



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

November 18, 2021

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

RE: **Notice of Exempt Modification for Sprint
Crown Site ID#876368; Sprint Site ID#CTHA696A
1 Public Works Dr., EAST HAMPTON, CT 06032
Latitude: 41° 33' 53.14"/ Longitude: -72° 32' 35.18"**

Dear Ms. Bachman:

Sprint currently maintains (6) antennas at the 177-foot mounts on the existing 180-foot Monopole Tower located at **1 Public Works Dr., EAST HAMPTON**. The property is owned by Town of East Hampton and Sprint Spectrum LP Property Tax and the Tower by Crown Castle. Sprint now intends to replace six (6) 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.

Planned Modifications:

Tower:

REMOVE AND REPLACE

- (3) RFS - APXVTM14-ALU-120 Antennas (**REMOVE**), (3) RFS – APXVAALL24_43_U_NA20 Antennas (**REPLACE**)
- (3) Commscope NNVV-65B-R4 Antennas (**REMOVE**), (3) Air6449_B41 Antennas (**REPLACE**)
- (3) Alcatel Lucent PCS 1900MHZ 4x45W-65MHz Remote Radio head's (**REMOVE**), (3) Ericsson Radio 4460 B25 + B66 Remote Radio heads (**REPLACE**)
- (3) Sprint RRH-Nokia FZHN (**REMOVE**), (3) Ericsson Radio 4480 B71+B85 Remote Radio heads (**REPLACE**)
- (6) Alcatel Lucent RRH2x50-80 Remote Radio heads (**REMOVE**)
- (3) Hybrid Cable (**REMOVE**), (4) RFS/CELWAVE Hybrid Cable (**REPLACE**)
- (4) Coax Cable (**REMOVE**), (3) 6X24 hcs 4awg 70m cable (**REPLACE**)
- (1) Hybrid Cable (**REMOVE**)
- (1) Remote Radio mount (**REMOVE**)

Ground:

REMOVE:

- (1) Legacy Sprint Cabinet(s) as needed



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

INSTALL:

- (2) Cabinets
- (3) BB6648, (1)RBS6601 w/(1) DUG20
- (1) IXRE Router
- (1) PSU4813 Booster

The Facility was approved by the Connecticut Siting Council on November 21, 2002, Docket#229. The approval was with conditions which this exempt modification complies with.

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 David Cox, Town of East Hampton Town Manager and property owner, Vincent Garafalo Town of East Hampton Building Official

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, Sprint 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,

Ersilia Davis
NETWORK BUILDING + CONSULTING
Project Manager
1777 Sentry Parkway W | VEVA 17, Suite 400
Blue Bell, PA 19422
edavis@nbcllc.com
(551)804-0667



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

cc:

David Cox, Town Manager
1 Community Drive
East Hampton, CT 06424
(860) 267-4468
(Via Fedex)

Vincent Garafalo, Building Official
1 Community Drive
East Hampton, CT 06424
(860) 267-9601
(Via Fedex)



TRACK ANOTHER SHIPMENT

775255275724



ADD NICKNAME

Delivered
Friday, 11/19/2021 at 10:34 am



DELIVERED

Signed for by: P.BURNHAM



GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis
1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Vincent Garafalo
Town of East Hampton
1 Community Drive
EAST HAMPTON, CT US 06424
860-267-4468

MANAGE DELIVERY

Travel History

TIME ZONE

Local Scan Time

Friday, November 19, 2021

10:34 AM	EAST HAMPTON, CT	Delivered
9:44 AM	NORWICH, CT	On FedEx vehicle for delivery
9:05 AM	NORWICH, CT	At local FedEx facility
5:40 AM	EAST GRANBY, CT	At destination sort facility
4:53 AM	NEWARK, NJ	Departed FedEx hub



TRACK ANOTHER SHIPMENT

775255231574



ADD NICKNAME

Delivered
Friday, 11/19/2021 at 10:34 am



DELIVERED

Signed for by: P.BURNHAM



GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis
1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

David Cox, Town Manager
Town of East Hampton
1 Community Drive
EAST HAMPTON, CT US 06424
860-267-4468

MANAGE DELIVERY

Travel History

TIME ZONE

Local Scan Time



Friday, November 19,
2021

10:34 AM	EAST HAMPTON, CT	Delivered
9:44 AM	NORWICH, CT	On FedEx vehicle for delivery
9:04 AM	NORWICH, CT	At local FedEx facility
5:40 AM	EAST GRANBY, CT	At destination sort facility
4:53 AM	NEWARK, NJ	Departed FedEx hub

Exhibit A

Original Facility Approval



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

November 22, 2002

Thomas J. Regan, Esquire
Brown Rudnick Berlack Israels LLP
CityPlace I, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402

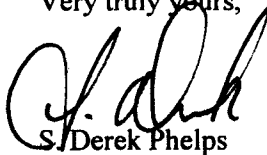
RE: DOCKET NO. 229 - Sprint Spectrum, L. P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at Public Works Drive, East Hampton, Connecticut.

Dear Attorney Regan:

By its Decision and Order dated November 21, 2002, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) the construction, maintenance and operation of a cellular telecommunications facility at Public Works Drive, East Hampton, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,


S. Derek Phelps
Executive Director

SDP/laf

Enclosures (4)



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

**CERTIFICATE
OF
ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DOCKET NO. 229**

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Sprint Spectrum, L. P. for the construction, maintenance and operation of a cellular telecommunications facility at Public Works Drive, East Hampton, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on November 21, 2002.

By order of the Council,

Mortimer A. Gelston, Chairman

November 21, 2002



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051


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

E-Mail: siting.council@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

November 22, 2002

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director 

RE: **DOCKET NO. 229** – Sprint Spectrum, L. P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at Public Works Drive, East Hampton, Connecticut.

By its Decision and Order dated November 21, 2002, the Connecticut Siting Council granted a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at Public Works Drive, East Hampton, Connecticut.

Enclosed are the Council's Findings of Fact, Opinion, and Decision and Order.

SDP/laf

Enclosures (3)

c: Albert Palko, State Documents Librarian
Council Members

Exhibit B

Property Card

1 PUBLIC WORKS DR #CELL

Location 1 PUBLIC WORKS DR #CELL

Mblu 06/ 5A/ 8B/ /

Acct# R07102

Owner EAST HAMPTON TOWN OF &

Assessment \$203,000

Appraisal \$290,000

PID 5538

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2021	\$90,000	\$200,000	\$290,000
Assessment			
Valuation Year	Improvements	Land	Total
2021	\$63,000	\$140,000	\$203,000

Owner of Record

Owner EAST HAMPTON TOWN OF &
Co-Owner SPRINT SPECTRUM LP PROPTY TAX
Address PO BOX 8430 (CT33XC018)
 KANSAS CITY, MO 64114

Sale Price \$0
Certificate
Book & Page 0000/0000
Sale Date 01/01/1900
Instrument 29

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
EAST HAMPTON TOWN OF &	\$0		0000/0000	29	01/01/1900

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: \$0
Building Percent Good:
Replacement Cost
Less Depreciation: \$0

Building Attributes


Field	Description
Style:	Outbuildings
Model	
Grade:	
Story Height	
Foundation	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
# Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplace	
Cndtn	
Fin Basement	
Fin Bsmt Qual	
Bsmt. Garages	
Num Park	
Fireplaces	
Solar	
Gas Fireplace	
Fndtn Cndtn	
Basement	

Building Photo



(<http://images.vgsi.com/photos/EastHamptonCTPhotos//default.jpg>)

Building Layout

 Building Layout

(http://images.vgsi.com/photos/EastHamptonCTPhotos//Sketches/5538_55)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code 200
Description Commercial Vacant
Zone C
Neighborhood COM
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 1
Frontage
Depth
Assessed Value \$140,000
Appraised Value \$200,000

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CEL	Cell Tower			1.00 UNITS	\$90,000	1

Valuation History

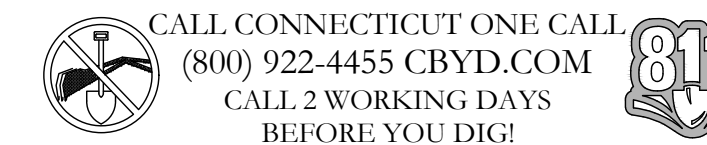
Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$90,000	\$200,000	\$290,000
2020	\$100,000	\$200,000	\$300,000
2020	\$100,000	\$200,000	\$300,000
2019	\$100,000	\$200,000	\$300,000

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$63,000	\$140,000	\$203,000
2020	\$70,000	\$140,000	\$210,000
2020	\$70,000	\$140,000	\$210,000
2019	\$70,000	\$140,000	\$210,000

Exhibit C

Construction Drawings

T-Mobile



T-MOBILE SITE NUMBER: CTHA696A
T-MOBILE SITE NAME: CTHA696A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 180'-0"

BUSINESS UNIT #: 876368
SITE ADDRESS: 1 PUBLIC WORKS DRIVE EAST HAMPTON, CT 06032
COUNTY: MIDDLESEX
JURISDICTION: TOWN OF EAST HAMPTON

T-MOBILE SPRINT-RETAIN SITE CONFIGURATION: 67D5998C_1XAIR+1QP+1OP (GSM ONLY)

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002



1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER: CTHA696A

BU #: 876368
YANKEE LAKE/EAST HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:



10/12/21

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:

T-1

REVISION:

1

SITE INFORMATION

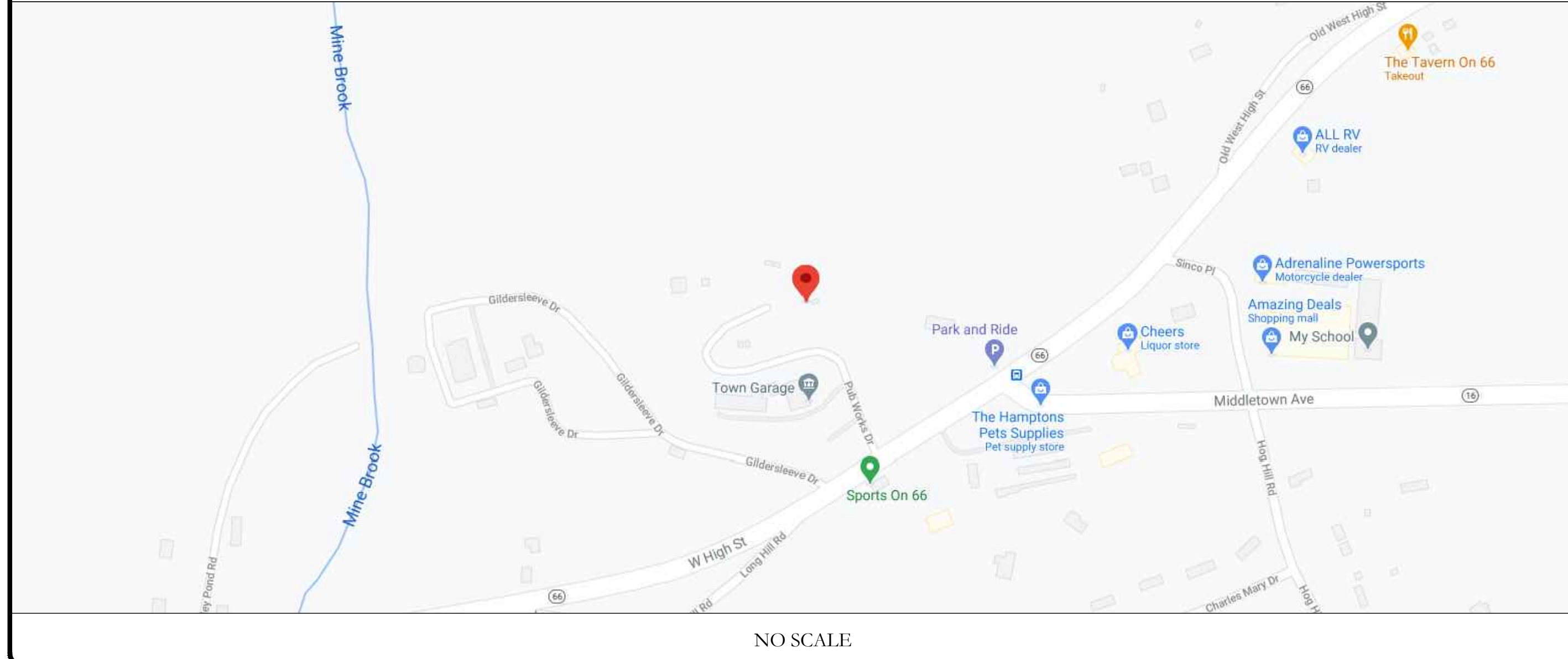
CROWN CASTLE USA INC. YANKEE LAKE/EAST HAMPTON/TOWN
 SITE NAME:
 SITE ADDRESS: 1 PUBLIC WORKS DRIVE EAST HAMPTON, CT 06032
 COUNTY: MIDDLESEX
 PARCEL #: 06-5A-8B
 AREA OF CONSTRUCTION: EXISTING
 LATITUDE: 41° 33' 53.14" (41.56477000)
 LONGITUDE: -72° 32' 35.18" (-72.54310000)
 LAT/LONG TYPE: NAD83
 GROUND ELEVATION: 337 FT (AMSL)
 CURRENT ZONING: R-2
 JURISDICTION: TOWN OF EAST HAMPTON
 TYPE OF CONSTRUCTION: IIB
 A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
 PROPERTY OWNER: TOWN OF EAST HAMPTON & SPRINT SPECTRUM LP PROPTY TAX PO BOX 8430 (CT33XC018) KANSAS CITY, MO 64114
 TOWER OWNER: CROWN CASTLE USA, INC. 1200 MACARTHUR BLVD, SUITE 200 MAHWAH, NJ 07430
 CARRIER/APPLICANT: T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
 ELECTRIC PROVIDER: CONNECTICUT LIGHT & POWER CO. (800) 286-2000
 TELCO PROVIDER: AT&T (800) 288-2020

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	FINAL SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	EQUIPMENT SPECS
C-5	CABINET & SIGNAGE 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 22x34. 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.

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	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 INTERNATIONAL MECHANICAL CODE
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSFIELD
DATED:	10/01/2021
MOUNT ANALYSIS:	BY TOWER ENGINEERING PROFESSIONALS
DATED:	09/24 /2021
ORDER ID:	584618
REVISION:	0
RFDS VERSION:	1
DATED:	07/09/2021

ANALYSIS CRITERIA:

APPLICABLE CODES: TIA-222-H / ASCE 7-16
 WIND SPEED: V = 130 MPH (ULTIMATE 3 SECOND GUST)
 EXPOSURE CATEGORY: B
 RISK CATEGORY: II
 TOPOGRAPHIC CATEGORY: 1
 SEISMIC Ss: 0.211
 SEISMIC S1: 0.056
 SERVICE WIND SPEED: 60 MPH

APPROVALS

APPROVAL	SIGNATURE	DATE
RF	_____	_____
CONST.	_____	_____
FAA	_____	_____
OPS	_____	_____
RE	_____	_____
SR DEV MGR	_____	_____
REG DIR	_____	_____

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.

PROJECT TEAM

A&E FIRM: TOWER ENGINEERING PROFESSIONALS
 326 TRYON ROAD
 RALEIGH, NC 27603
 JOSEPH T. CRESS - PROJECT MANAGER
 (919) 661-6351
 SCOTT BRANTLEY - CIVIL ENGINEER
 (919) 661-6351
 SCOTT BRANTLEY - ELECTRICAL ENGINEER
 (919) 661-6351
 CROWN CASTLE USA INC. DISTRICT CONTACTS:
 CROWN CASTLE USA, INC.
 46 BROADWAY,
 MENANDS, NY 12204-2702
 PATRICIA PELON - PROJECT MANAGER
 (518) 373-3507

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 (4) EXISTING SPRINT CABLES
- REMOVE (1) HYBRID CABLES
- REMOVE (3) EXISTING SPRINT ANTENNAS
- REMOVE (12) EXISTING SPRINT RRHS
- REUSE (1) PLATFORM MOUNT WITH HANDRAIL
- REUSE (1) GPS ANTENNA & CABLE
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHS
- INSTALL (3) BACK-TO-BACK RADIO MOUNTS
- INSTALL (3) 6x24 HCS 4AWG 70m CABLES

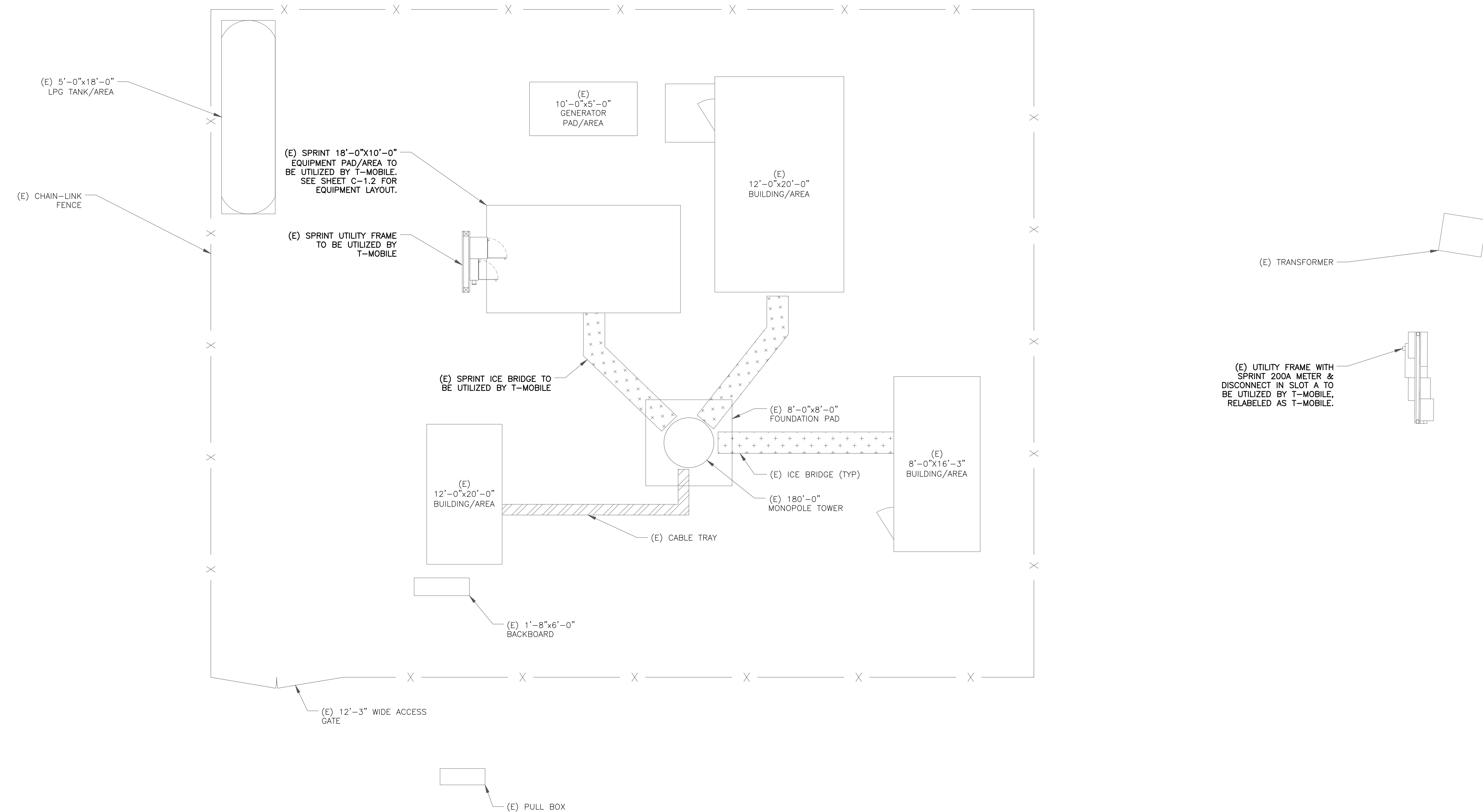
GROUND SCOPE OF WORK:

- REMOVE LEGACY SPRINT CABINET(S) AS NEEDED
- INSTALL (2) CABINETS
- INSTALL (3) BB 6648, (1) RBS 6601 W/ (1) DUG20, (1) IXRE ROUTER, (1) PSU 4813 BOOSTER
- REUSE EXISTING SPRINT PAD, ICE BRIDGE & UTILITY EQUIPMENT

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

NOTE:
 SITE PLAN SHOWN BELOW WAS REPRODUCED FROM INFORMATION PROVIDED BY CROWN CASTLE AND SITE WALK CONDUCTED BY TEP CONTRACTOR TO VERIFY ALL EXISTING INFORMATION IS AS INDICATED ON SITE PLAN. CONTRACTOR IS TO ESTABLISH THE EXISTENCE AND LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES. IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES.

FLOODPLAIN NOTE:
 THE TOWER IS LOCATED IN ZONE "X" AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN ACCORDING TO FEMA COMMUNITY PANEL #09007C0135G, DATED 08/28/2008.



