16	6.932	16	12.438	8	2.254	61	28.941	8
10		min		-6.889	8	-31.764	8	.023	75	-.367	62	.052	75
11		max	B	26.032	8	7.407	8	9.313	8	2.168	68	23.232	8
12		min		-7.366	16	-25.86	16	.077	62	-.659	69	.136	62
13	P828	max	T	28.806	13	6.492	13	11.157	13	2.278	68	26.171	13
14		min		-6.254	5	-27.912	5	.011	69	-.744	28	.123	70
15		max	B	22.938	5	6.595	5	8.452	13	2.17	53	21.253	13

APPENDIX D

ADDITIONAL CALCUATIONS

CCI Mount Analysis Square Plate Connection 1.0.1

Location:	A	Select

TIA Revision:	TIA-222-H	Select

SITE DATA	
BU Number:	876367
Site Name:	WAPPINGERS FALLS / BOB'S ANTIQ
Order Number:	538780

REACTIONS		
Moment:	6.660	kip-ft
Axial:	1.010	kips
Shear:	3.150	kips

BOLT DATA		
Quantity:	4	
Diameter:	0.625	in
Material:	A325	Select
Fy:	92	ksi
Fu:	120	ksi
Bolt Spacing:	6	in

Load Combination	19

BOLT RESULTS		
Max Bolt (Cu+ Vu/η):	9.67	kips
Axial Design Strength:	21.70	kips
Stress Ratio	44.58%	

PLATE DATA		
Width:	8	in
Thickness:	0.75	in
Fy:	36	ksi

PLATE RESULTS		
Base Plate Stress:	21.09	ksi
Bending Strength:	32.40	ksi
Stress Ratio:	65.09%	