T-Mobile
 35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002

CROWN CASTLE
 1200 MACARTHUR BLVD, SUITE 200
 MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS
 326 TRYON RD
 RALEIGH, NC 27603
 (919) 661-6351
 TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER: CTHA696A
 BU #: 876368
 YANKEE LAKE/EAST HAMPTON/TOWN
 1 PUBLIC WORKS DRIVE
 EAST HAMPTON, CT 06032
 (MIDDLESEX COUNTY)
 EXISTING 180'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

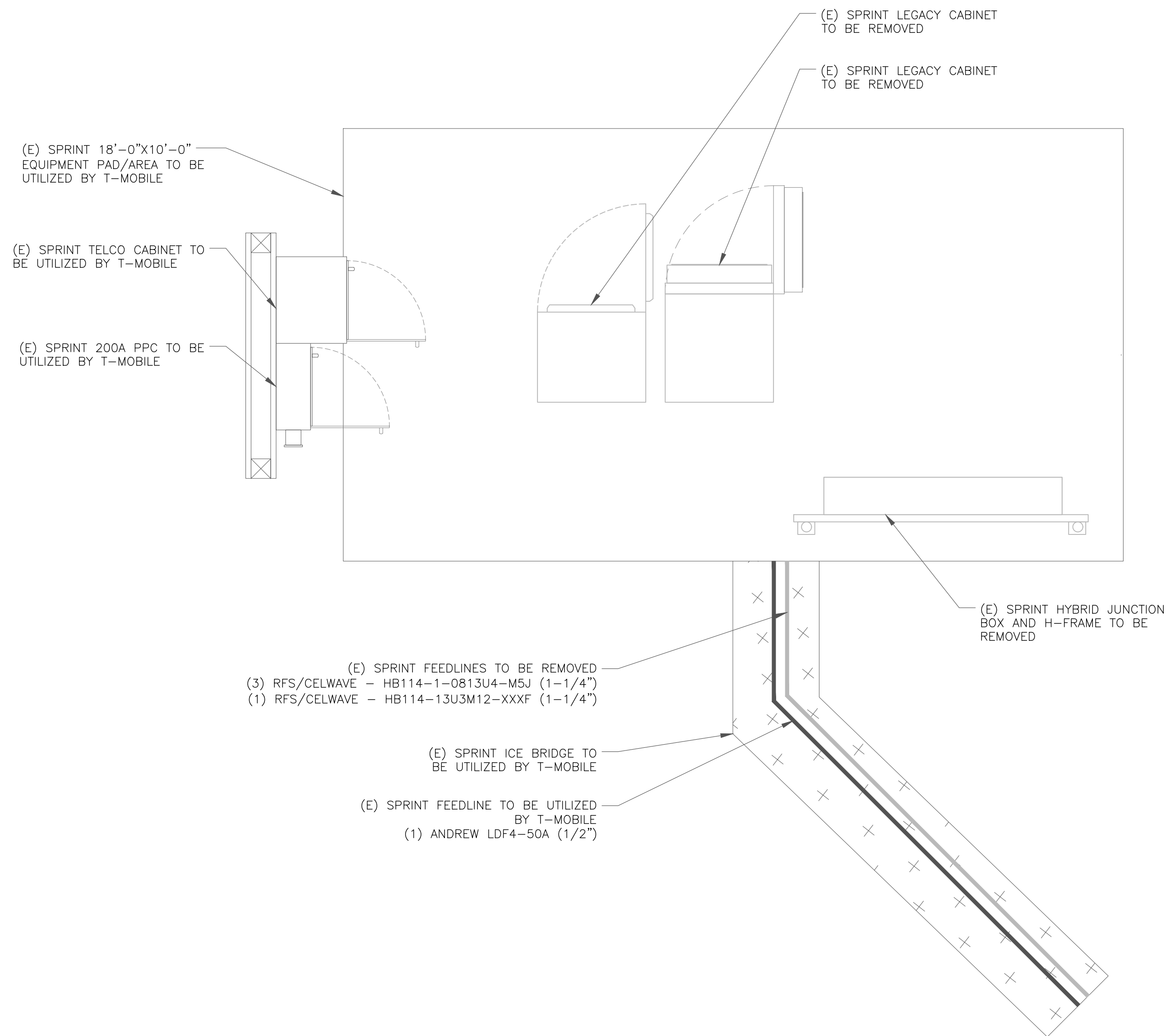
SEAL:

 10/12/21

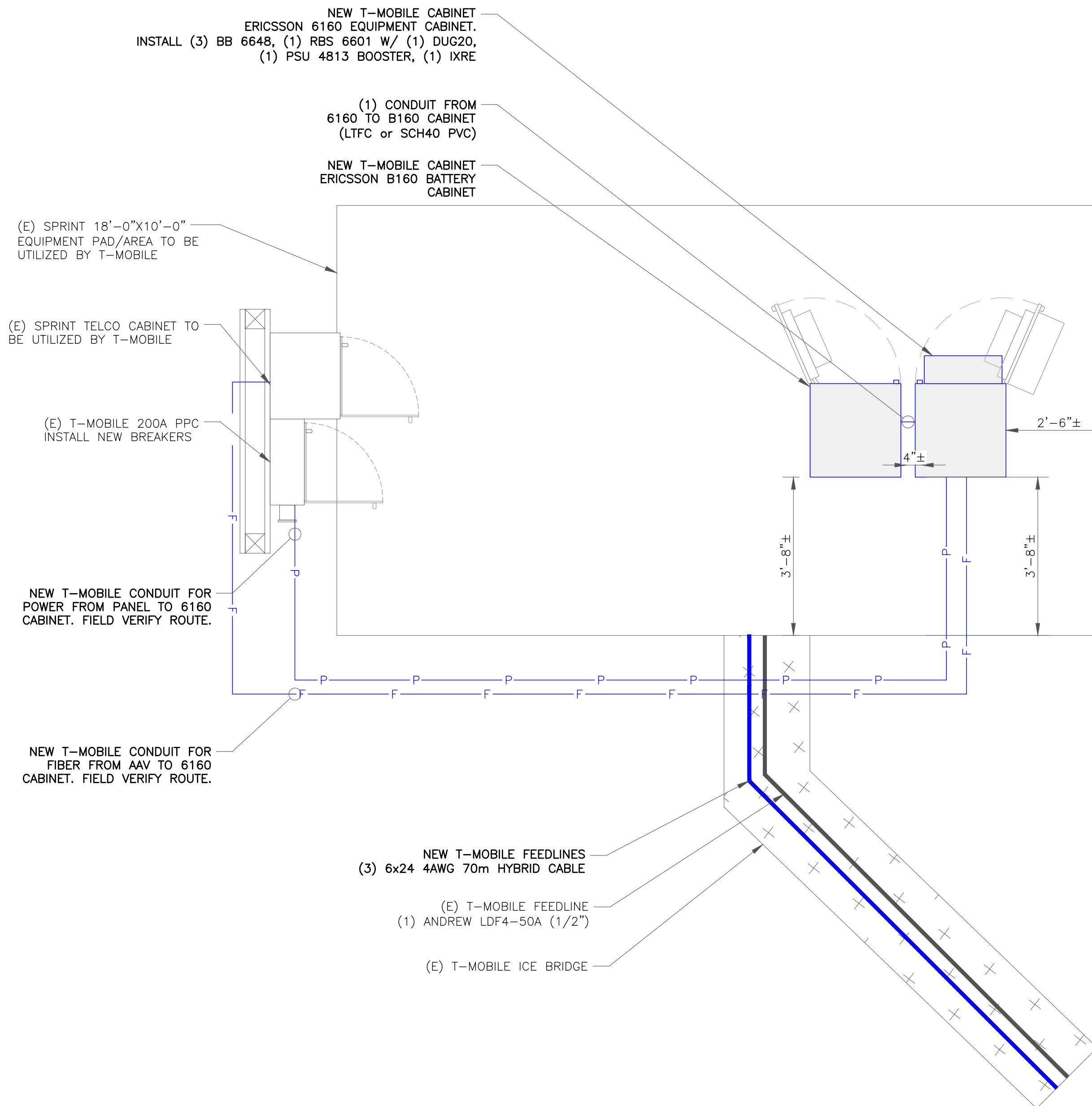
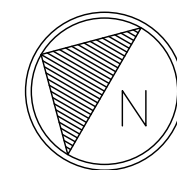
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-1.1 **REVISION: 1**

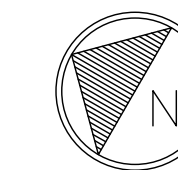
FLOODPLAIN NOTE:
 THE TOWER IS LOCATED IN ZONE "X" AREAS
 DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE
 FLOODPLAIN ACCORDING TO FEMA COMMUNITY PANEL
 #09007C0135G, DATED 08/28/2008.



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



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



T-Mobile

35 GRIFFIN ROAD
 BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
 MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
 RALEIGH, NC 27603
 (919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A

BU #: 876368
 YANKEE LAKE/EAST HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
 EAST HAMPTON, CT 06032
 (MIDDLESEX COUNTY)

EXISTING 180'-0"
 MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:

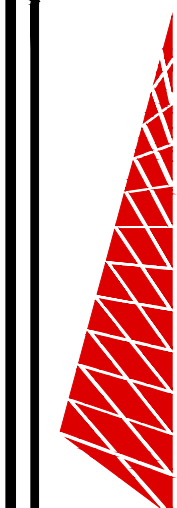


10/12/21

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:
C-1.2

REVISION:
1



TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A

BU #: 876368
YANKEE LAKE/EAST HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:



10/12/21

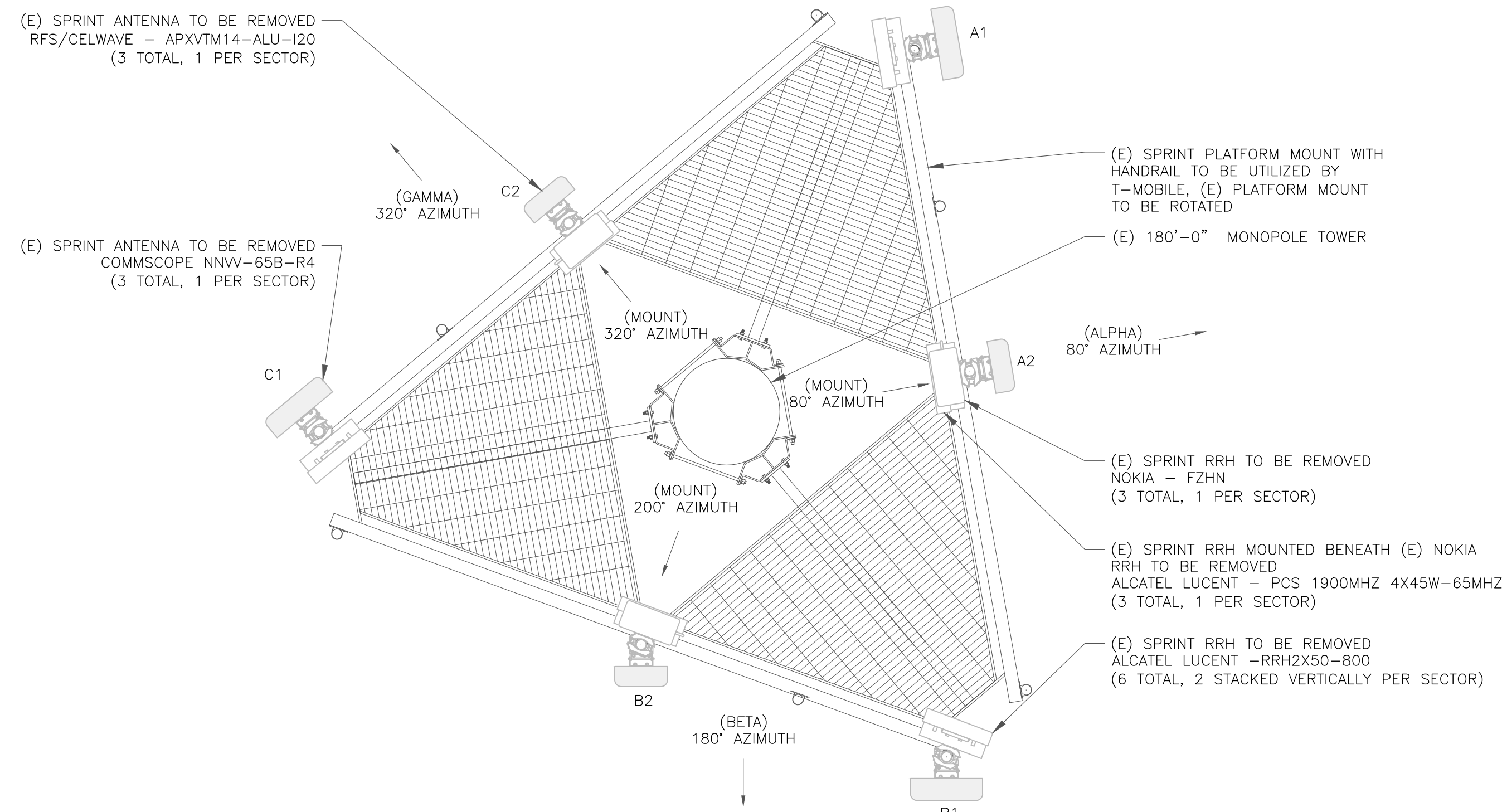
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:

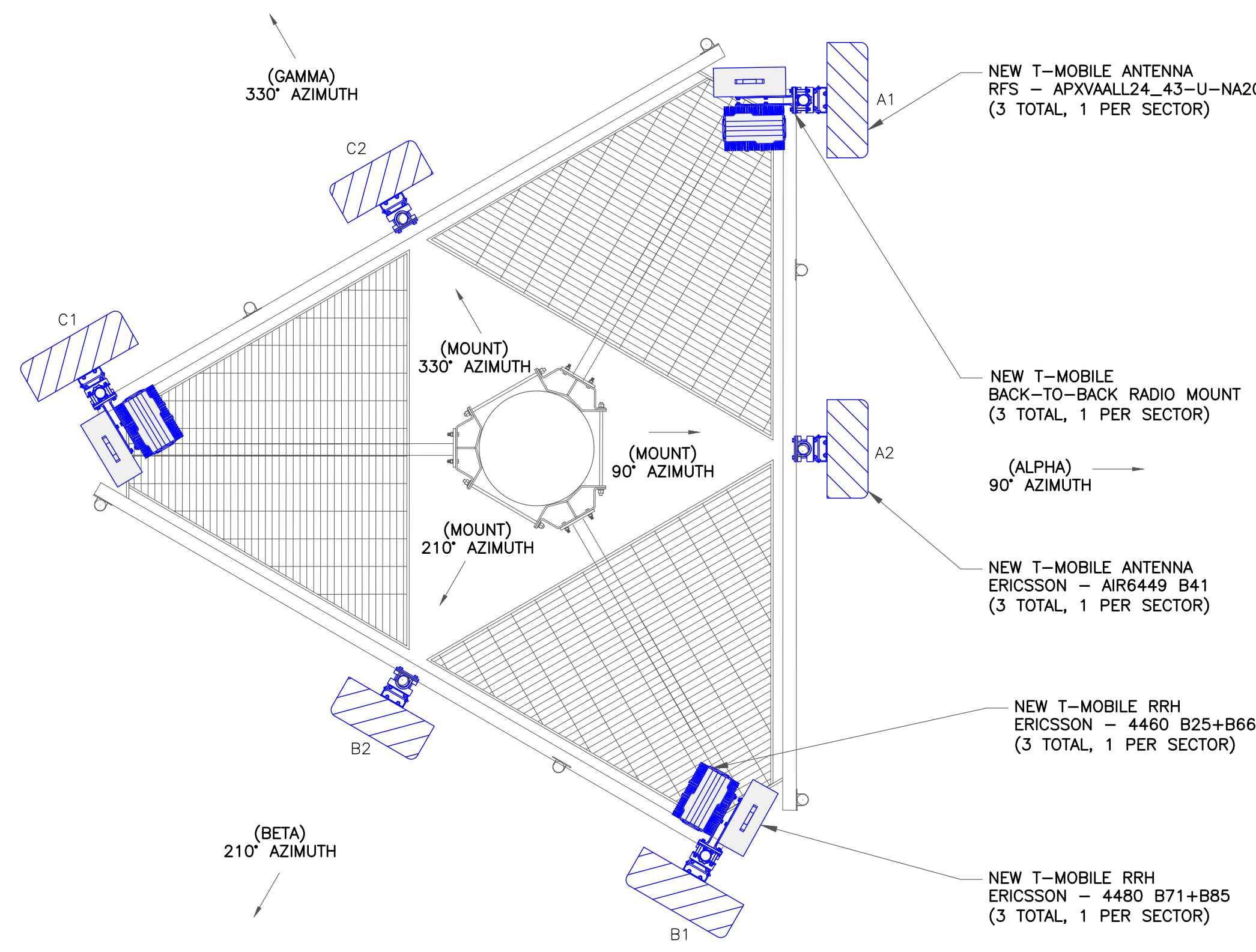
C-2

REVISION:

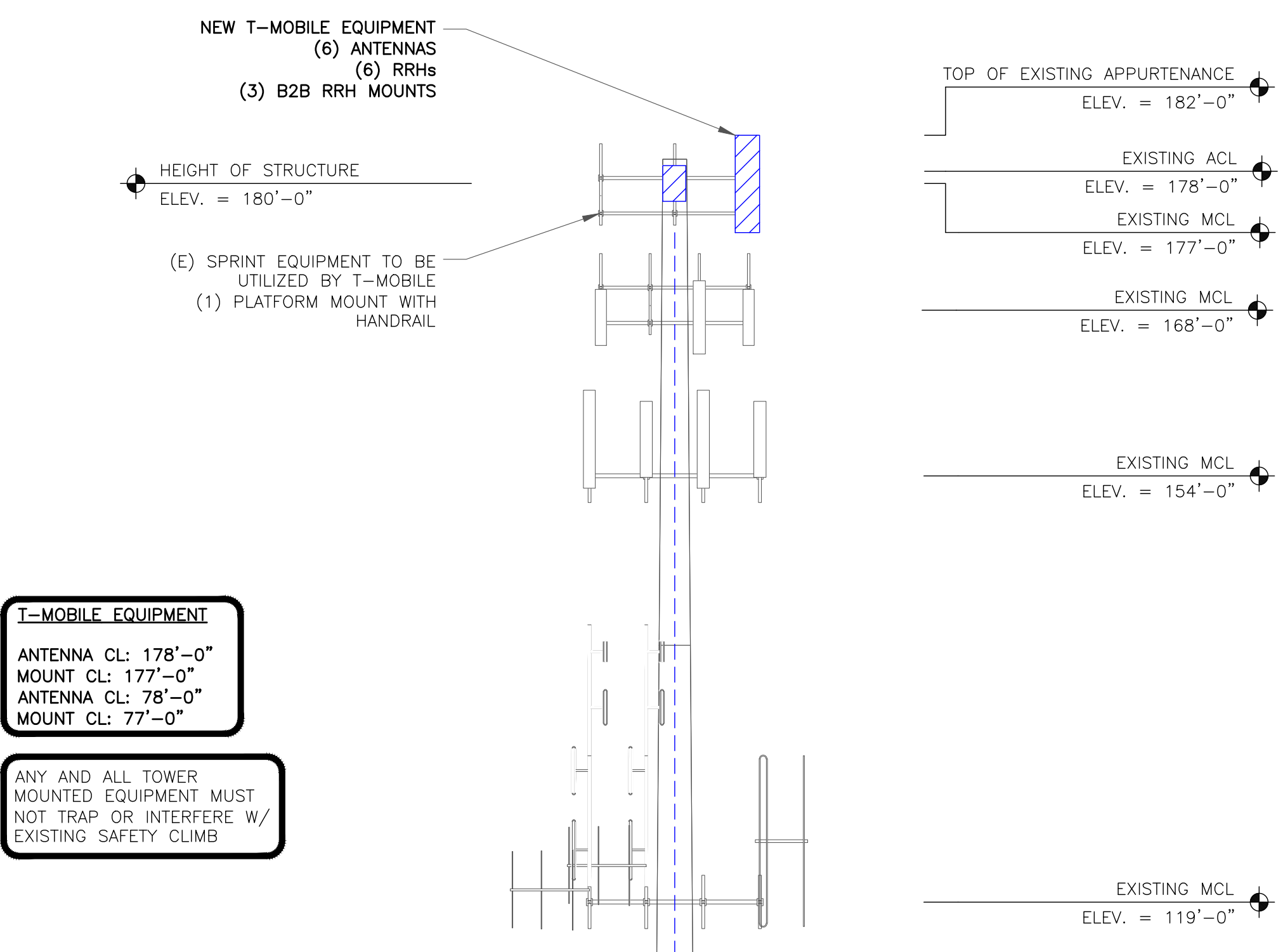
1



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE



1 FINAL ELEVATION
SCALE: NOT TO SCALE

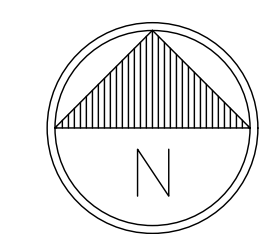
T-MOBILE EQUIPMENT
ANTENNA CL: 178'-0"
MOUNT CL: 177'-0"
ANTENNA CL: 78'-0"
MOUNT CL: 77'-0"
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

INSTALLER NOTE:
EXISTING AND PROPOSED ANTENNA/EQUIPMENT POSITIONING SHOWN PER RFDS. FIELD CONDITIONS MAY VARY.

TOWER ANALYSIS NOTES:
1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING TOWER ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE TOWER ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED TOWER MODIFICATION DESIGN OR TOWER REPLACEMENT SHALL BE APPROVED BY EOR.

MOUNT ANALYSIS NOTES:
1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE APPROVED BY EOR.

RRH NOTE:
CONTRACTOR TO ENSURE RRHs ARE INSTALLED MIN 8" AWAY FROM ANTENNA



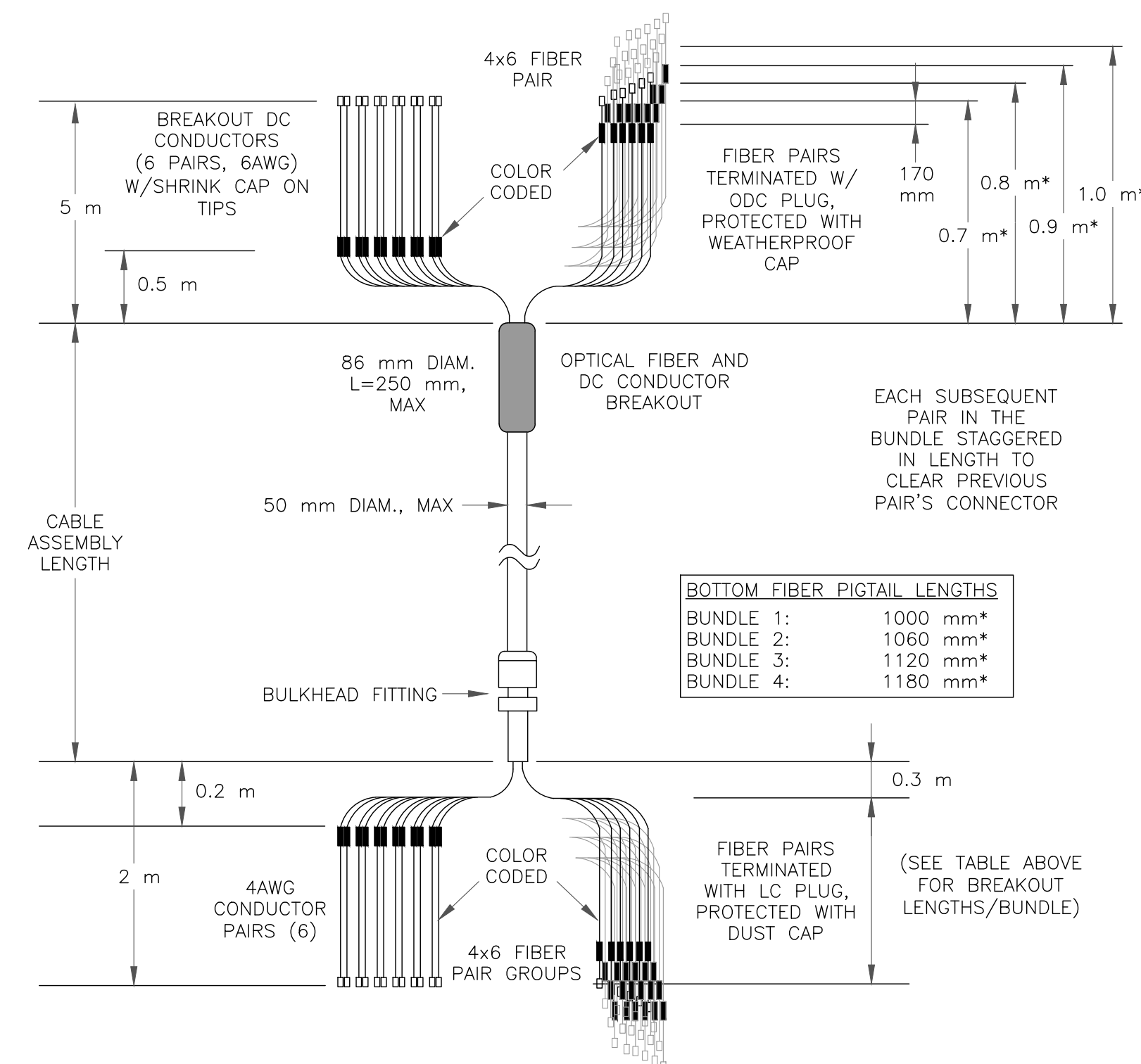
FINAL ANTENNA SCHEDULE										
SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L700, L600, N600, L1900, G1900	178'-0"	90°	RFS	APXVAALL24_43-U-NA20 (OCTO)	-	2'	(1) ERICSSON - 4480 B71+B85 (1) ERICSSON - 4460 B25+B66	(1) 6x24 4AWG 70m
ALPHA	A2	L2500, N2500	178'-0"	90°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	-	2'	-	HYBRID (SHARED)
BETA	B1	L700, L600, N600, L1900, G1900	178'-0"	210°	RFS	APXVAALL24_43-U-NA20 (OCTO)	-	2'	(1) ERICSSON - 4480 B71+B85 (1) ERICSSON - 4460 B25+B66	(1) 6x24 4AWG 70m
BETA	B2	L2500, N2500	178'-0"	210°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	-	2'	-	HYBRID (SHARED)
GAMMA	C1	L700, L600, N600, L1900, G1900	178'-0"	330°	RFS	APXVAALL24_43-U-NA20 (OCTO)	-	2'	(1) ERICSSON - 4480 B71+B85 (1) ERICSSON - 4460 B25+B66	(1) 6x24 4AWG 70m
GAMMA	C2	L2500, N2500	178'-0"	330°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	-	2'	-	HYBRID (SHARED)

PROPOSED ANTENNA/EQUIPMENT SHOWN IN BOLD

FINAL CABLE SCHEDULE			
STATUS	CABLE TYPE	SIZE	QUANTITY
NEW	HCS	6x24 4AWG 70m	3
CABLE QUANTITY			3

NOTE:
(1) HYBRID SHARED BETWEEN 6449 ANTENNAS PER SECTOR

1 PROPOSED ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE



2 HCS DETAIL
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS
326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A

BU #: 876368
YANKEE LAKE/EAST HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:

Professional Engineer Seal

10/12/21

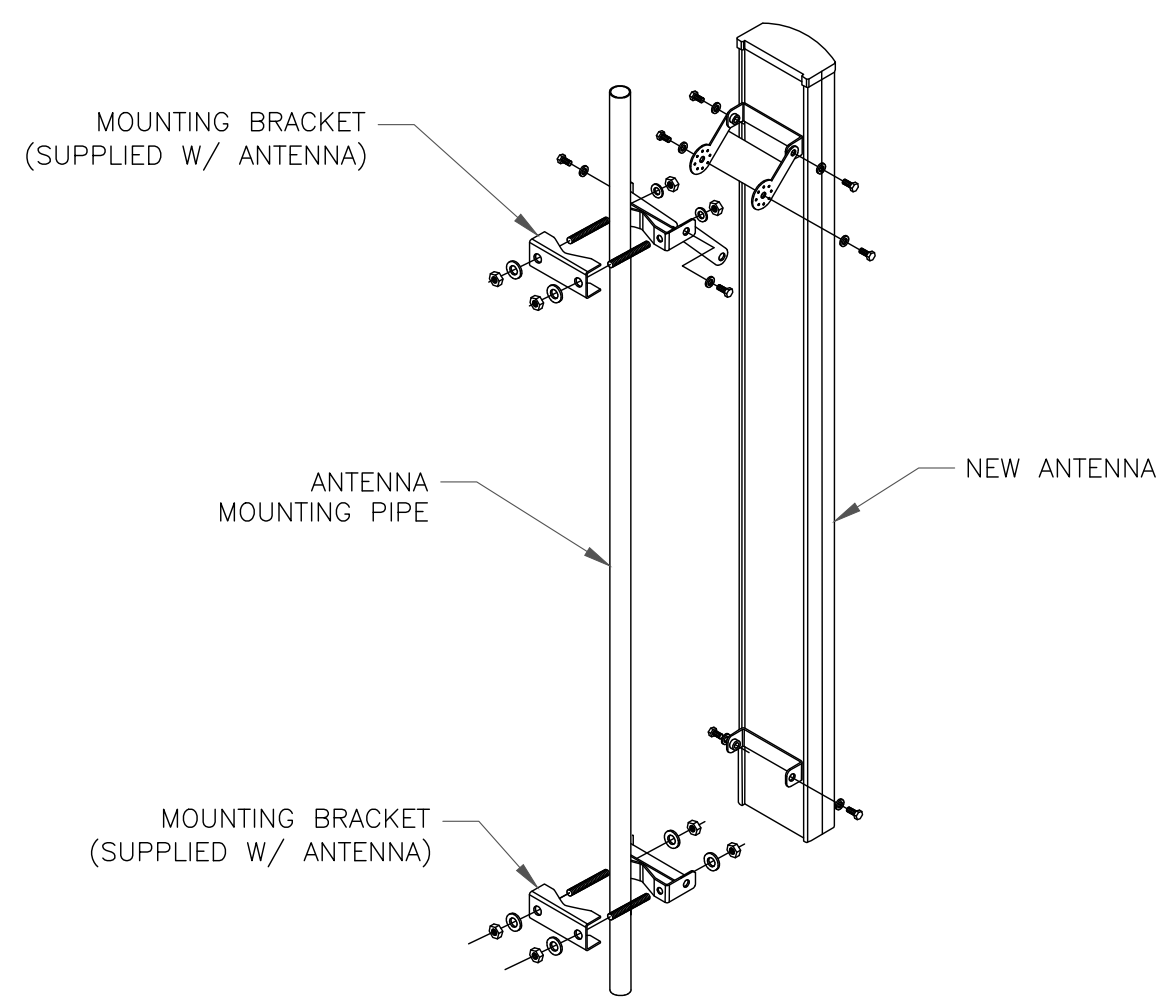
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:

C-3

REVISION:

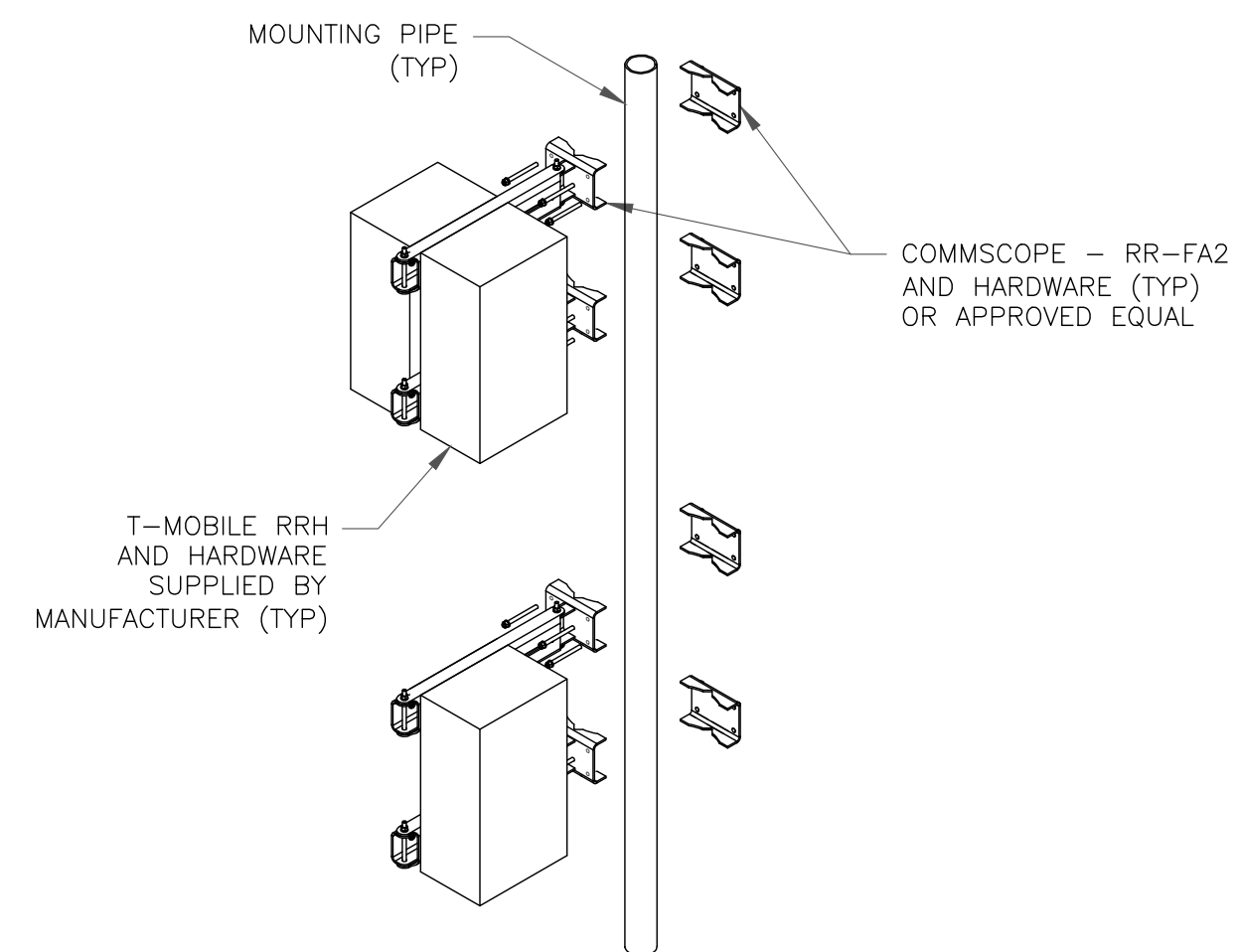
1



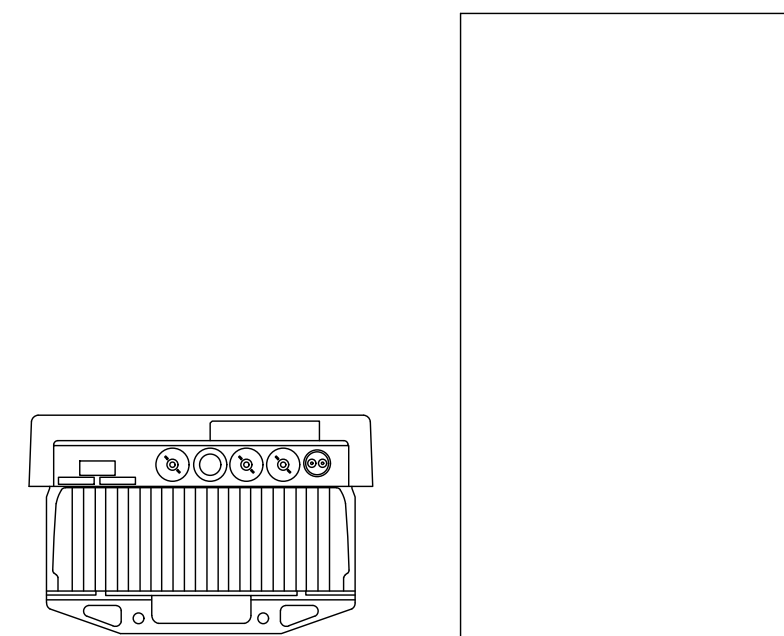
1 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

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.

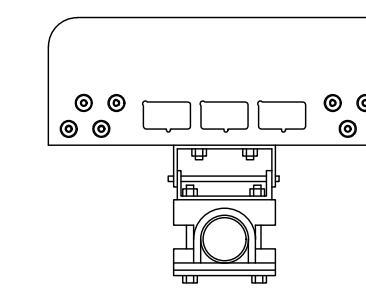


2 RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE



ERICSSON - AIR6449 B41
WEIGHT: 104.0 LBS
SIZE (HxWxD): 33.10x20.60x8.60 IN.

3 ERICSSON - AIR6449 B41
SCALE: NOT TO SCALE



RFS/CELWAVE - APXVAALL24_43-U-NA20
WEIGHT (WITHOUT MOUNTING HARDWARE): 149.9 LBS
SIZE (HxWxD): 95.9x24.0x8.5 IN.

4 RFS/CELWAVE - APXVAALL24_43-U-NA20
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

**T-MOBILE SITE NUMBER:
CTHA696A**

**BU #: 876368
YANKEE LAKE/EAST
HAMPTON/TOWN**

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:

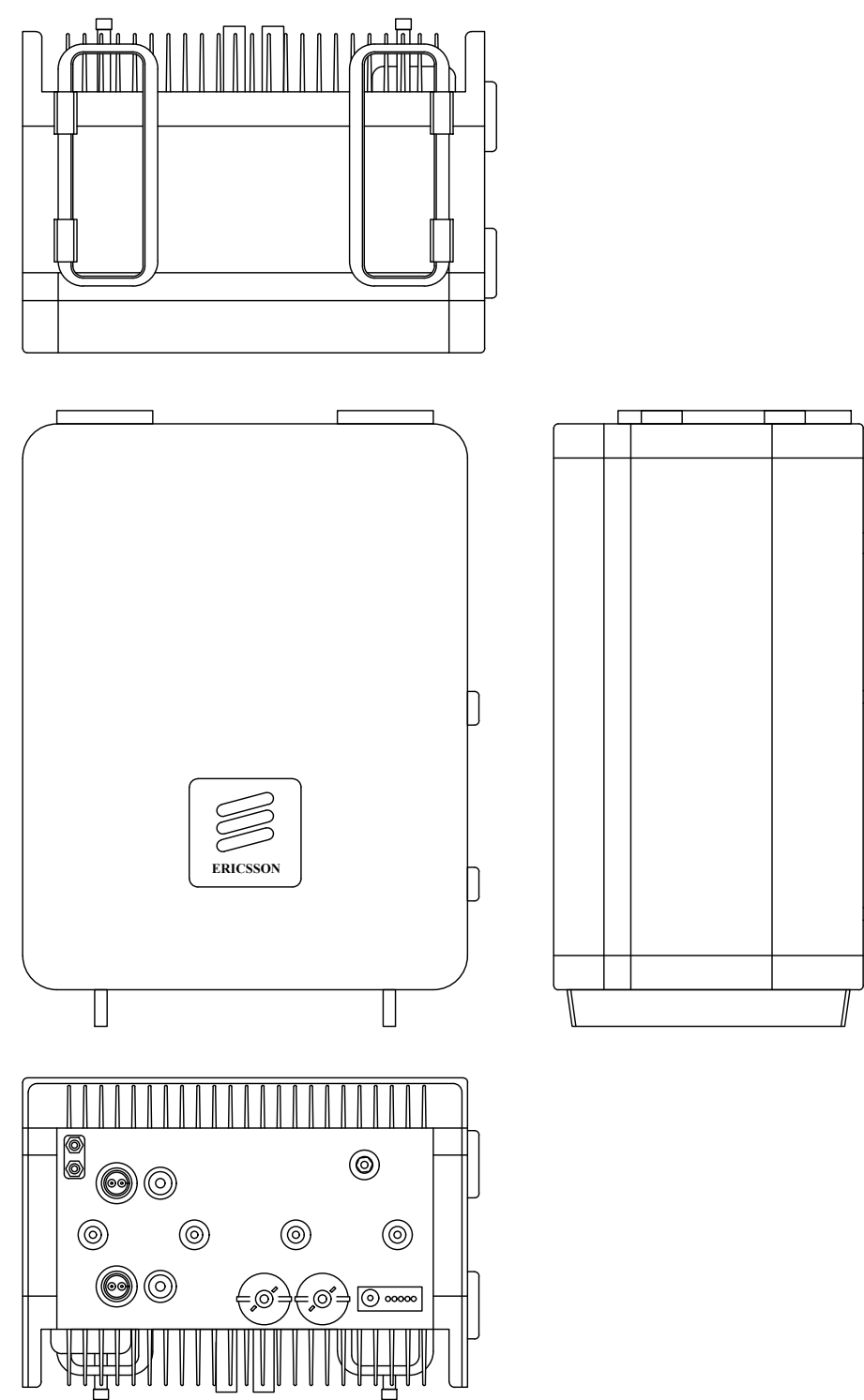


10/12/21

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.

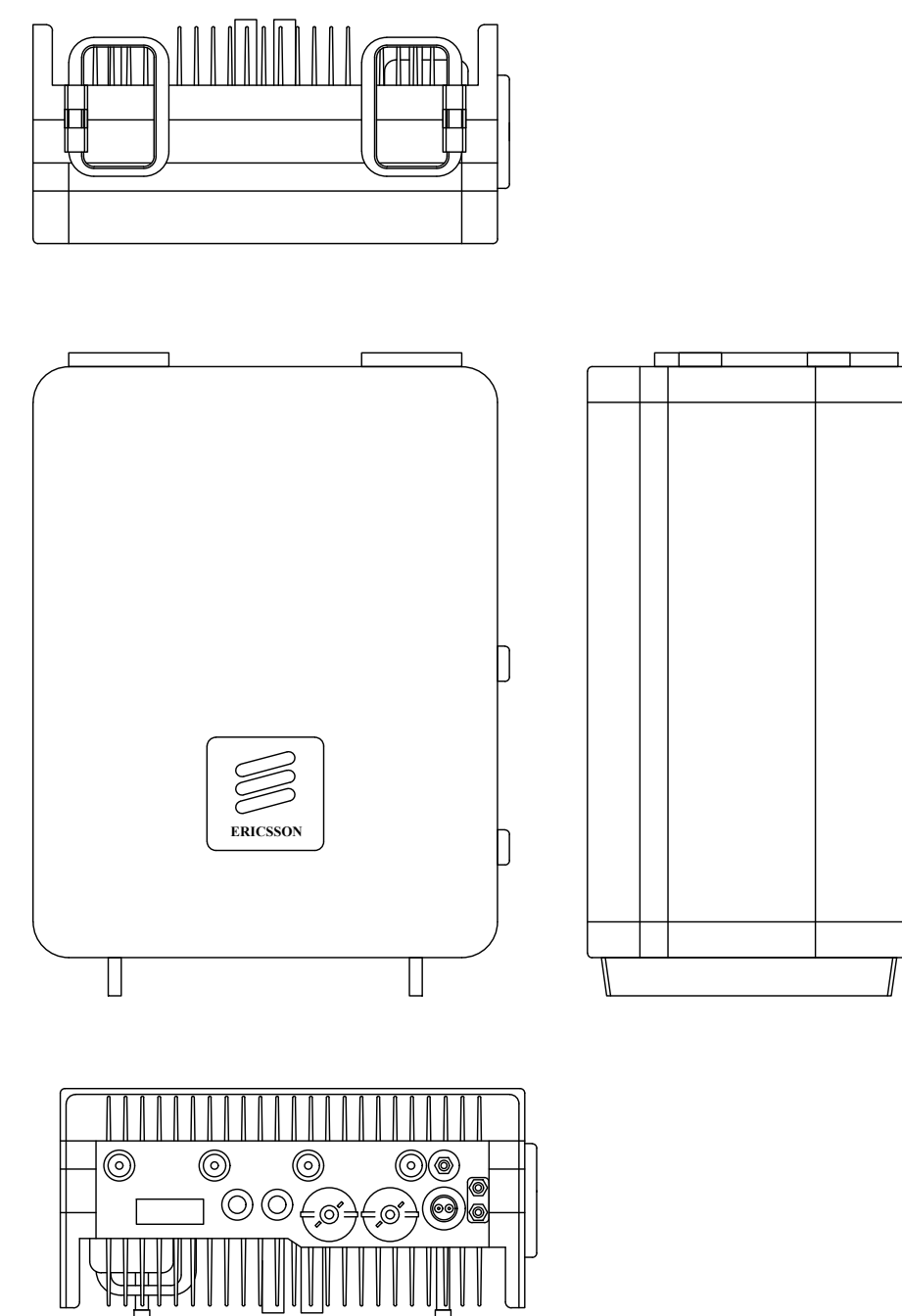
**SHEET NUMBER:
C-4**

**REVISION:
1**



ERICSSON - RADIO 4480 B71+B85
WEIGHT: 81.0 LBS
SIZE (HxWxD): 22.0x15.7x7.5 IN.

5 ERICSSON - RADIO 4480 B71+B85
SCALE: NOT TO SCALE

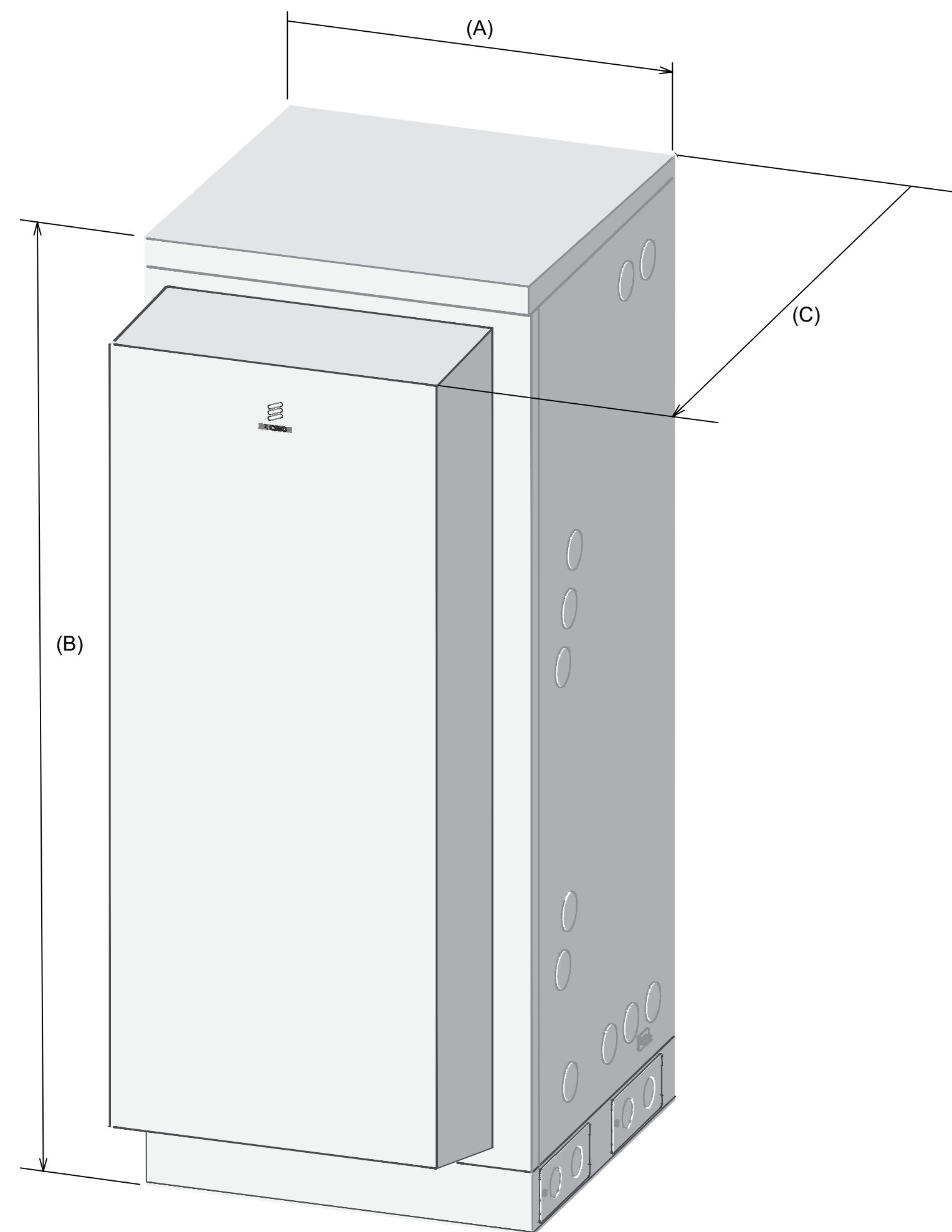


ERICSSON - RADIO 4460 B25+B66
WEIGHT: 109.0 LBS
SIZE (HxWxD): 19.0x15.1x11.9 IN.

6 ERICSSON - RADIO 4460 B25+B66
SCALE: NOT TO SCALE

7 NOT USED
SCALE: NOT TO SCALE

8 NOT USED
SCALE: NOT TO SCALE



INSTALLER NOTES:

1. INFORMATION SHOWN PROVIDED BY T-MOBILE. CONTRACTOR TO REFERENCE CABINET MANUFACTURER'S SPECIFICATIONS FOR FURTHER DETAILS.
2. CONTRACTOR TO FOLLOW THE LATEST VERSION OF T-MOBILE REGIONAL CONSTRUCTION STANDARDS. CONTACT T-MOBILE FOR DETAILS.

Dimensions	
Width (A)	650 mm / 25.5906 in
Height (B)	1450 mm / 57.08661 in (without base frame) 1600 mm / 62.99213 in (with base frame)
Depth (C)	850 mm / 33.4646 in
Weight	
Empty enclosure	176 kg / 388.014 lb

1 ERICSSON 6160 CABINET DETAILS
SCALE: NOT TO SCALE



2 ERICSSON B160 CABINET DETAILS
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS
326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351
TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A
BU #: 876368
YANKEE LAKE/EAST HAMPTON/TOWN
1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)
EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:

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.