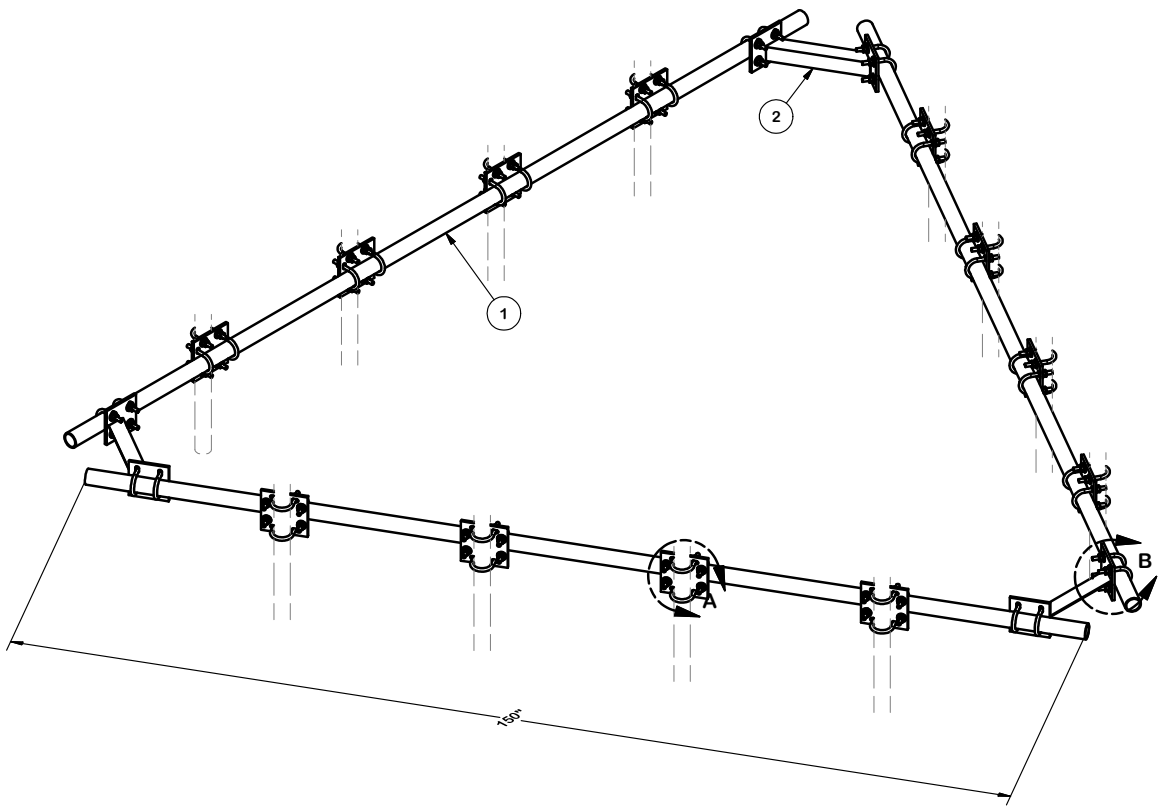
Controlling Load Combination	19

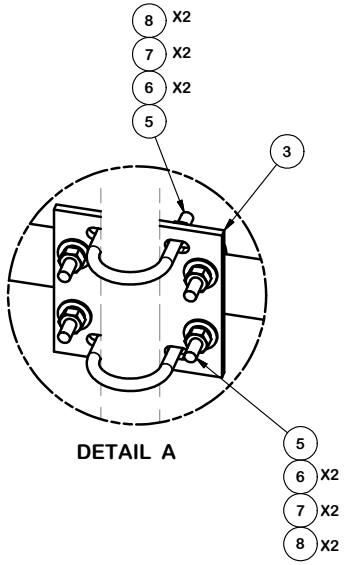
SUPPORT ARM DATA		
Type:	HSST	Select
Diameter/Width:	4	in
Thickness	0.25	in
Fy:	35	ksi
Number of Sides:	4	

APPENDIX E

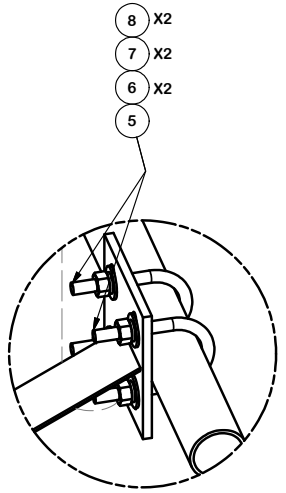
SUPPLEMENTAL DRAWINGS

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
4	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	17.56
5	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	43.90
6	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.09
7	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
8	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	302.21





DETAIL A



DETAIL B

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
UNIVERSAL HANDRAIL KIT
FOR 12' PLATFORM
2-3/8" & 2-7/8" ANTENNA PIPES

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	CEK 3/9/2015		HRK12-U	1 OF 1
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81 / 01	CUSTOMER	BMC 3/10/2015	HRK12-U	

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNL282A

1439 Voluntown Road
Griswold, Connecticut 06384

March 12, 2021

EBI Project Number: 6221001151

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.32%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

March 12, 2021

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

Emissions Analysis for Site: CTNL282A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1439 Voluntown Road** in **Griswold, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1439 Voluntown Road in Griswold, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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

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

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

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

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

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

7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

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

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

11) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 177 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	177 feet	Height (AGL):	177 feet	Height (AGL):	177 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE %:	**0.57%**	Antenna B1 MPE %:	**0.57%**	Antenna C1 MPE %:	**0.57%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	177 feet	Height (AGL):	177 feet	Height (AGL):	177 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,569.87	ERP (W):	12,569.87	ERP (W):	12,569.87
Antenna A2 MPE %:	**2.25%**	Antenna B2 MPE %:	**2.25%**	Antenna C2 MPE %:	**2.25%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd
Height (AGL):	177 feet	Height (AGL):	177 feet	Height (AGL):	177 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	12,888.76	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A3 MPE %:	**1.58%**	Antenna B3 MPE %:	**1.58%**	Antenna C3 MPE %:	**1.58%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	4.41%
Sprint	1.89%
AT&T	11.04%
Verizon	1.98%
Site Total MPE % :	19.32%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	4.41%
T-Mobile Sector B Total:	4.41%
T-Mobile Sector C Total:	4.41%
Site Total MPE % :	19.32%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2100 MHz LTE	2	2334.27	177.0	5.74	2100 MHz LTE	1000	0.57%
T-Mobile 600 MHz LTE	2	591.73	177.0	1.46	600 MHz LTE	400	0.36%
T-Mobile 600 MHz NR	1	1577.94	177.0	1.94	600 MHz NR	400	0.49%
T-Mobile 700 MHz LTE	2	695.22	177.0	1.71	700 MHz LTE	467	0.37%
T-Mobile 1900 MHz GSM	4	1052.26	177.0	5.17	1900 MHz GSM	1000	0.52%
T-Mobile 1900 MHz LTE	2	2104.51	177.0	5.17	1900 MHz LTE	1000	0.52%
T-Mobile 2500 MHz LTE	1	6444.38	177.0	7.92	2500 MHz LTE	1000	0.79%
T-Mobile 2500 MHz NR	1	6444.38	177.0	7.92	2500 MHz NR	1000	0.79%
						Total:	**4.41%**

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

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	4.41%
Sector B:	4.41%
Sector C:	4.41%
T-Mobile Maximum MPE % (Sector A):	4.41%
Site Total:	19.32%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.32%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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