SITE SIGNAGE NOTE:
WHERE APPLICABLE, CONTRACTOR TO FOLLOW ALL T-MOBILE SIGNAGE REQUIREMENTS. CONFIRM SITE SIGNAGE WITH T-MOBILE CM PRIOR TO CONSTRUCTION



3 T-MOBILE SIGNAGE
SCALE: NOT TO SCALE

SHEET NUMBER: **C-5** REVISION: **1**

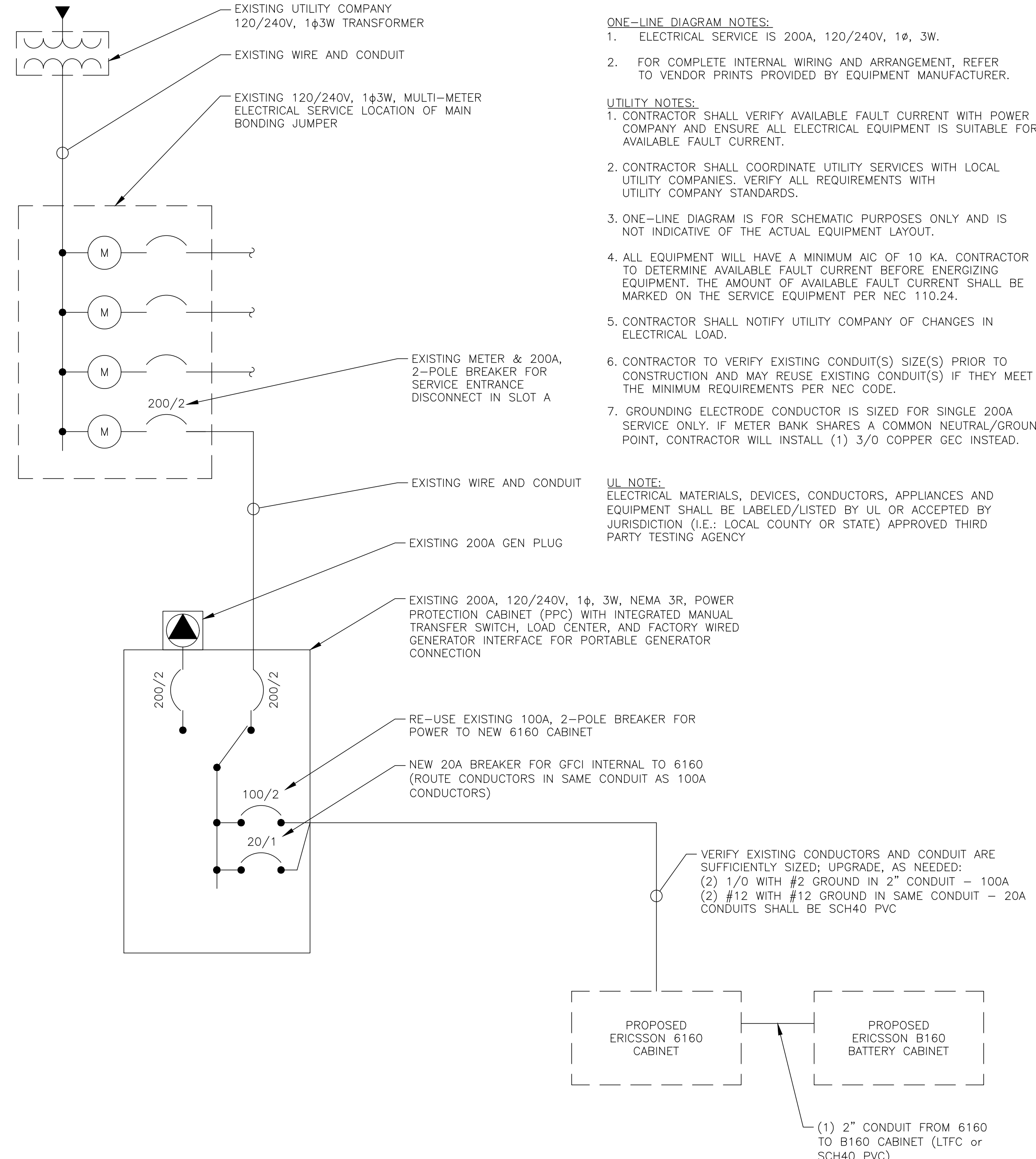
NOTE:
LOAD CALCULATIONS TAKEN FROM INFORMATION PROVIDED BY CROWN CASTLE & POWER ANALYSIS TOOL BASED ON THE RFDS DATED 07/09/2021 V1.0. CONTRACTOR TO VERIFY LOADS WITH MANUFACTURER'S SPECIFICATIONS PRIOR TO CONSTRUCTION.

EXISTING 200A M.C.B, 240/120 VAC, 1 ϕ , 3W PPC PANEL SCHEDULE										
LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPERES (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
**UNIT 1	9600		**100	1	A	2	60	100		AC SURGE PROTECTOR
		9600		3	B	4			100	
SPARE	-	-	-	5	A	6	-	-	-	
SPARE	-	-	-	7	B	8	-	-	-	SPARE
SPARE	-	-	-	9	A	10	15	180		TELCO GFI
TELCO FAN		340	10	11	B	12	-	-	-	SPARE
VOLT AMPS	9600	9940						280	100	VOLT AMPS
L1 VOLT AMPERES				9880	10040	L2 VOLT AMPERES				
				10040	MAX VOLT AMPERES					
				83.7	MAX AMPS					
				104.6	MAX AMPS x 125%					

*NOTE - REUSE BREAKER FOR NEW CABINET INSTALL

PROPOSED 200A M.C.B, 240/120 VAC, 1 ϕ , 3W PPC PANEL SCHEDULE										
LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPERES (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
6160 ENCLOSURE	6400		*100	1	A	2	60	100		AC SURGE PROTECTOR
		6400		3	B	4			100	
GFCI INTERNAL IN 6160	180		20	5	A	6	-	-	-	
SPARE	-	-	-	7	B	8	-	-	-	SPARE
SPARE	-	-	-	9	A	10	15	180		TELCO GFI
TELCO FAN		340	10	11	B	12	-	-	-	SPARE
VOLT AMPS	6580	6740						280	100	VOLT AMPS
L1 VOLT AMPERES				6860	6840	L2 VOLT AMPERES				
				6860	MAX VOLT AMPERES					
				57.2	MAX AMPS					
				71.5	MAX AMPS x 125%					

NOTE - PROPOSED BREAKER IN BOLD



GENERAL NOTES:

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

ONE-LINE DIAGRAM NOTES:

- ELECTRICAL SERVICE IS 200A, 120/240V, 1 ϕ , 3W.
- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REFER TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER.

UTILITY NOTES:

- CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT IS SUITABLE FOR AVAILABLE FAULT CURRENT.
- CONTRACTOR SHALL COORDINATE UTILITY SERVICES WITH LOCAL UTILITY COMPANIES. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY STANDARDS.
- ONE-LINE DIAGRAM IS FOR SCHEMATIC PURPOSES ONLY AND IS NOT INDICATIVE OF THE ACTUAL EQUIPMENT LAYOUT.
- ALL EQUIPMENT WILL HAVE A MINIMUM AIC OF 10 KA. CONTRACTOR TO DETERMINE AVAILABLE FAULT CURRENT BEFORE ENERGIZING EQUIPMENT. THE AMOUNT OF AVAILABLE FAULT CURRENT SHALL BE MARKED ON THE SERVICE EQUIPMENT PER NEC 110.24.
- CONTRACTOR SHALL NOTIFY UTILITY COMPANY OF CHANGES IN ELECTRICAL LOAD.
- CONTRACTOR TO VERIFY EXISTING CONDUIT(S) SIZE(S) PRIOR TO CONSTRUCTION AND MAY REUSE EXISTING CONDUIT(S) IF THEY MEET THE MINIMUM REQUIREMENTS PER NEC CODE.
- GROUNDING ELECTRODE CONDUCTOR IS SIZED FOR SINGLE 200A SERVICE ONLY. IF METER BANK SHARES A COMMON NEUTRAL/GROUND POINT, CONTRACTOR WILL INSTALL (1) 3/0 COPPER GEC INSTEAD.

UL NOTE:

ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR ACCEPTED BY JURISDICTION (I.E.: LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS
326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A

BU #: 876368
YANKEE LAKE/EAST
HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:



10/12/21

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:

E-1

REVISION:

1

1 AC PANEL SCHEDULES
SCALE: NOT TO SCALE

2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-MOBILE GROUNDING NOTES:

ALL GROUNDS MUST ROUTE DOWNHILL FOR ENTIRE DURATION OF ROUTE

1. PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

ICE BRIDGE/ EQUIPMENT POST:

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO GROUND RING (BOTH ENDS), FINAL WELD COLD GALVANIZED, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS.

PEDESTALS, PLINTHS, SSC CABINET, FCOA CABINETS:

1. #2 SOLID COPPER TINNED, 2 HOLE LUG WITH FLAT AND LOCK WASHER AT EQUIPMENT; EXOTHERMICALLY WELDED TO GROUND RING, FINAL WELD COLD GALVANIZED, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS. EACH PART REQUIRES A SEPARATE DOWNLEAD, NO DAISY CHAINS.

2. ALL COMPONENTS INSIDE FCOA CABINETS REQUIRE A DEDICATED GROUND.

COVP's:

#6 THHN STRANDED (GREEN JACKET), CONNECTED AT EQUIPMENT SIDE USING OVP TERMINAL BLOCK CONNECTION; MECHANICALLY CONNECTED TO GROUND REFERENCE AT MASTER BUSS BAR USING 2 HOLE LUG WITH FLAT AND LOCK WASHER, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, AND ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD.

ANTENNA/ COVP/ RRU MAST PIPES:

1. ALL VERTICAL MAST PIPES: #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO TOP OF PIPE (PIPE, DOWN MOLD), FINAL WELD COLD GALVANIZED, BONDED TO TOP BUSS BAR WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

2. EXISTING/REUSED PIPES: #2 SOLID COPPER TINNED, BONDED WITH COLD WATER CLAMP TO TOP OF PIPE, BONDED TO TOP BUSS WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER

AIR TERMINALS:

TO BE INSTALLED, ONLY IF REQUIRED

TMA's, DIPLEXERS AND TRIPLEXERS:

1. #6 THHN, WITH PROPER COPPER COMPRESSION LUG, FLATS AND LOCK WASHERS

2. ALL GROUND LUGS ON TMA MUST BE GROUNDED WITH SEPARATE DOWNLEAD TO BUSS BAR (NO DAISY CHAINS)

ELEVATED STEEL PLATFORMS WITH LUNAR FEET:

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (FLAT PLATE MOLD) TO OUTSIDE PERIMETER BEAMS IN FOUR (4) PLACES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.

STEEL CANOPY (STEEL PLATFORM OR CONCRETE PAD):

1. #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, DOWN MOLD) TO BOTTOM OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.

2. #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, UP MOLD) TO TOP OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED UP TO CANOPY GRIP-STRUT USING 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

RRU:

#6 THHN, WITH PROPER COPPER COMPRESSION LUG, ANTI-OXIDANT TO SECTOR BUSS BAR

FSBE ALARM BOX:

#6 THHN WITH ONE HOLE LUG BONDED TO PREVIOUSLY GROUNDED FCOA, PLINTH OR BUSS BAR.

SURGE SUPPRESSORS:

#6 THHN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

FYGA/FYGB BRACKET:

1. #6 THHN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

2. THROUGH BOLTS WITH FLAT, LOCK ON BRACKET

BUSS BARS:

1. PLATFORM / PAD BUSS BAR SHOULD BE MINIMUM 12" TINNED COPPER WITH INSULATORS, AND SHOULD HAVE TWO (2) EXOTHERMICALLY WELDED DOWN LEADS DIRECTLY TO GROUND RING USING #2 SOLID COPPER TINNED WIRE.

2. SECTOR BUSS BAR SHOULD BE PROPERLY SIZED TO ACCOMMODATE NECESSARY GROUNDING FOR EQUIPMENT ON EACH MOUNT, AND MAY BE SOLID COPPER (TINNED NOT REQUIRED). DO NOT USE INSULATORS ON SECTOR BUSS BARS ATTACH DIRECTLY TO TOWER MOUNT STEEL.

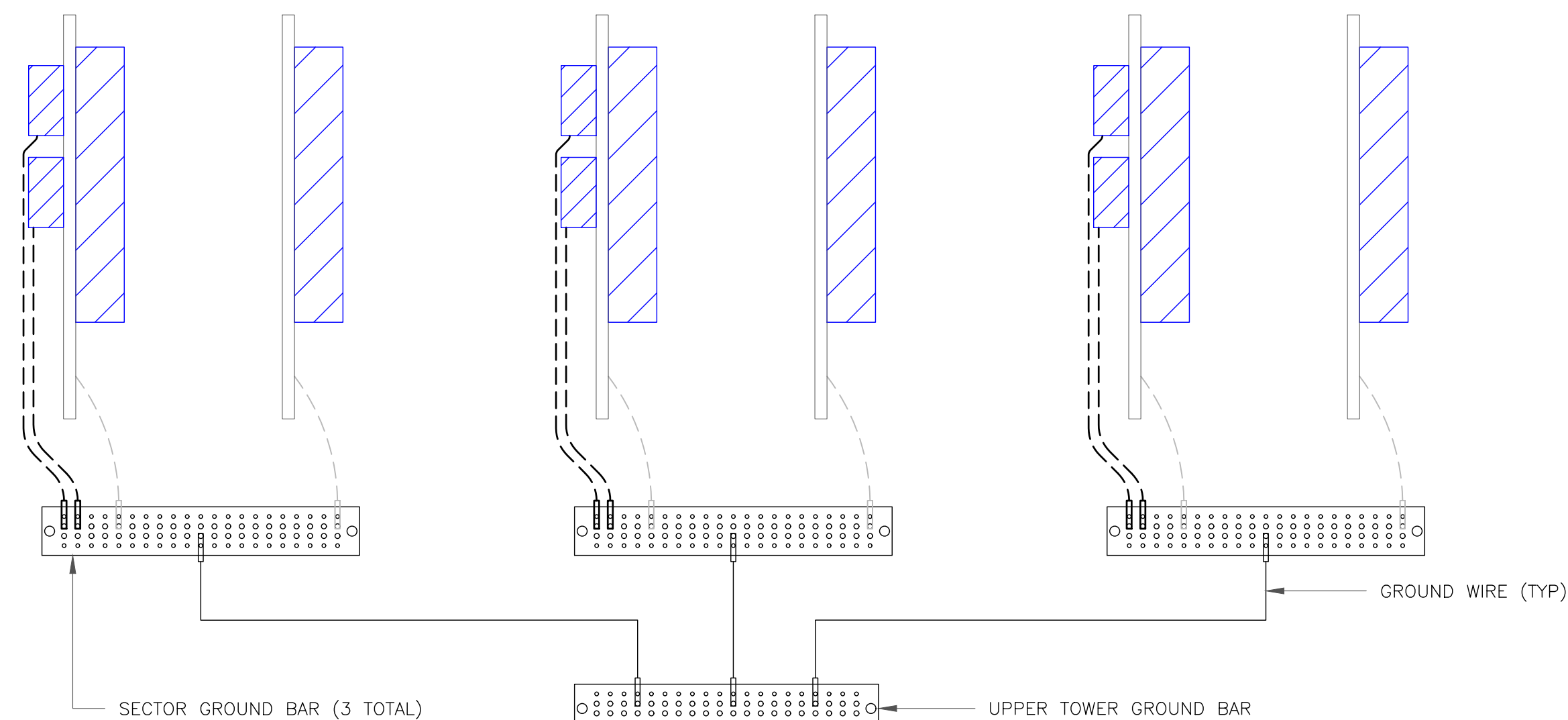
GENERAL:

- NO GROUND KITS ON HYBRID TRUNKS (TOP OR BOTTOM)
- NO GROUND KITS ON MICROWAVE IF CABLES (TOP OR BOTTOM)
- MICROWAVE SURGE SUPPRESSORS ARE NOT TO BE INSTALLED UPSTAIRS ON TOWER, DOWNSTAIRS ONLY (BULKHEAD PREFERRED)
- MICROWAVE ODU MUST BE GROUNDED TO TOWER TOP SECTOR OR COLLECTOR BUSS BAR
- ALL TMA'S AND DIPLEXERS MUST BE GROUNDED TO BUSS BAR. NO DAISY CHAIN ON TWIN/DUAL TMA
- ALL LUGS SHOULD BE PROPERLY SIZED FOR CONDUCTOR, BURNDY TINNED COPPER COMPRESSION STYLE
 1. INDOOR (OR INSIDE CABINET) SHOULD HAVE WINDOW
 2. OUTDOOR SHOULD NOT HAVE WINDOW
- CONTRACTOR TO VERIFY EXISTENCE AND LOCATION OF EXISTING SITE GROUND SYSTEM.
- CONTRACTOR SHALL VERIFY THAT GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 30" BELOW FINISHED GRADE, OR TO FROST DEPTH, WHICHEVER IS GREATER. GROUNDING ELECTRODES SHALL BE DRIVEN ON 10'-0" CENTERS (PROVIDE AND INSTALL AS REQUIRED, REQUIRED PER PLAN BELOW).
- GROUNDING CONDUCTORS SHALL BE OF EQUAL LENGTH, MATERIAL, AND BONDING TECHNIQUE.
- CONTRACTOR SHALL ENSURE GROUND RING IS WITHIN 12 TO 36 INCHES OF THE EQUIPMENT PAD. PROVIDE AND INSTALL GROUNDING CONNECTIONS SHOWN BELOW AS NEEDED PER EXISTING SITE GROUNDING SYSTEM. CONTRACTOR SHALL VERIFY ALL EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.
- ALL DOWN CONDUCTORS MUST GO DOWN.

ALPHA

BETA

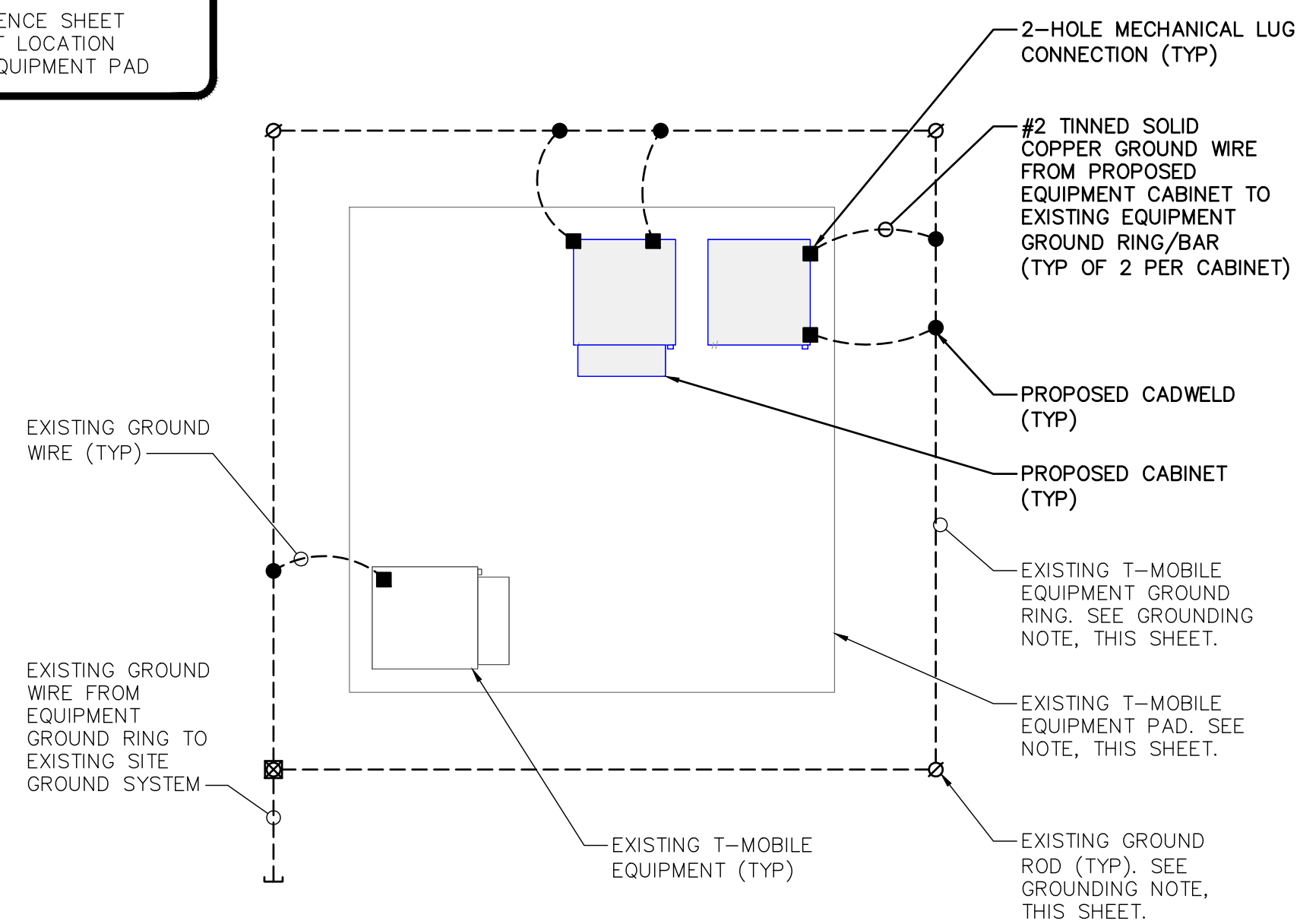
GAMMA



NOTE:
ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.
GROUNDING SHOWN TYPICAL PER SECTOR.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

NOTE:
CONTRACTOR TO REFERENCE SHEET C-1.1 & 1.2 FOR EXACT LOCATION AND ORIENTATION OF EQUIPMENT PAD



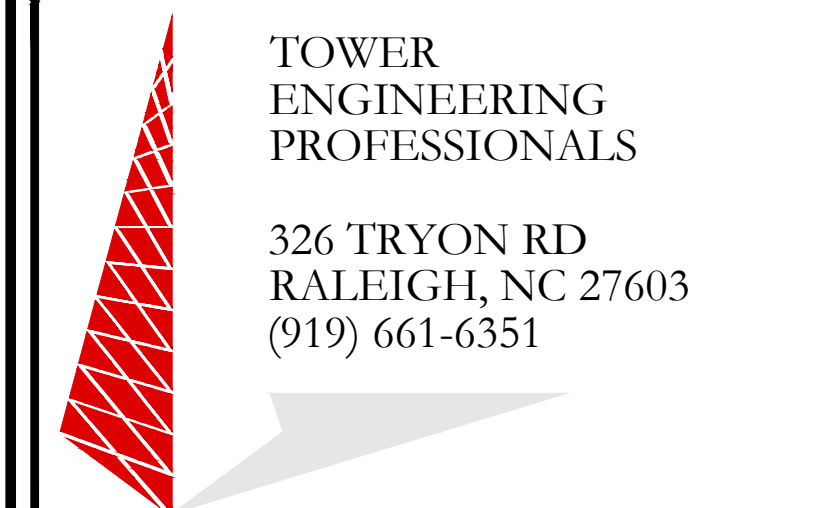
2 TYPICAL CABINET GROUNDING DIAGRAM
SCALE: NOT TO SCALE



35 GRIFFIN ROAD
BLOOMFIELD, CT 06002



1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER
ENGINEERING
PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A

BU #: 876368
YANKEE LAKE/EAST
HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:



10/12/21

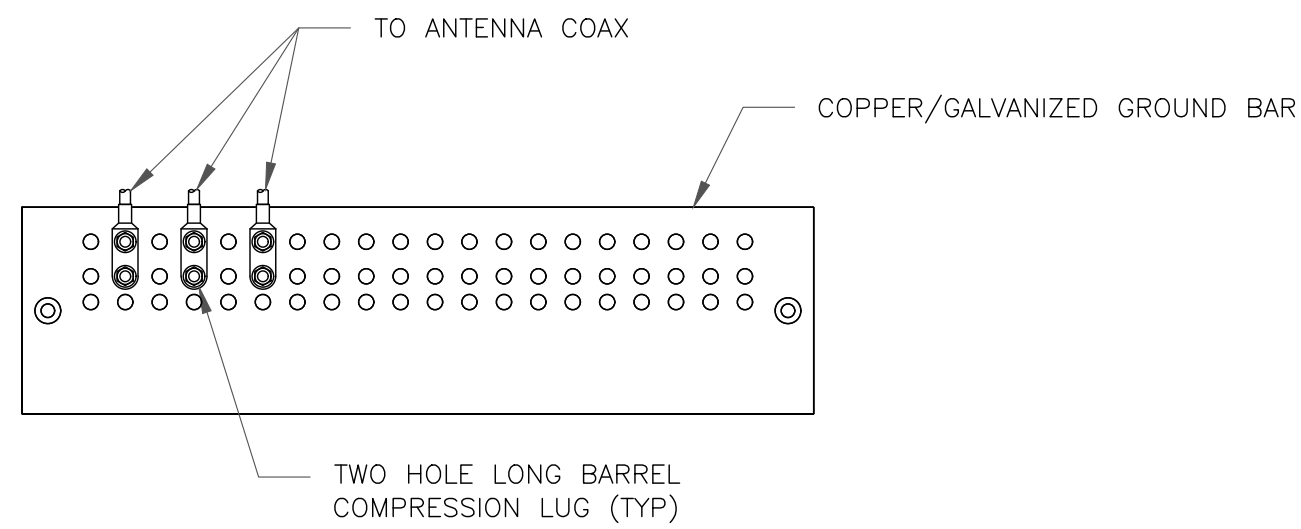
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:

G-1

REVISION:

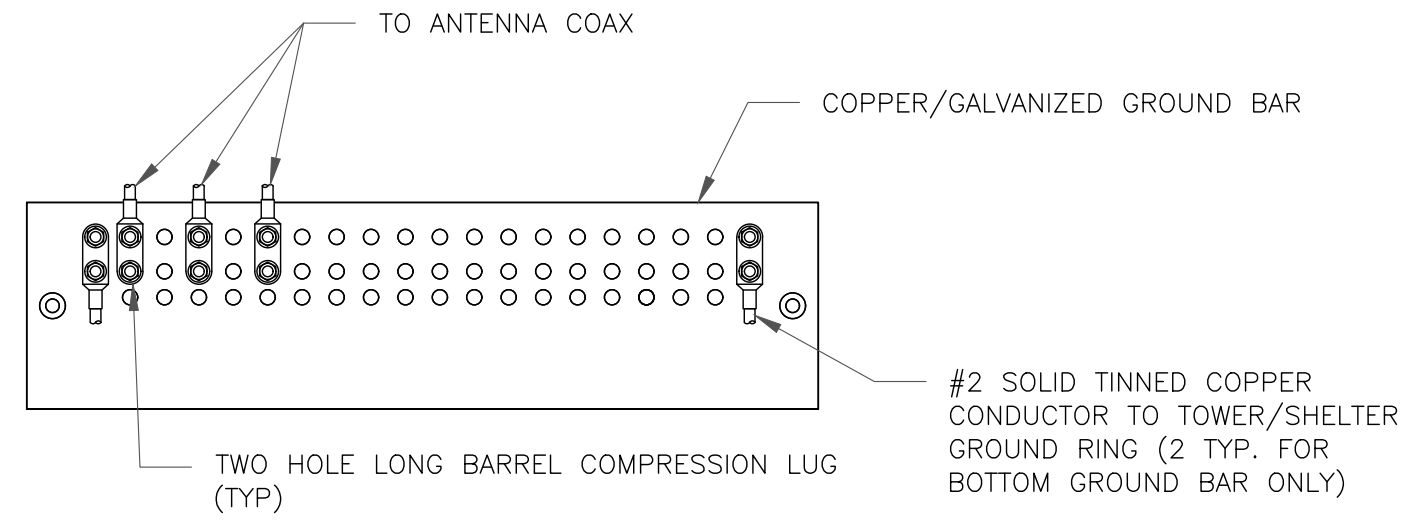
1



NOTES:

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

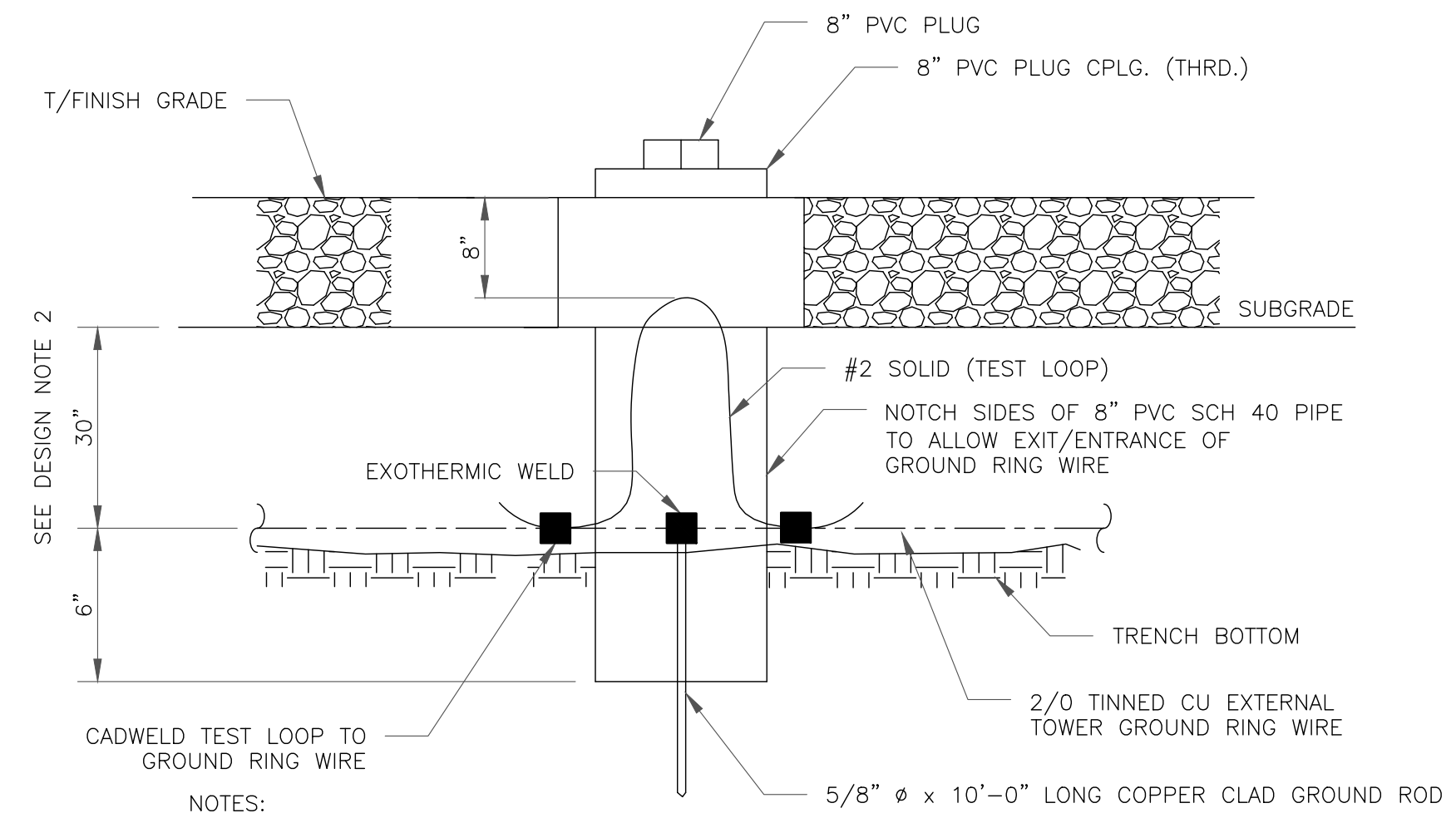
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

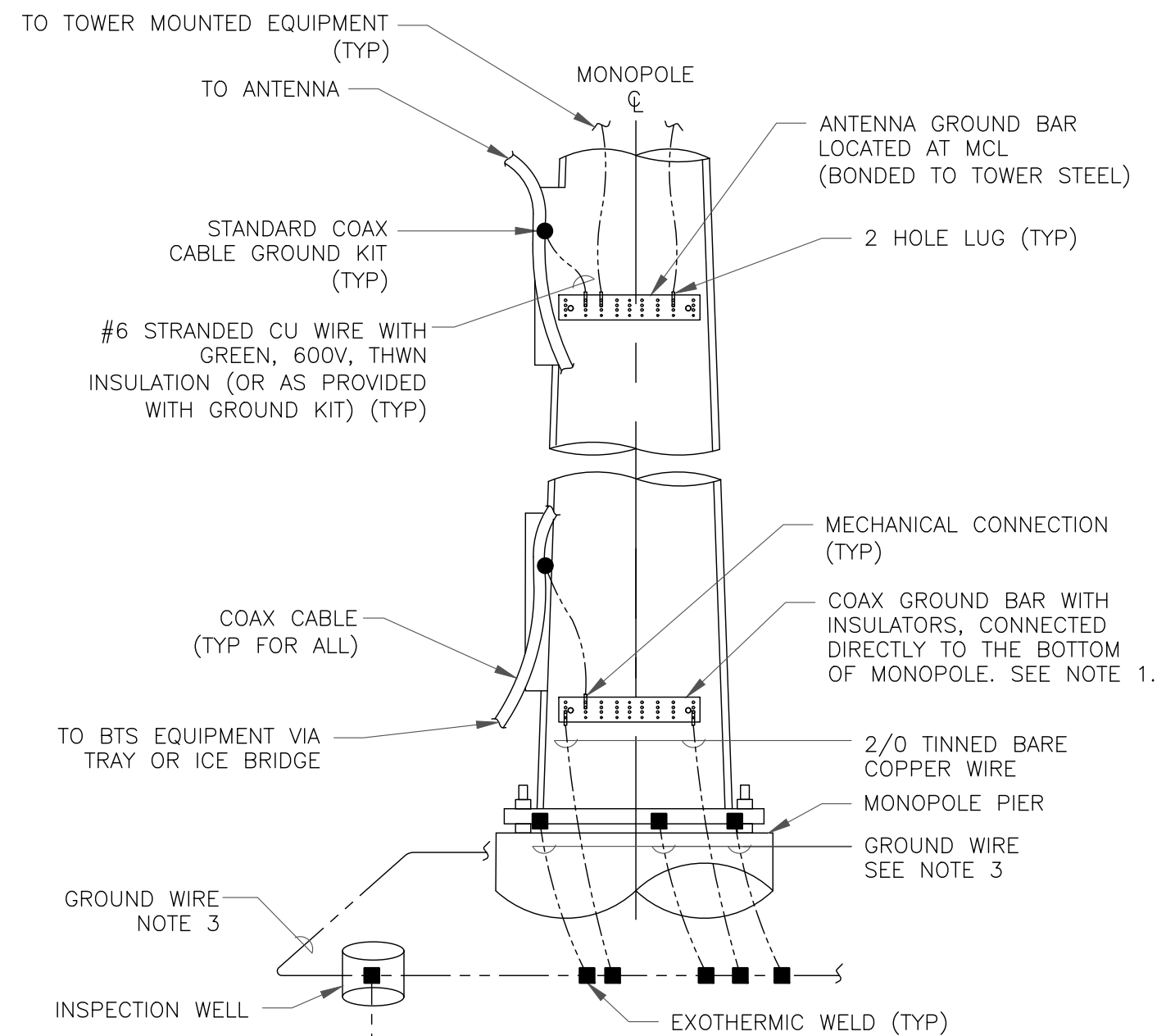
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
- 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)

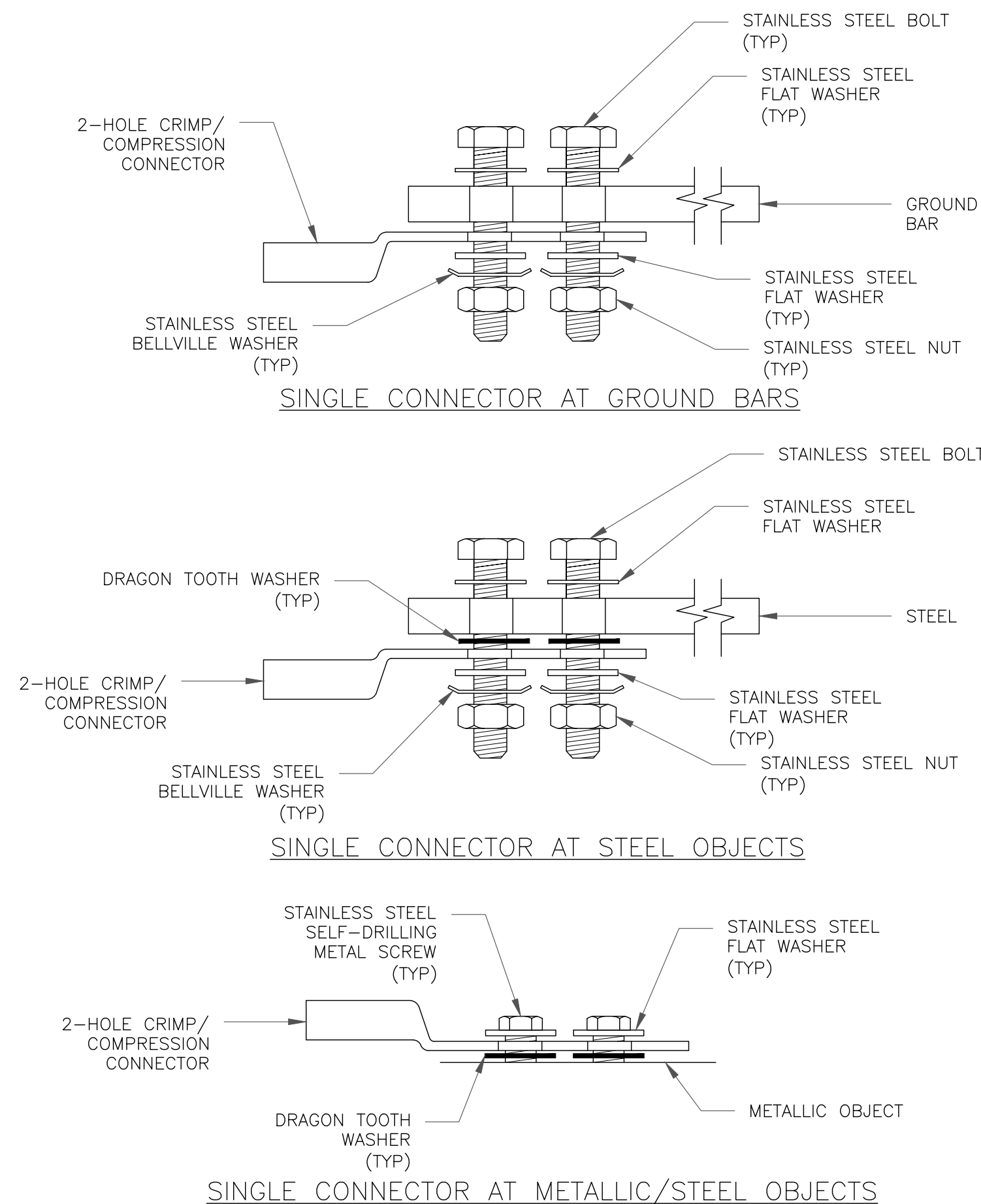
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



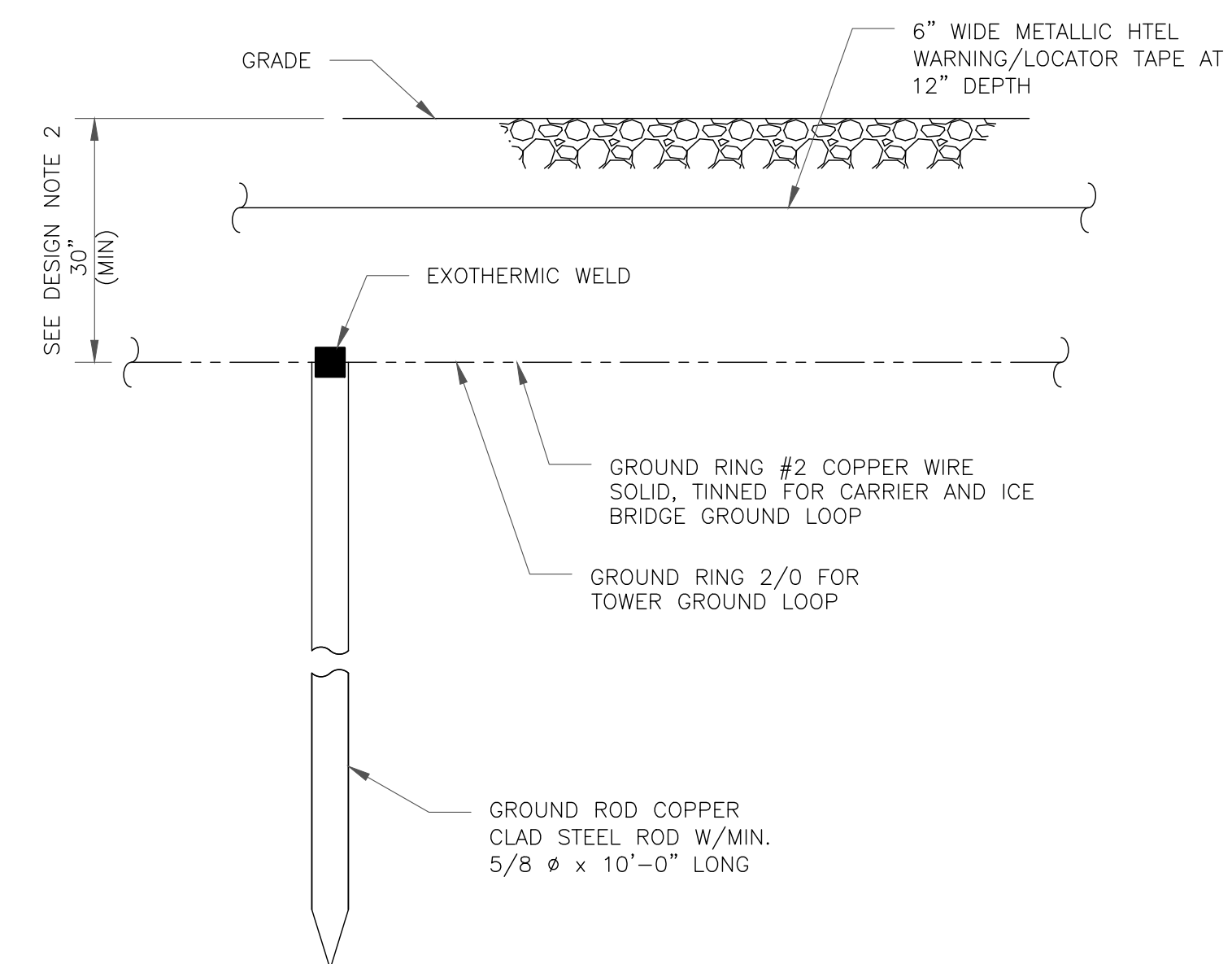
NOTES:

- 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.
- 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.
- ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
- 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)

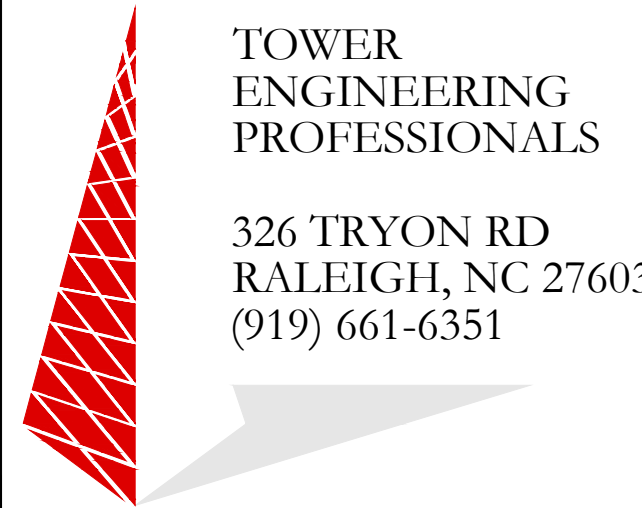
6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430



TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER:
CTHA696A

BU #: 876368
YANKEE LAKE/EAST HAMPTON/TOWN

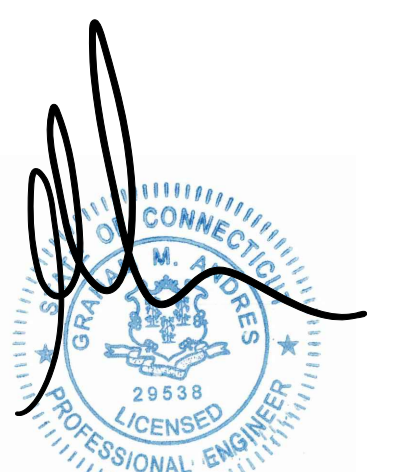
1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:



10/12/21

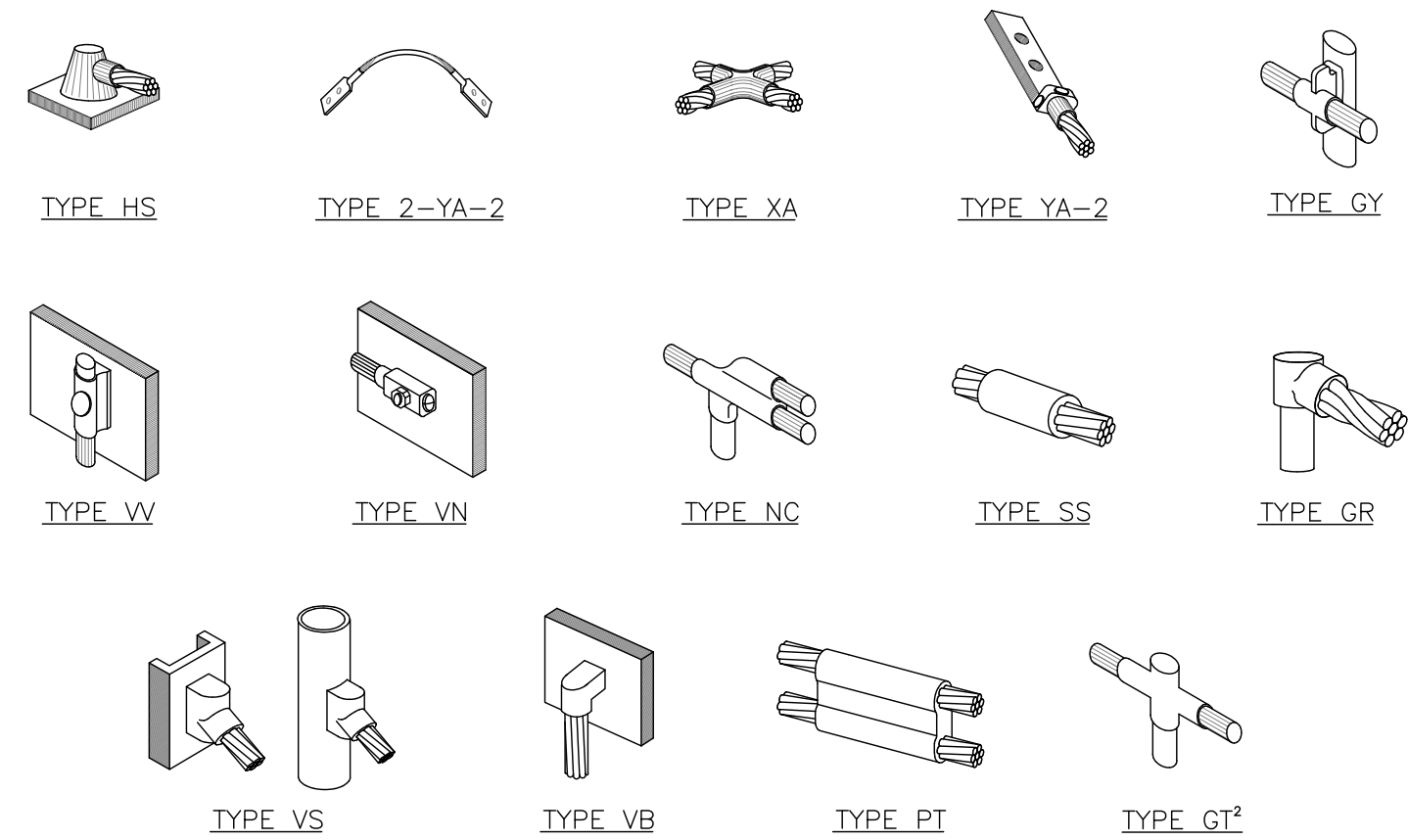
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:

G-2

REVISION:

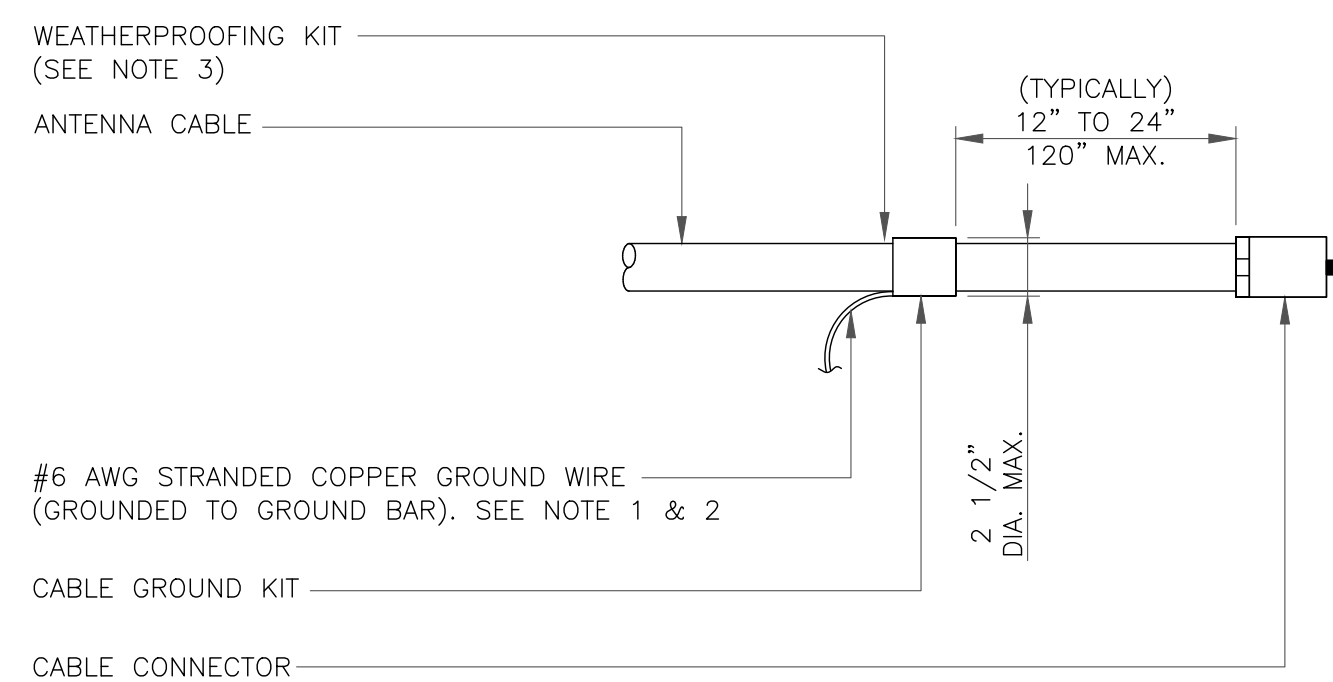
1



NOTE:

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

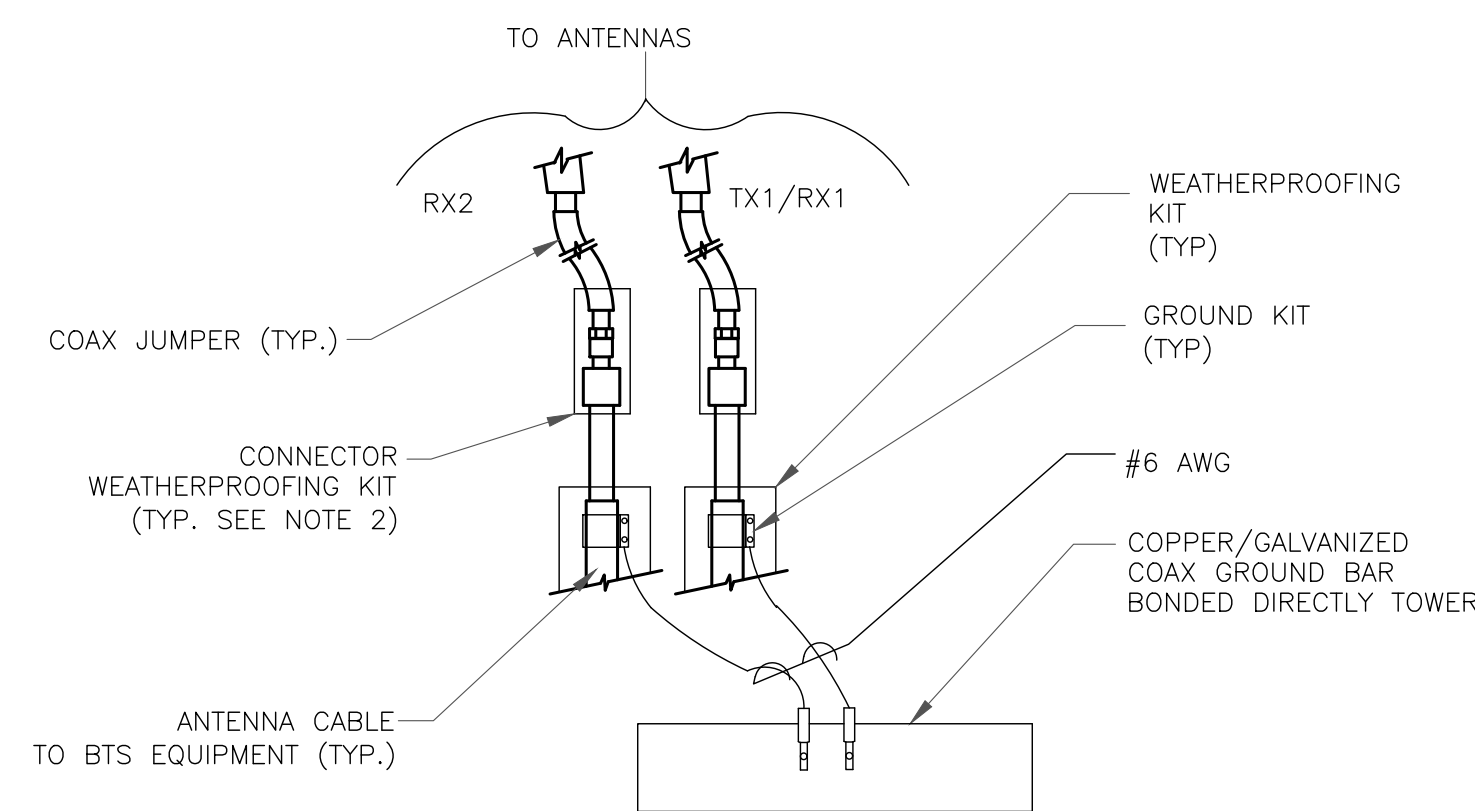
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

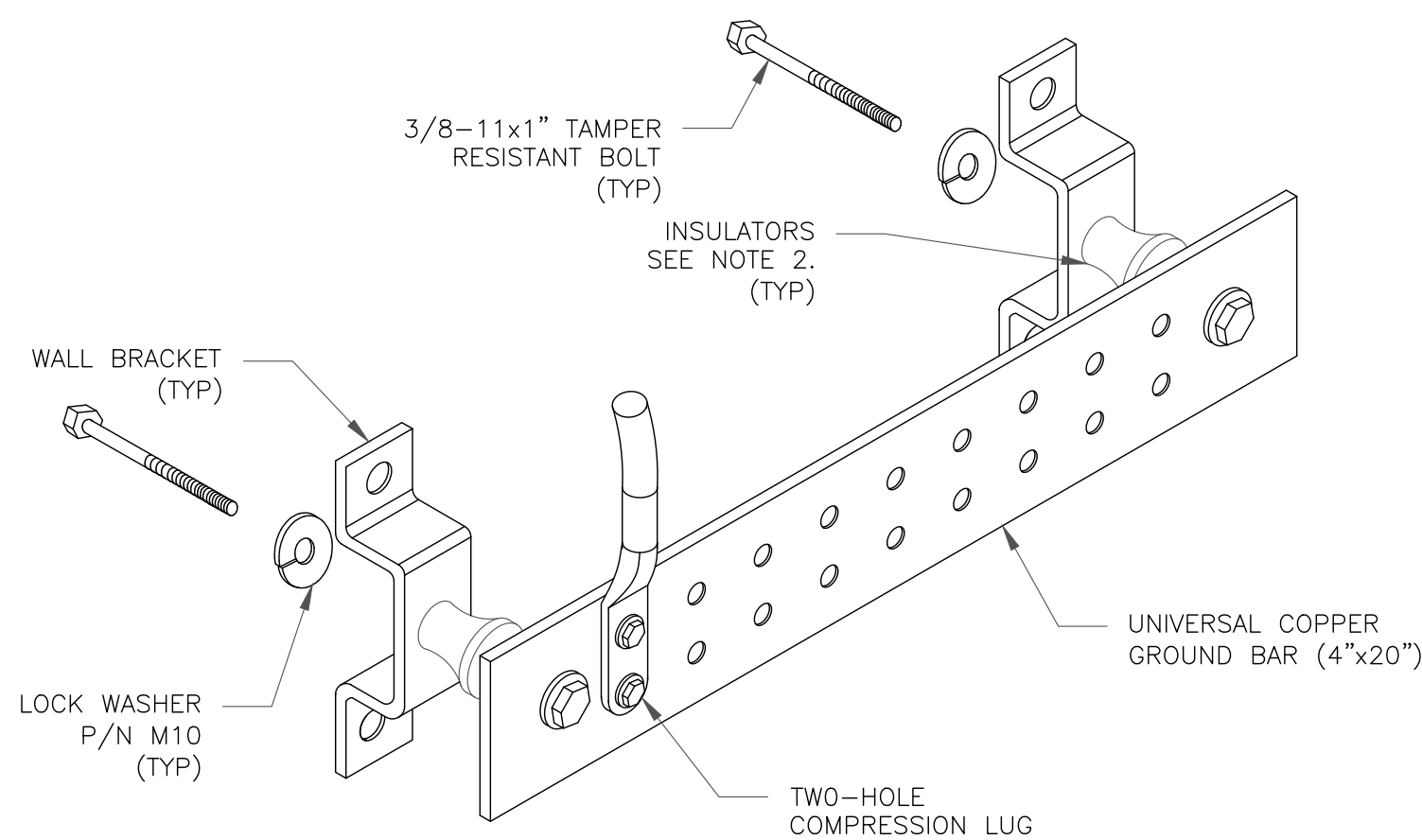
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

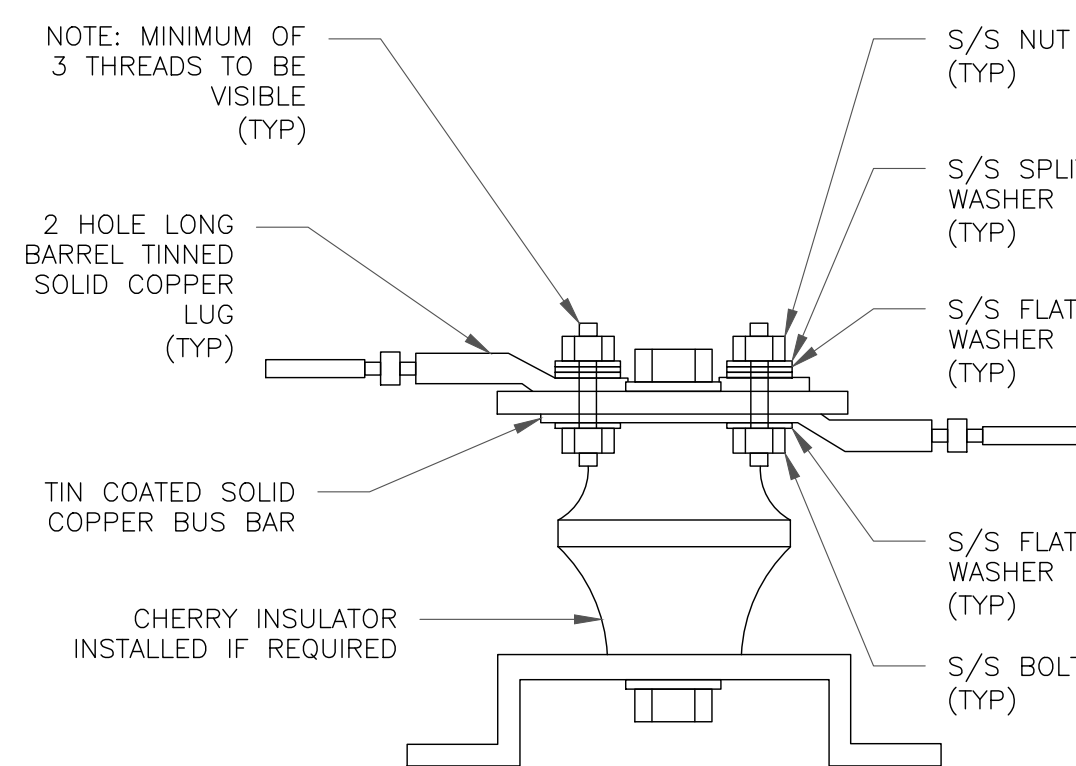
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

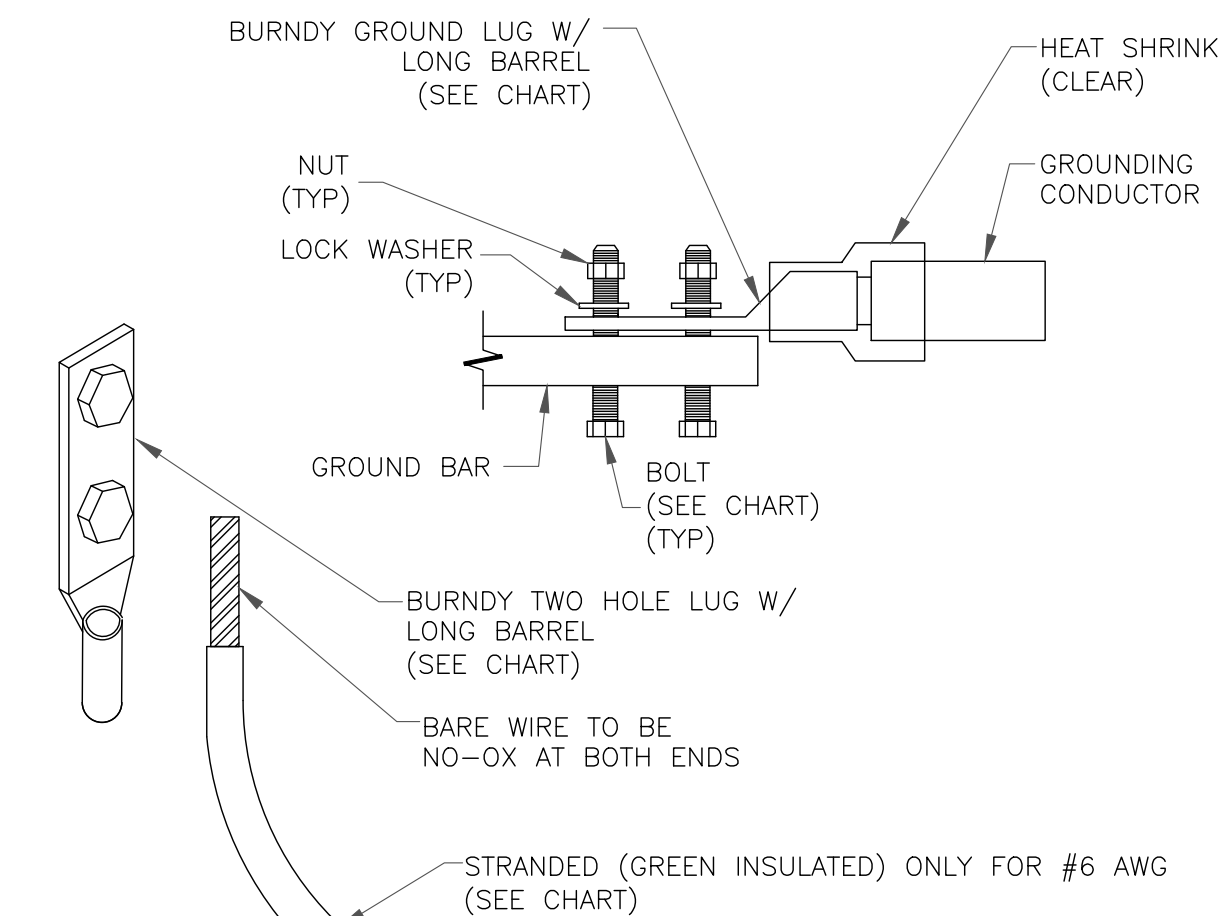
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY GAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

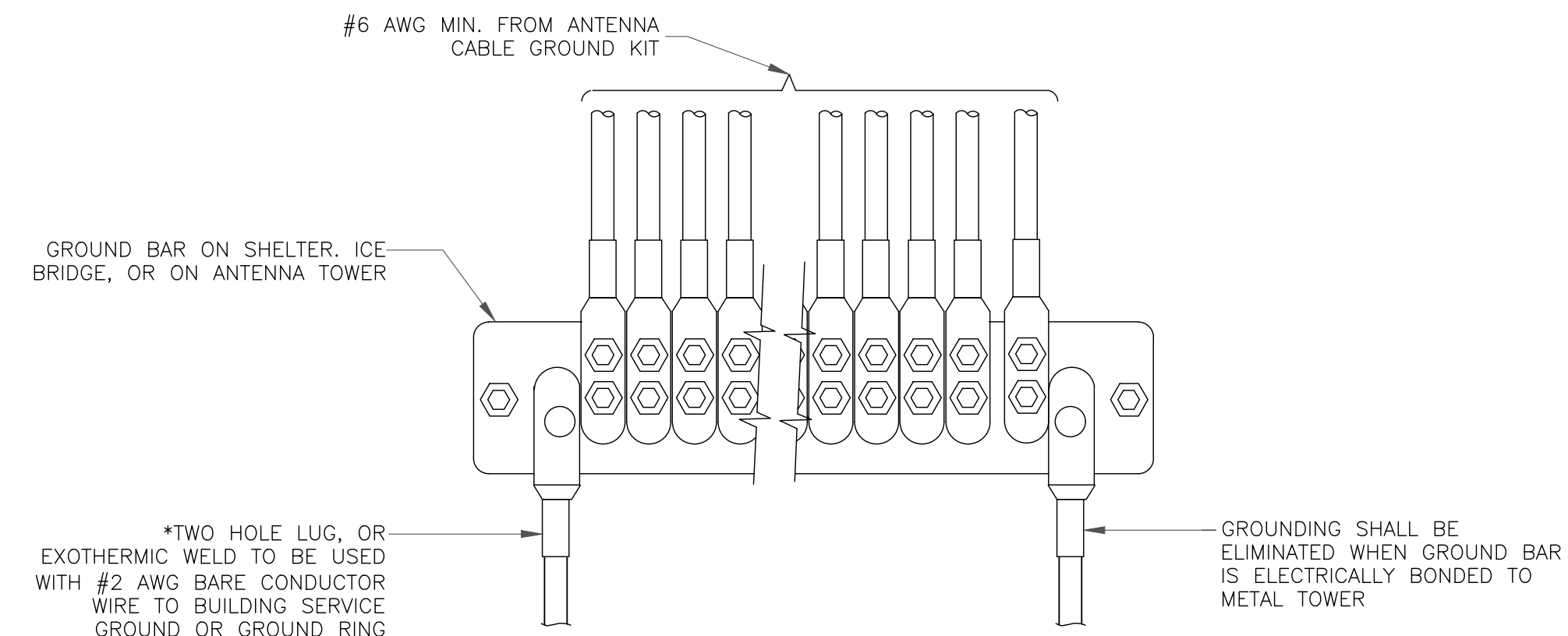
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



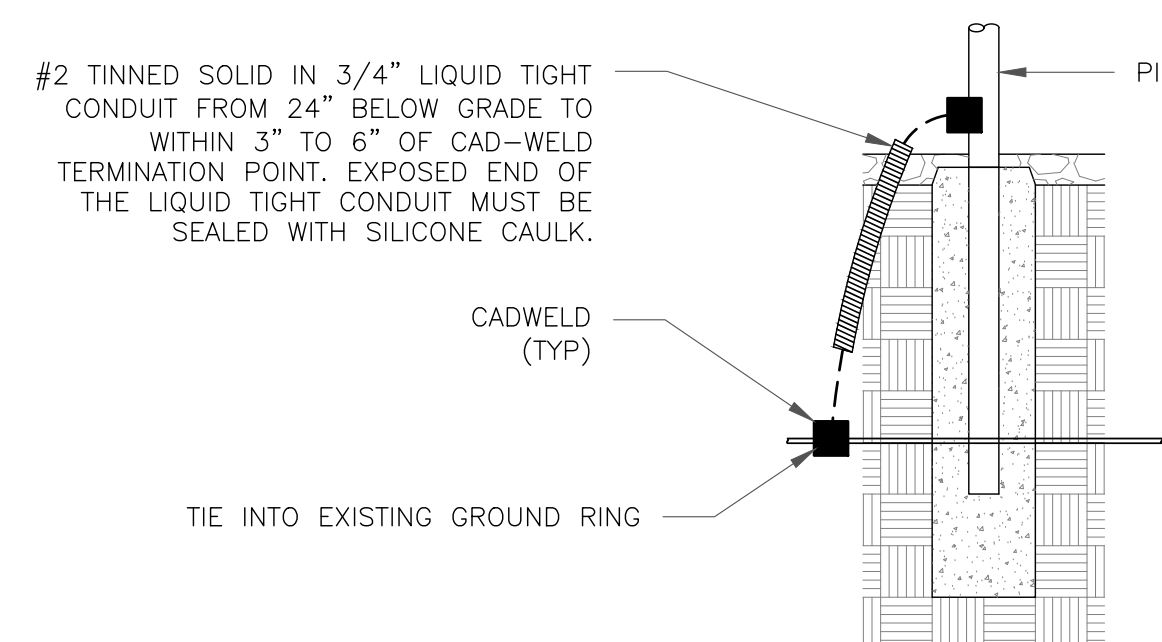
NOTES:

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

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE

1200 MACARTHUR BLVD, SUITE 200
MAHWAH, NJ 07430

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

TEP JOB #: 218229.498736

T-MOBILE SITE NUMBER: CTHA696A

BU #: 876368
YANKEE LAKE/EAST HAMPTON/TOWN

1 PUBLIC WORKS DRIVE
EAST HAMPTON, CT 06032
(MIDDLESEX COUNTY)

EXISTING 180'-0"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/01/21	SBS	PRELIMINARY	BSE
0	03/26/21	JW	CONSTRUCTION	JTC
1	10/12/21	INS	CONSTRUCTION	JTC

SEAL:



10/12/21

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



MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Date: **October 01, 2021**

Subject: Structural Analysis Report

Carrier Designation:

Site Number: CTHA696A
Site Name: CTHA696A

Crown Castle Designation:

BU Number: 876368
Site Name: Yankee Lake/East Hampton/Town
JDE Job Number: 684635
Work Order Number: 2018255
Order Number: 584618 Rev. 0

Engineering Firm Designation:

Morrison Hershfield Project Number: CN7-211R1 / 2101398

Site Data:

1 Public Works Dr., East Hampton, Middlesex County, CT 06032
Latitude 41° 33' 53.14", Longitude -72° 32' 35.18"
180 Foot – Valmont Monopole Tower

Morrison Hershfield 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 - 55.3%

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer



Digitally signed by
G. Lance Cooke
Date: 2021.10.01
10:57:48-07'00'

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 – Tower Component Stresses vs. Capacity – LC7

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 180 ft monopole tower designed by Valmont Industries, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 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	178.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3	1-5/8
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	ericsson	Radio 4480_TMOV2		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
	177.0	1	-	Platform Mount [LP 602-1_KCKR]		

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)
168.0	171.0	1	raycap	DC6-48-60-18-8F	12 6 2	1-5/8 3/4 3/8
	169.0	3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B30		
		3	kaelus	DBC0061F1V51-2		
		6	powerwave technologies	7020.00		
		6	powerwave technologies	LGP21401		
		1	raycap	DC6-48-60-18-8F		
	168.0	1	-	Platform Mount [LP 303-1_HR-1]		
	167.0	3	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		3	cci antennas	OPA65R-BU6BA-K w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		3	quintel technology	QS66512-2 w/ Mount Pipe		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 32 B66A		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	RRUS 4449 B5/B12		
		1	raycap	DC6-48-60-0-8F		
154.0	157.0	6	commscope	LNx-6515DS-A1M w/ Mount Pipe	2	1-5/8
		6	commscope	HBXX-6517DS-A2M w/ Mount Pipe		
		3	alcatel lucent	RRH2X60-AWS		
		3	alcatel lucent	B66A RRH4X45		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
	154.0	1	-	Platform Mount [LP 304-1]		
119.0	131.0	5	decibel	DB264-A	9	1-1/4
	128.0	1	decibel	DB420		
	124.0	1	decibel	DB225-K		
	122.0	1	decibel	DB230-E		
	120.0	1	decibel	DB230-E		
	119.0	1	-	Platform Mount [LP 304-1]		
77.0	78.0	1	lucent	KS24019-L112A	1	1/2
	77.0	1	-	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1441254	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	2069183	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1531979	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), 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) 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. Morrison Hershfield 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	180 - 140.083	Pole	TP31.67x24.16x0.2188	1	-13.92	1308.45	40.0	Pass
L2	140.083 - 92.5	Pole	TP40.17x30.3074x0.3438	2	-25.26	2606.62	52.8	Pass
L3	92.5 - 45.583	Pole	TP48.31x38.3553x0.4388	3	-39.73	4003.68	54.0	Pass
L4	45.583 - 0	Pole	TP56x46.1313x0.5	4	-61.44	5437.50	55.3	Pass
							Summary	
						Pole (L4)	55.3	Pass
						Rating =	55.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	47.9	Pass
1	Base Plate		35.0	Pass
1	Base Foundation (Structure)	0	52.1	Pass
1	Base Foundation (Soil Interaction)		51.6	Pass

Structure Rating (max from all components) =	55.3%*
---	---------------

Notes:

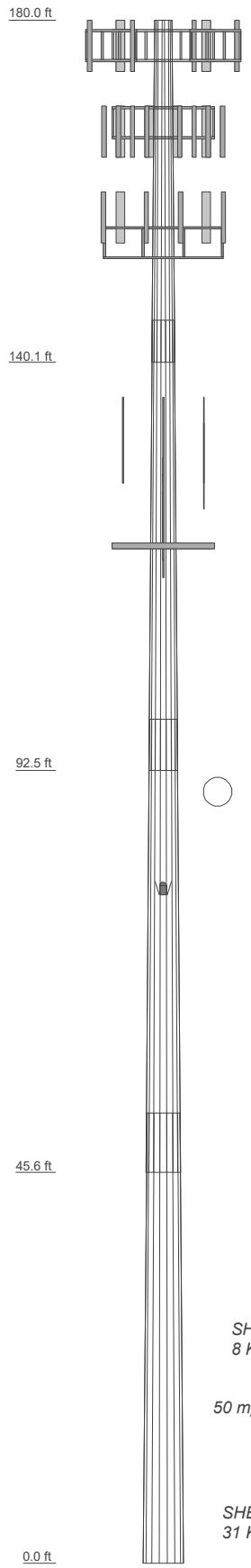
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) *Rating per TIA-222-H, Section 15.5.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	
Length (ft)	39.92	52.50	52.92	52.50	
Number of Sides	16	16	16	16	
Thickness (in)	0.2188	0.3438	0.4387	0.5000	
Socket Length (ft)	4.92	6.00	6.92	46.1313	
Top Dia (in)	24.1600	30.3074	38.3553	56.0000	
Bot Dia (in)	31.6700	40.1700	48.3100		
Grade			A572-65		
Weight (K)	2.6	6.8	10.8	14.4	34.7

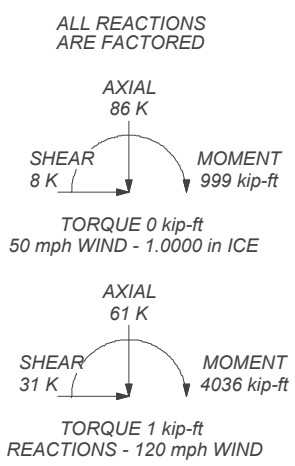


MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 55.3%



 Morrison Hershfield Consulting Engineers	1455 Lincoln Parkway, Suite 500 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501	Job: CN7-211R1 / 2101398 Project: 876368 / Yankee Lake/East Hampton/Town Client: Crown Castle USA Code: TIA-222-H Path:	Drawn by: BAP Date: 10/01/21	App'd: Scale: NTS Dwg No. E-1
	<small>C:\Users\BPalani\Desktop\CNT-211 - 876368 - YANKEE LAKE/EAST HAMPTON/TOWN/CNT-211R1_S&A_Analysis\CNT-211R1_BJ_876368.dwg 2/21/2021 10:20:55 am</small>			

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 Middlesex County, Connecticut.
- Tower base elevation above sea level: 379.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retention Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> <ul style="list-style-type: none"> √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets 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	180.00-140.08	39.92	4.92	16	24.1600	31.6700	0.2188	0.8750	A572-65 (65 ksi)
L2	140.08-92.50	52.50	6.00	16	30.3074	40.1700	0.3438	1.3750	A572-65 (65 ksi)
L3	92.50-45.58	52.92	6.92	16	38.3553	48.3100	0.4387	1.7550	A572-65 (65 ksi)
L4	45.58-0.00	52.50		16	46.1313	56.0000	0.5000	2.0000	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	24.5905	16.7065	1209.7443	8.5231	12.3216	98.1808	2437.8055	8.2605	4.3725	19.989
	32.2476	21.9471	2742.6276	11.1966	16.1517	169.8043	5526.7819	10.8517	5.8670	26.821
L2	31.7756	32.8570	3726.7693	10.6671	15.4568	241.1090	7509.9664	16.2461	5.3471	15.555
	40.8896	43.6720	8750.9661	14.1781	20.4867	427.1535	17634.432	21.5935	7.3098	21.265
L3	40.1716	53.0685	9638.5174	13.4983	19.5612	492.7358	19422.973	26.2396	6.7596	15.406
	49.1705	67.0012	19397.532	17.0422	24.6381	787.2982	39088.766	33.1286	8.7406	19.922
L4	48.2628	72.7819	19145.344	16.2447	23.5270	813.7621	38580.572	35.9868	8.1851	16.37
	56.9991	88.5225	34447.205	19.7580	28.5600	1206.1347	69415.984	43.7697	10.1490	20.298

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 180.00-140.08				1	1	1			
L2 140.08-92.50				1	1	1			
L3 92.50-45.58				1	1	1			
L4 45.58-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter r in	Perimeter r in	Weight plf
***** Climbing Pegs	A	No	Surface Ar (CaAa)	170.00 - 8.00	1	1	-0.350 -0.250	0.7050		1.80
***** LDF7-50A(1-5/8)	C	No	Surface Ar (CaAa)	168.00 - 8.00	12	6	0.220 0.400	1.9800		0.82
FB-L98B-002-75000(3/8)	C	No	Surface Ar (CaAa)	168.00 - 8.00	2	1	0.180 0.180	0.3937		0.06
WR-VG86ST-BRD(3/4)	C	No	Surface Ar (CaAa)	168.00 - 8.00	4	2	0.190 0.220	0.7950		0.58
*** WR-VG86ST-BRD(3/4)	C	No	Surface Ar (CaAa)	168.00 - 8.00	2	2	0.190 0.220	0.7950		0.58

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
***** HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Inside Pole	177.00 - 1.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	2.50 2.50 2.50
***** HB158-1-08U8-S8J18(1-5/8)	B	No	No	Inside Pole	154.00 - 1.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.30 1.30 1.30

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} A _{AA} ft ² /ft	Weight plf

LDF6-50A(1-1/4)	C	No	No	Inside Pole	119.00 - 8.00	9	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60

LDF4-50A(1/2)	A	No	No	Inside Pole	77.00 - 8.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} A _{AA} In Face ft ²	C _{AA} A _{AA} Out Face ft ²	Weight K
L1	180.00-140.08	A	0.000	0.000	2.109	0.000	0.33
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	43.142	0.000	0.38
L2	140.08-92.50	A	0.000	0.000	3.355	0.000	0.44
		B	0.000	0.000	0.000	0.000	0.12
		C	0.000	0.000	73.533	0.000	0.78
L3	92.50-45.58	A	0.000	0.000	3.308	0.000	0.44
		B	0.000	0.000	0.000	0.000	0.12
		C	0.000	0.000	72.504	0.000	0.88
L4	45.58-0.00	A	0.000	0.000	2.650	0.000	0.41
		B	0.000	0.000	0.000	0.000	0.12
		C	0.000	0.000	58.080	0.000	0.71

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} A _{AA} In Face ft ²	C _{AA} A _{AA} Out Face ft ²	Weight K
L1	180.00-140.08	A	0.995	0.000	0.000	8.062	0.000	0.39
		B		0.000	0.000	0.000	0.000	0.04
		C		0.000	0.000	80.040	0.000	1.11
L2	140.08-92.50	A	0.964	0.000	0.000	12.823	0.000	0.54
		B		0.000	0.000	0.000	0.000	0.12
		C		0.000	0.000	136.423	0.000	2.03
L3	92.50-45.58	A	0.915	0.000	0.000	12.349	0.000	0.53
		B		0.000	0.000	0.000	0.000	0.12
		C		0.000	0.000	133.115	0.000	2.07
L4	45.58-0.00	A	0.818	0.000	0.000	9.526	0.000	0.48
		B		0.000	0.000	0.000	0.000	0.12
		C		0.000	0.000	104.893	0.000	1.61

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	180.00-140.08	-3.6487	4.9631	-3.2754	4.4666
L2	140.08-92.50	-4.6894	6.4067	-4.1862	5.7574
L3	92.50-45.58	-5.0045	6.8387	-4.5930	6.3181
L4	45.58-0.00	-4.5247	6.1840	-4.3096	5.9293

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
L1	2	Climbing Pegs	140.08 - 170.00	1.0000	1.0000
L1	9	LDF7-50A(1-5/8)	140.08 - 168.00	1.0000	1.0000
L1	10	FB-L98B-002-75000(3/8)	140.08 - 168.00	1.0000	1.0000
L1	11	WR-VG86ST-BRD(3/4)	140.08 - 168.00	1.0000	1.0000
L1	13	WR-VG86ST-BRD(3/4)	140.08 - 168.00	1.0000	1.0000
L2	2	Climbing Pegs	92.50 - 140.08	1.0000	1.0000
L2	9	LDF7-50A(1-5/8)	92.50 - 140.08	1.0000	1.0000
L2	10	FB-L98B-002-75000(3/8)	92.50 - 140.08	1.0000	1.0000
L2	11	WR-VG86ST-BRD(3/4)	92.50 - 140.08	1.0000	1.0000
L2	13	WR-VG86ST-BRD(3/4)	92.50 - 140.08	1.0000	1.0000
L3	2	Climbing Pegs	45.58 - 92.50	1.0000	1.0000
L3	9	LDF7-50A(1-5/8)	45.58 - 92.50	1.0000	1.0000
L3	10	FB-L98B-002-75000(3/8)	45.58 - 92.50	1.0000	1.0000
L3	11	WR-VG86ST-BRD(3/4)	45.58 - 92.50	1.0000	1.0000
L3	13	WR-VG86ST-BRD(3/4)	45.58 - 92.50	1.0000	1.0000
L4	2	Climbing Pegs	8.00 - 45.58	1.0000	1.0000
L4	9	LDF7-50A(1-5/8)	8.00 - 45.58	1.0000	1.0000
L4	10	FB-L98B-002-75000(3/8)	8.00 - 45.58	1.0000	1.0000
L4	11	WR-VG86ST-BRD(3/4)	8.00 - 45.58	1.0000	1.0000
L4	13	WR-VG86ST-BRD(3/4)	8.00 - 45.58	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C_{AA} Front ft ²	C_{AA} Side ft ²	Weight K	

7'x2" Antenna Mount Pipe	A	From Leg	4.00	0.0000	177.00	No Ice	1.66	1.66	0.03
			0.00			1/2"	2.39	2.39	0.04
			0.00			Ice	2.83	2.83	0.06
7'x2" Antenna Mount Pipe	B	From Leg	4.00	0.0000	177.00	No Ice	1.66	1.66	0.03
			0.00			1/2"	2.39	2.39	0.04
			0.00			Ice	2.83	2.83	0.06
7'x2" Antenna Mount Pipe	C	From Leg	4.00	0.0000	177.00	No Ice	1.66	1.66	0.03
			0.00			1/2"	2.39	2.39	0.04
			0.00			Ice	2.83	2.83	0.06
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	177.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	177.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			0.00			Ice 2.29	2.29	0.05	
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	177.00	1" Ice			
			0.00			No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
Platform Mount [LP 602-1_KCKR]	A	None		0.0000	177.00	1" Ice			
						No Ice	42.30	42.30	1.62
						1/2"	49.04	49.04	2.38
						Ice	55.87	55.87	3.27

APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00	0.0000	177.00	No Ice	14.69	6.87	0.18
			0.00			1/2"	15.46	7.55	0.31
			1.00			Ice	16.23	8.25	0.45
						1" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00	0.0000	177.00	No Ice	14.69	6.87	0.18
			0.00			1/2"	15.46	7.55	0.31
			1.00			Ice	16.23	8.25	0.45
						1" Ice			
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00	0.0000	177.00	No Ice	14.69	6.87	0.18
			0.00			1/2"	15.46	7.55	0.31
			1.00			Ice	16.23	8.25	0.45
						1" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00	0.0000	177.00	No Ice	5.19	2.71	0.13
			0.00			1/2"	5.59	3.04	0.17
			1.00			Ice	6.02	3.38	0.23
						1" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00	0.0000	177.00	No Ice	5.19	2.71	0.13
			0.00			1/2"	5.59	3.04	0.17
			1.00			Ice	6.02	3.38	0.23
						1" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00	0.0000	177.00	No Ice	5.19	2.71	0.13
			0.00			1/2"	5.59	3.04	0.17
			1.00			Ice	6.02	3.38	0.23
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	177.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			1.00			Ice	2.51	2.02	0.16
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	177.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			1.00			Ice	2.51	2.02	0.16
						1" Ice			
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	177.00	No Ice	2.14	1.69	0.11
			0.00			1/2"	2.32	1.85	0.13
			1.00			Ice	2.51	2.02	0.16
						1" Ice			
Radio 4480_TMOV2	A	From Leg	4.00	0.0000	177.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			1.00			Ice	3.31	1.73	0.13
						1" Ice			
Radio 4480_TMOV2	B	From Leg	4.00	0.0000	177.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			1.00			Ice	3.31	1.73	0.13
						1" Ice			
Radio 4480_TMOV2	C	From Leg	4.00	0.0000	177.00	No Ice	2.88	1.40	0.08
			0.00			1/2"	3.09	1.56	0.10
			1.00			Ice	3.31	1.73	0.13
						1" Ice			

7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			-1.00			Ice	6.61	5.71	0.16
						1" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	5.75	4.25	0.06

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
			0.00			1/2"	6.18	5.01	0.10
			-1.00			Ice	6.61	5.71	0.16
						1" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			-1.00			Ice	6.61	5.71	0.16
						1" Ice			
QS66512-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	4.04	4.18	0.14
			0.00			1/2"	4.42	4.57	0.21
			-1.00			Ice	4.82	4.97	0.29
						1" Ice			
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	4.04	4.18	0.14
			0.00			1/2"	4.42	4.57	0.21
			-1.00			Ice	4.82	4.97	0.29
						1" Ice			
QS66512-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	4.04	4.18	0.14
			0.00			1/2"	4.42	4.57	0.21
			-1.00			Ice	4.82	4.97	0.29
						1" Ice			
(3) LGP21401	A	From Leg	4.00	0.0000	168.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			1.00			Ice	1.38	0.35	0.03
						1" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	168.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			1.00			Ice	1.38	0.35	0.03
						1" Ice			
LGP21401	C	From Leg	4.00	0.0000	168.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			1.00			Ice	1.38	0.35	0.03
						1" Ice			
(2) 7020.00	A	From Leg	4.00	0.0000	168.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice			
(2) 7020.00	B	From Leg	4.00	0.0000	168.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice			
(2) 7020.00	C	From Leg	4.00	0.0000	168.00	No Ice	0.10	0.17	0.00
			0.00			1/2"	0.15	0.24	0.01
			1.00			Ice	0.20	0.31	0.01
						1" Ice			
RRUS 32 B2	A	From Leg	4.00	0.0000	168.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	B	From Leg	4.00	0.0000	168.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B2	C	From Leg	4.00	0.0000	168.00	No Ice	2.73	1.67	0.05
			0.00			1/2"	2.95	1.86	0.07
			1.00			Ice	3.18	2.05	0.10
						1" Ice			
RRUS 32 B30	A	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			1.00			Ice	3.14	1.95	0.10
						1" Ice			
RRUS 32 B30	B	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			1.00			Ice	3.14	1.95	0.10
						1" Ice			
RRUS 32 B30	C	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			1.00			Ice	3.14	1.95	0.10
DBC0061F1V51-2	A	From Leg	4.00	0.0000	168.00	1" Ice	0.43	0.41	0.03
			0.00			No Ice	0.51	0.50	0.03
			1.00			1/2"	0.61	0.59	0.04
DBC0061F1V51-2	B	From Leg	4.00	0.0000	168.00	1" Ice	0.43	0.41	0.03
			0.00			No Ice	0.51	0.50	0.03
			1.00			1/2"	0.61	0.59	0.04
DBC0061F1V51-2	C	From Leg	4.00	0.0000	168.00	1" Ice	0.43	0.41	0.03
			0.00			No Ice	0.51	0.50	0.03
			1.00			1/2"	0.61	0.59	0.04
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	168.00	1" Ice	0.92	0.92	0.02
			0.00			No Ice	1.46	1.46	0.04
			1.00			1/2"	1.64	1.64	0.06
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	168.00	1" Ice	0.92	0.92	0.02
			0.00			No Ice	1.46	1.46	0.04
			3.00			1/2"	1.64	1.64	0.06

OPA65R-BU6BA-K w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	6.76	6.06	0.10
			0.00			1/2"	7.40	6.69	0.16
			-1.00			Ice	8.06	7.33	0.24
OPA65R-BU6BA-K w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	1" Ice	6.76	6.06	0.10
			0.00			No Ice	7.40	6.69	0.16
			-1.00			1/2"	8.06	7.33	0.24
OPA65R-BU6BA-K w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	1" Ice	6.76	6.06	0.10
			0.00			No Ice	7.40	6.69	0.16
			-1.00			1/2"	8.06	7.33	0.24
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	1" Ice	11.96	5.97	0.11
			0.00			No Ice	12.70	6.63	0.20
			-1.00			1/2"	13.46	7.30	0.30
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	1" Ice	11.96	5.97	0.11
			0.00			No Ice	12.70	6.63	0.20
			-1.00			1/2"	13.46	7.30	0.30
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	1" Ice	11.96	5.97	0.11
			0.00			No Ice	12.70	6.63	0.20
			-1.00			1/2"	13.46	7.30	0.30
RRUS 4478 B14	A	From Leg	4.00	0.0000	168.00	1" Ice	1.84	1.06	0.06
			0.00			No Ice	2.01	1.20	0.08
			-1.00			1/2"	2.19	1.34	0.09
RRUS 4478 B14	B	From Leg	4.00	0.0000	168.00	1" Ice	1.84	1.06	0.06
			0.00			No Ice	2.01	1.20	0.08
			-1.00			1/2"	2.19	1.34	0.09
RRUS 4478 B14	C	From Leg	4.00	0.0000	168.00	1" Ice	1.84	1.06	0.06
			0.00			No Ice	2.01	1.20	0.08
			-1.00			1/2"	2.19	1.34	0.09
RRUS 32 B66A	A	From Leg	4.00	0.0000	168.00	1" Ice	2.86	1.78	0.06
			0.00			No Ice	3.09	1.97	0.08
			-1.00			1/2"	3.32	2.17	0.10
RRUS 32 B66A	B	From Leg	4.00	0.0000	168.00	1" Ice	2.86	1.78	0.06
			0.00			No Ice	3.09	1.97	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			-1.00			Ice 1" Ice No Ice	3.32 2.86 3.09	2.17 1.78 1.97	0.10 0.06 0.08
RRUS 32 B66A	C	From Leg	4.00 0.00 -1.00	0.0000	168.00	Ice 1" Ice No Ice	3.32 2.86 3.09	2.17 1.78 1.97	0.10 0.06 0.08
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 -1.00	0.0000	168.00	Ice 1" Ice No Ice	3.32 2.86 1.97	2.17 1.78 1.41	0.10 0.06 0.07
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 -1.00	0.0000	168.00	1/2" Ice 1" Ice	2.14 2.33 1.97	1.56 1.73 1.41	0.09 0.11 0.07
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 -1.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33 1.97	1.41 1.56 1.73 1.41	0.07 0.09 0.11 0.07
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 -1.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33 1.97	1.41 1.56 1.73 1.41	0.07 0.09 0.11 0.07
RRUS 4449 B5/B12	C	From Leg	1.00 0.00 -1.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33 1.97	1.41 1.56 1.73 1.41	0.07 0.09 0.11 0.07
DC6-48-60-0-8F	A	From Leg	4.00 0.00 -1.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64 17.09	0.92 1.46 1.64 17.09	0.02 0.04 0.06 1.50
Platform Mount [LP 303-1_HR-1]	A	None		0.0000	168.00	No Ice 1/2" Ice 1" Ice	17.09 21.47 25.72 17.09	17.09 21.47 25.72 17.09	1.50 1.88 2.35 1.50

(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.50 7.97	5.99 6.72 7.47 5.99	0.08 0.14 0.22 0.08
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.50 7.97	5.99 6.72 7.47 5.99	0.08 0.14 0.22 0.08
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	7.97 8.73 9.50 7.97	5.99 6.72 7.47 5.99	0.08 0.14 0.22 0.08
(2) LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	5.31 5.80 6.30 5.31	4.27 4.75 5.24 4.27	0.08 0.17 0.26 0.08
(2) LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	5.31 5.80 6.30 5.31	4.27 4.75 5.24 4.27	0.08 0.17 0.26 0.08
(2) LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	5.31 5.80 6.30 5.31	4.27 4.75 5.24 4.27	0.08 0.17 0.26 0.08
B66A RRH4X45	A	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01 2.58	1.63 1.81 2.00 1.63	0.06 0.08 0.10 0.06
B66A RRH4X45	B	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01 2.58	1.63 1.81 2.00 1.63	0.06 0.08 0.10 0.06
B66A RRH4X45	C	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01 2.58	1.63 1.81 2.00 1.63	0.06 0.08 0.10 0.06
RRH2X60-AWS	A	From Leg	4.00 0.00	0.0000	154.00	No Ice 1/2"	3.50 3.76	2.10 2.34	0.06 0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			3.00			Ice 1" Ice No Ice	4.03 2.10 2.10	0.11 0.06 0.08
RRH2X60-AWS	B	From Leg	4.00 0.00 3.00	0.0000	154.00	1/2" Ice 1" Ice	3.76 2.58 2.10	0.08 0.11 0.06
RRH2X60-AWS	C	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	3.50 2.34 2.58 2.10	0.06 0.08 0.11 0.06
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	4.80 2.19 2.39 2.00	0.04 0.08 0.12 0.04
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 3.00	0.0000	154.00	No Ice 1/2" Ice 1" Ice	4.80 2.19 2.39 2.00	0.04 0.08 0.12 0.04
Platform Mount [LP 304-1]	C	None		0.0000	154.00	No Ice 1/2" Ice 1" Ice	17.49 21.37 25.28 17.49	1.35 1.71 2.13 1.35

DB225-K	A	From Leg	4.00 0.00 5.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.45 0.81 1.17 3.16	0.00 0.00 0.00 0.04
(2) DB264-A	A	From Leg	4.00 0.00 12.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	3.16 5.69 8.22 3.16	0.05 0.06 0.06 0.04
DB264-A	B	From Leg	4.00 0.00 12.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	3.16 5.69 8.22 3.16	0.04 0.05 0.06 0.04
(2) DB264-A	C	From Leg	4.00 0.00 12.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	3.16 5.69 8.22 3.16	0.04 0.05 0.06 0.04
DB230-E	A	From Leg	4.00 0.00 1.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.50 0.90 1.30 0.50	0.03 0.04 0.04 0.03
DB230-E	A	From Leg	4.00 0.00 3.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.50 0.90 1.30 0.50	0.03 0.04 0.04 0.03
DB420	B	From Leg	4.00 0.00 9.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	3.33 5.99 8.66 3.33	0.03 0.04 0.05 0.03
(3) 5' x 2" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81 1.19	0.02 0.03 0.04 0.02
(4) 5' x 2" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81 1.19	0.02 0.03 0.04 0.02
(3) 5' x 2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81 1.19	0.02 0.03 0.04 0.02
Platform Mount [LP 304-1]	C	None		0.0000	119.00	No Ice 1/2"	17.49 21.37	1.35 1.71

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _A A _{Front} ft ²	C _A A _{Side} ft ²	Weight K	
						Ice 1" Ice	25.28 25.28	2.13	

KS24019-L112A	A	From Leg	4.00 0.00 1.00	0.0000	77.00	No Ice 1/2" Ice 1" Ice	0.14 0.20 0.26	0.14 0.20 0.26	0.01 0.01 0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.50 0.00 0.00	0.0000	77.00	No Ice 1/2" Ice 1" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09

Load Combinations

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

Comb. No.	Description
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	180 - 140.083	Pole	Max Tension	3	0.00	0.00	-0.00
			Max. Compression	26	-27.10	-0.97	-0.09
			Max. Mx	8	-14.05	-340.58	-0.83
			Max. My	2	-14.04	0.44	341.93
			Max. Vy	8	15.80	-340.58	-0.83
			Max. Vx	14	15.90	-1.27	-341.82
			Max. Torque	23			-0.73
L2	140.083 - 92.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.98	-0.96	-2.82
			Max. Mx	8	-25.44	-1218.14	-4.25
			Max. My	14	-25.43	-3.87	-1224.69
			Max. Vy	8	21.78	-1218.14	-4.25
			Max. Vx	14	21.87	-3.87	-1224.69
			Max. Torque	23			-0.99
L3	92.5 - 45.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.80	-0.68	-6.09
			Max. Mx	8	-39.85	-2310.98	-7.91
			Max. My	14	-39.84	-6.29	-2322.51
			Max. Vy	8	25.60	-2310.98	-7.91
			Max. Vx	14	25.67	-6.29	-2322.51
			Max. Torque	23			-1.18
L4	45.583 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.00	-0.36	-9.86
			Max. Mx	8	-61.44	-3748.21	-12.27
			Max. My	14	-61.44	-8.95	-3764.87
			Max. Vy	8	28.97	-3748.21	-12.27
			Max. Vx	14	29.03	-8.95	-3764.87
			Max. Torque	23			-1.18

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	86.00	-0.01	-7.64
	Max. H _x	21	46.10	28.93	0.05
	Max. H _z	3	46.10	0.05	28.99
	Max. M _x	2	3758.09	0.05	28.99
	Max. M _z	8	3748.21	-28.93	-0.05
	Max. Torsion	11	1.17	-27.15	-15.74
	Min. Vert	23	46.10	27.15	15.74
	Min. H _x	9	46.10	-28.93	-0.05
	Min. H _z	15	46.10	-0.05	-28.99
	Min. M _x	14	-3764.87	-0.05	-28.99
	Min. M _z	20	-3748.01	28.93	0.05
	Min. Torsion	23	-1.18	27.15	15.74

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	51.22	0.00	0.00	2.70	-0.06	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	61.46	-0.05	-28.99	-3758.09	8.76	0.67
0.9 Dead+1.0 Wind 0 deg - No Ice	46.10	-0.05	-28.99	-3706.32	8.66	0.67
1.2 Dead+1.0 Wind 30 deg - No Ice	61.46	14.42	-25.08	-3249.75	-1866.48	0.10
0.9 Dead+1.0 Wind 30 deg - No Ice	46.10	14.42	-25.08	-3205.11	-1840.36	0.10
1.2 Dead+1.0 Wind 60 deg - No Ice	61.46	25.03	-14.45	-1869.70	-3241.65	-0.50
0.9 Dead+1.0 Wind 60 deg - No Ice	46.10	25.03	-14.45	-1844.38	-3196.29	-0.50
1.2 Dead+1.0 Wind 90 deg - No Ice	61.46	28.93	0.05	12.27	-3748.21	-0.97
0.9 Dead+1.0 Wind 90 deg - No Ice	46.10	28.93	0.05	11.25	-3695.76	-0.97
1.2 Dead+1.0 Wind 120 deg - No Ice	61.46	27.15	15.74	2029.32	-3488.61	-1.17
0.9 Dead+1.0 Wind 120 deg - No Ice	46.10	27.15	15.74	2000.36	-3440.27	-1.17
1.2 Dead+1.0 Wind 150 deg - No Ice	61.46	14.51	25.14	3265.36	-1881.79	-1.07
0.9 Dead+1.0 Wind 150 deg - No Ice	46.10	14.51	25.14	3218.83	-1855.44	-1.07
1.2 Dead+1.0 Wind 180 deg - No Ice	61.46	0.05	28.99	3764.87	-8.95	-0.67
0.9 Dead+1.0 Wind 180 deg - No Ice	46.10	0.05	28.99	3711.35	-8.79	-0.68
1.2 Dead+1.0 Wind 210 deg - No Ice	61.46	-14.42	25.08	3256.54	1866.28	-0.10
0.9 Dead+1.0 Wind 210 deg - No Ice	46.10	-14.42	25.08	3210.14	1840.22	-0.10
1.2 Dead+1.0 Wind 240 deg - No Ice	61.46	-25.03	14.45	1876.50	3241.44	0.50
0.9 Dead+1.0 Wind 240 deg - No Ice	46.10	-25.03	14.45	1849.42	3196.15	0.50
1.2 Dead+1.0 Wind 270 deg - No Ice	61.46	-28.93	-0.05	-5.45	3748.01	0.97
0.9 Dead+1.0 Wind 270 deg - No Ice	46.10	-28.93	-0.05	-6.20	3695.62	0.97
1.2 Dead+1.0 Wind 300 deg - No Ice	61.46	-27.15	-15.74	-2022.51	3488.43	1.18
0.9 Dead+1.0 Wind 300 deg - No Ice	46.10	-27.15	-15.74	-1995.31	3440.15	1.18
1.2 Dead+1.0 Wind 330 deg - No Ice	61.46	-14.51	-25.14	-3258.57	1881.61	1.07
0.9 Dead+1.0 Wind 330 deg - No Ice	46.10	-14.51	-25.14	-3213.80	1855.32	1.07
1.2 Dead+1.0 Ice+1.0 Temp	86.00	0.00	0.00	9.86	-0.36	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	86.00	-0.01	-7.64	-978.55	1.36	0.16
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	86.00	3.81	-6.61	-845.23	-491.99	-0.02
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	86.00	6.60	-3.81	-482.73	-853.61	-0.19
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	86.00	7.63	0.01	11.83	-986.61	-0.32
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	86.00	6.61	3.83	505.91	-855.34	-0.36
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	86.00	3.82	6.62	867.15	-494.99	-0.30
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	86.00	0.01	7.64	998.73	-2.10	-0.16
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	86.00	-3.81	6.61	865.42	491.24	0.02

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	86.00	-6.60	3.81	502.92	852.86	0.19
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	86.00	-7.63	-0.01	8.36	985.86	0.32
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	86.00	-6.61	-3.83	-485.73	854.60	0.36
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	86.00	-3.82	-6.62	-846.96	494.24	0.30
Dead+Wind 0 deg - Service	51.22	-0.01	-6.83	-876.29	1.99	0.16
Dead+Wind 30 deg - Service	51.22	3.40	-5.91	-757.48	-436.28	0.02
Dead+Wind 60 deg - Service	51.22	5.90	-3.40	-434.95	-757.67	-0.13
Dead+Wind 90 deg - Service	51.22	6.82	0.01	4.88	-876.06	-0.24
Dead+Wind 120 deg - Service	51.22	6.40	3.71	476.37	-815.53	-0.29
Dead+Wind 150 deg - Service	51.22	3.42	5.92	765.17	-439.86	-0.26
Dead+Wind 180 deg - Service	51.22	0.01	6.83	881.91	-2.15	-0.16
Dead+Wind 210 deg - Service	51.22	-3.40	5.91	763.10	436.12	-0.02
Dead+Wind 240 deg - Service	51.22	-5.90	3.40	440.57	757.50	0.13
Dead+Wind 270 deg - Service	51.22	-6.82	-0.01	0.74	875.89	0.24
Dead+Wind 300 deg - Service	51.22	-6.40	-3.71	-470.74	815.36	0.29
Dead+Wind 330 deg - Service	51.22	-3.42	-5.92	-759.55	439.70	0.26

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-51.22	0.00	0.00	51.22	0.00	0.000%
2	-0.05	-61.46	-28.99	0.05	61.46	28.99	0.000%
3	-0.05	-46.10	-28.99	0.05	46.10	28.99	0.000%
4	14.42	-61.46	-25.08	-14.42	61.46	25.08	0.000%
5	14.42	-46.10	-25.08	-14.42	46.10	25.08	0.000%
6	25.03	-61.46	-14.45	-25.03	61.46	14.45	0.000%
7	25.03	-46.10	-14.45	-25.03	46.10	14.45	0.000%
8	28.93	-61.46	0.05	-28.93	61.46	-0.05	0.000%
9	28.93	-46.10	0.05	-28.93	46.10	-0.05	0.000%
10	27.15	-61.46	15.74	-27.15	61.46	-15.74	0.000%
11	27.15	-46.10	15.74	-27.15	46.10	-15.74	0.000%
12	14.51	-61.46	25.14	-14.51	61.46	-25.14	0.000%
13	14.51	-46.10	25.14	-14.51	46.10	-25.14	0.000%
14	0.05	-61.46	28.99	-0.05	61.46	-28.99	0.000%
15	0.05	-46.10	28.99	-0.05	46.10	-28.99	0.000%
16	-14.42	-61.46	25.08	14.42	61.46	-25.08	0.000%
17	-14.42	-46.10	25.08	14.42	46.10	-25.08	0.000%
18	-25.03	-61.46	14.45	25.03	61.46	-14.45	0.000%
19	-25.03	-46.10	14.45	25.03	46.10	-14.45	0.000%
20	-28.93	-61.46	-0.05	28.93	61.46	0.05	0.000%
21	-28.93	-46.10	-0.05	28.93	46.10	0.05	0.000%
22	-27.15	-61.46	-15.74	27.15	61.46	15.74	0.000%
23	-27.15	-46.10	-15.74	27.15	46.10	15.74	0.000%
24	-14.51	-61.46	-25.14	14.51	61.46	25.14	0.000%
25	-14.51	-46.10	-25.14	14.51	46.10	25.14	0.000%
26	0.00	-86.00	0.00	-0.00	86.00	-0.00	0.000%
27	-0.01	-86.00	-7.64	0.01	86.00	7.64	0.000%
28	3.81	-86.00	-6.61	-3.81	86.00	6.61	0.000%
29	6.60	-86.00	-3.81	-6.60	86.00	3.81	0.000%
30	7.63	-86.00	0.01	-7.63	86.00	-0.01	0.000%
31	6.61	-86.00	3.83	-6.61	86.00	-3.83	0.000%
32	3.82	-86.00	6.62	-3.82	86.00	-6.62	0.000%
33	0.01	-86.00	7.64	-0.01	86.00	-7.64	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
34	-3.81	-86.00	6.61	3.81	86.00	-6.61	0.000%
35	-6.60	-86.00	3.81	6.60	86.00	-3.81	0.000%
36	-7.63	-86.00	-0.01	7.63	86.00	0.01	0.000%
37	-6.61	-86.00	-3.83	6.61	86.00	3.83	0.000%
38	-3.82	-86.00	-6.62	3.82	86.00	6.62	0.000%
39	-0.01	-51.22	-6.83	0.01	51.22	6.83	0.000%
40	3.40	-51.22	-5.91	-3.40	51.22	5.91	0.000%
41	5.90	-51.22	-3.40	-5.90	51.22	3.40	0.000%
42	6.82	-51.22	0.01	-6.82	51.22	-0.01	0.000%
43	6.40	-51.22	3.71	-6.40	51.22	-3.71	0.000%
44	3.42	-51.22	5.92	-3.42	51.22	-5.92	0.000%
45	0.01	-51.22	6.83	-0.01	51.22	-6.83	0.000%
46	-3.40	-51.22	5.91	3.40	51.22	-5.91	0.000%
47	-5.90	-51.22	3.40	5.90	51.22	-3.40	0.000%
48	-6.82	-51.22	-0.01	6.82	51.22	0.01	0.000%
49	-6.40	-51.22	-3.71	6.40	51.22	3.71	0.000%
50	-3.42	-51.22	-5.92	3.42	51.22	5.92	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00002852
3	Yes	4	0.00000001	0.00041394
4	Yes	6	0.00000001	0.00013128
5	Yes	5	0.00000001	0.00095658
6	Yes	6	0.00000001	0.00013164
7	Yes	5	0.00000001	0.00095960
8	Yes	5	0.00000001	0.0003522
9	Yes	4	0.00000001	0.00047552
10	Yes	6	0.00000001	0.00014689
11	Yes	6	0.00000001	0.00004921
12	Yes	6	0.00000001	0.00013498
13	Yes	5	0.00000001	0.00098333
14	Yes	5	0.00000001	0.00005225
15	Yes	4	0.00000001	0.00060443
16	Yes	6	0.00000001	0.00013097
17	Yes	5	0.00000001	0.00095385
18	Yes	6	0.00000001	0.00013021
19	Yes	5	0.00000001	0.00094822
20	Yes	5	0.00000001	0.00005931
21	Yes	4	0.00000001	0.00068101
22	Yes	6	0.00000001	0.00015077
23	Yes	6	0.00000001	0.00005075
24	Yes	6	0.00000001	0.00013056
25	Yes	5	0.00000001	0.00095067
26	Yes	4	0.00000001	0.00003313
27	Yes	5	0.00000001	0.00038150
28	Yes	5	0.00000001	0.00048607
29	Yes	5	0.00000001	0.00048641
30	Yes	5	0.00000001	0.00038477
31	Yes	5	0.00000001	0.00049631
32	Yes	5	0.00000001	0.00050081
33	Yes	5	0.00000001	0.00038873
34	Yes	5	0.00000001	0.00049338
35	Yes	5	0.00000001	0.00049213
36	Yes	5	0.00000001	0.00038320
37	Yes	5	0.00000001	0.00048841
38	Yes	5	0.00000001	0.00048497
39	Yes	4	0.00000001	0.00006826
40	Yes	4	0.00000001	0.00046128
41	Yes	4	0.00000001	0.00046851
42	Yes	4	0.00000001	0.00007319
43	Yes	4	0.00000001	0.00052735
44	Yes	4	0.00000001	0.00049585
45	Yes	4	0.00000001	0.00007112

46	Yes	4	0.00000001	0.00045917
47	Yes	4	0.00000001	0.00045105
48	Yes	4	0.00000001	0.00007593
49	Yes	4	0.00000001	0.00057217
50	Yes	4	0.00000001	0.00044353

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 140.083	27.719	43	1.3419	0.0017
L2	145 - 92.5	18.186	43	1.2006	0.0011
L3	98.5 - 45.583	8.228	43	0.8000	0.0005
L4	52.5 - 0	2.317	43	0.4034	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	7"x2" Antenna Mount Pipe	43	26.874	1.3330	0.0016	51960
168.00	7770.00 w/ Mount Pipe	43	24.350	1.3046	0.0015	21649
154.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	43	20.527	1.2492	0.0013	9991
119.00	DB225-K	43	12.156	0.9941	0.0007	6892
77.00	KS24019-L112A	43	4.942	0.6068	0.0003	6062

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 140.083	118.468	10	5.7456	0.0066
L2	145 - 92.5	77.757	10	5.1409	0.0044
L3	98.5 - 45.583	35.190	10	3.4250	0.0021
L4	52.5 - 0	9.907	10	1.7258	0.0008

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	7"x2" Antenna Mount Pipe	10	114.859	5.7072	0.0065	12399
168.00	7770.00 w/ Mount Pipe	10	104.085	5.5859	0.0060	5165
154.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	10	87.758	5.3489	0.0051	2381
119.00	DB225-K	10	51.988	4.2564	0.0031	1630
77.00	KS24019-L112A	10	21.136	2.5969	0.0014	1422

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	180 - 140.083 (1)	TP31.67x24.16x0.2188	39.92	0.00	0.0	21.301 5	-13.92	1246.14	0.011
L2	140.083 - 92.5 (2)	TP40.17x30.3074x0.3438	52.50	0.00	0.0	42.436 0	-25.26	2482.50	0.010

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u φP _n
L3	92.5 - 45.583 (3)	TP48.31x38.3553x0.4388	52.92	0.00	0.0	65.180 0	-39.73	3813.03	0.010
L4	45.583 - 0 (4)	TP56x46.1313x0.5	52.50	0.00	0.0	88.522 5	-61.44	5178.57	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} φM _{ny}
L1	180 - 140.083 (1)	TP31.67x24.16x0.2188	351.67	864.22	0.407	0.00	864.22	0.000
L2	140.083 - 92.5 (2)	TP40.17x30.3074x0.3438	1282.42	2362.53	0.543	0.00	2362.53	0.000
L3	92.5 - 45.583 (3)	TP48.31x38.3553x0.4388	2469.49	4445.43	0.556	0.00	4445.43	0.000
L4	45.583 - 0 (4)	TP56x46.1313x0.5	4035.91	7099.14	0.569	0.00	7099.14	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio V _u φV _n	Actual T _u kip-ft	φT _n kip-ft	Ratio T _u φT _n
L1	180 - 140.083 (1)	TP31.67x24.16x0.2188	16.45	373.84	0.044	0.72	1000.68	0.001
L2	140.083 - 92.5 (2)	TP40.17x30.3074x0.3438	23.44	744.75	0.031	0.99	2527.25	0.000
L3	92.5 - 45.583 (3)	TP48.31x38.3553x0.4388	27.95	1143.91	0.024	1.17	4671.27	0.000
L4	45.583 - 0 (4)	TP56x46.1313x0.5	31.42	1553.57	0.020	1.17	7560.67	0.000

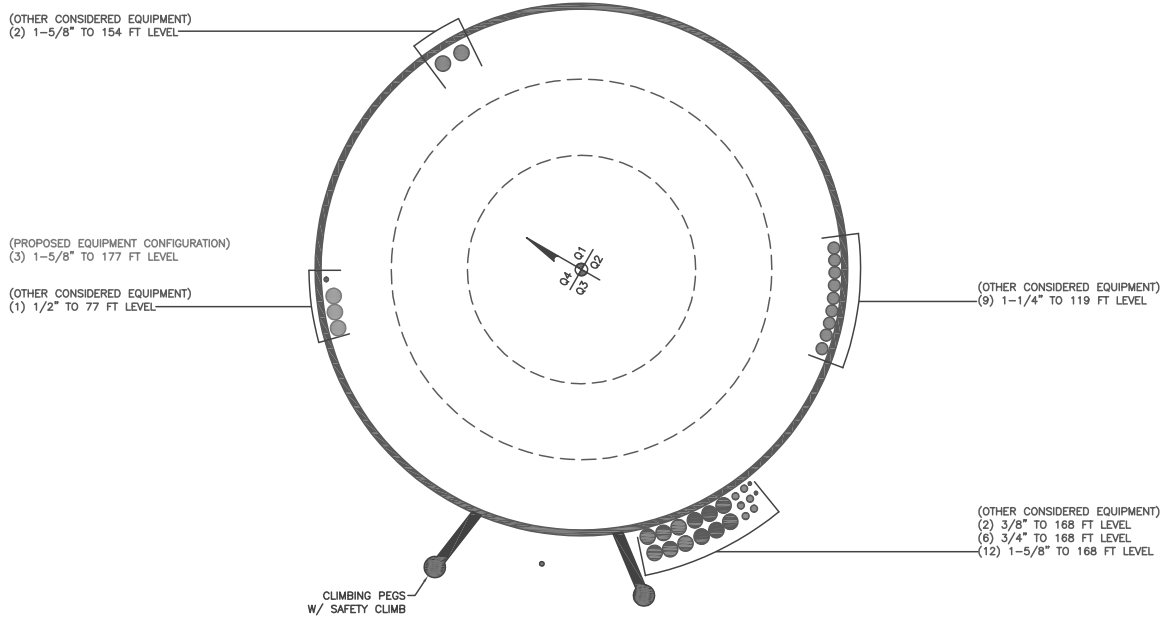
Pole Interaction Design Data

Section No.	Elevation ft	Ratio P _u φP _n	Ratio M _{ux} φM _{nx}	Ratio M _{uy} φM _{ny}	Ratio V _u φV _n	Ratio T _u φT _n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	180 - 140.083 (1)	0.011	0.407	0.000	0.044	0.001	0.420	1.050	4.8.2
L2	140.083 - 92.5 (2)	0.010	0.543	0.000	0.031	0.000	0.554	1.050	4.8.2
L3	92.5 - 45.583 (3)	0.010	0.556	0.000	0.024	0.000	0.567	1.050	4.8.2
L4	45.583 - 0 (4)	0.012	0.569	0.000	0.020	0.000	0.581	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	180 - 140.083	Pole	TP31.67x24.16x0.2188	1	-13.92	1308.45	40.0	Pass
L2	140.083 - 92.5	Pole	TP40.17x30.3074x0.3438	2	-25.26	2606.62	52.8	Pass
L3	92.5 - 45.583	Pole	TP48.31x38.3553x0.4388	3	-39.73	4003.68	54.0	Pass
L4	45.583 - 0	Pole	TP56x46.1313x0.5	4	-61.44	5437.50	55.3	Pass
Summary								
Pole (L4)							55.3	Pass
RATING =							55.3	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

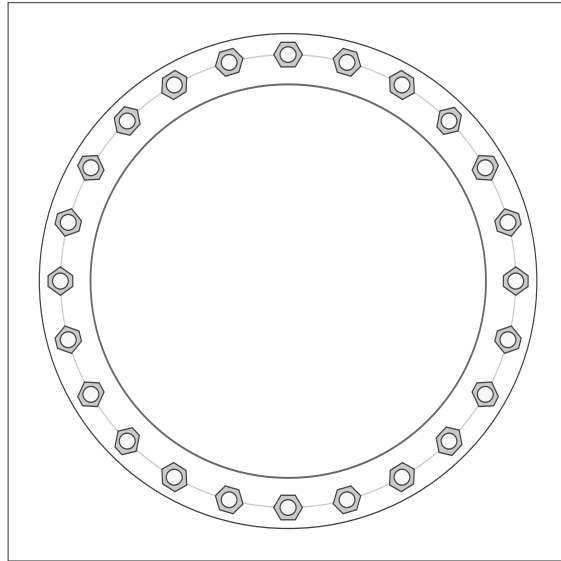


Site Info	
BU #	876368
Site Name	Se Lake/East Hampton/
Order #	584618 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{br} (in)	2

Applied Loads	
Moment (kip-ft)	4035.91
Axial Force (kips)	61.44
Shear Force (kips)	31.42

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary	<i>(units of kips, kip-in)</i>
(24) 2-1/4" \emptyset bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 64.48" BC		$Pu_t = 122.56$	$\phi Pn_t = 243.75$ Stress Rating
Base Plate Data		$Vu = 1.31$	$\phi Vn = 149.1$ 47.9%
70.48" OD x 3" Plate (A633 Gr. E; Fy=60 ksi, Fu=70 ksi)		$Mu = n/a$	$\phi Mn = n/a$ Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	19.83 (Flexural)
Pole Data		Allowable Stress (ksi):	54
56" x 0.5" 16-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)		Stress Rating:	35.0% Pass

Pier and Pad Foundation



BU #: 876368
 Site Name: Yankee Lake/East
 App. Number: 584618 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	61.46	kips
Base Shear, V_u_{comp} :	31.38	kips
Moment, M_u :	4035.91	ft-kips
Tower Height, H :	180	ft
BP Dist. Above Fdn, bp_{dist} :	4.25	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	379.91	31.38	7.9%	Pass
<i>Bearing Pressure (ksf)</i>	6.00	2.12	33.7%	Pass
<i>Overturning (kip*ft)</i>	8298.28	4282.37	51.6%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	9989.42	4177.12	39.8%	Pass
<i>Pier Compression (kip)</i>	23994.73	102.18	0.4%	Pass
<i>Pad Flexure (kip*ft)</i>	4863.98	1368.69	26.8%	Pass
<i>Pad Shear - 1-way (kips)</i>	848.83	199.58	22.4%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.036	21.1%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4581.16	2506.27	52.1%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, dp_{pier} :	8	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	11	
Pier Rebar Quantity, mc :	36	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	8	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	52.1%
Soil Rating*:	51.6%

Pad Properties		
Depth, D :	7	ft
Pad Width, W_1 :	27.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2} :	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	24	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	36	
Pad Clear Cover, cc_{pad} :	3	in

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

Soil Properties		
Total Soil Unit Weight, γ :	130	pcf
Ultimate Gross Bearing, Q_{ult} :	8.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	34	degrees
SPT Blow Count, N_{blows} :	16	
Base Friction, μ :		
Neglected Depth, N :	4.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

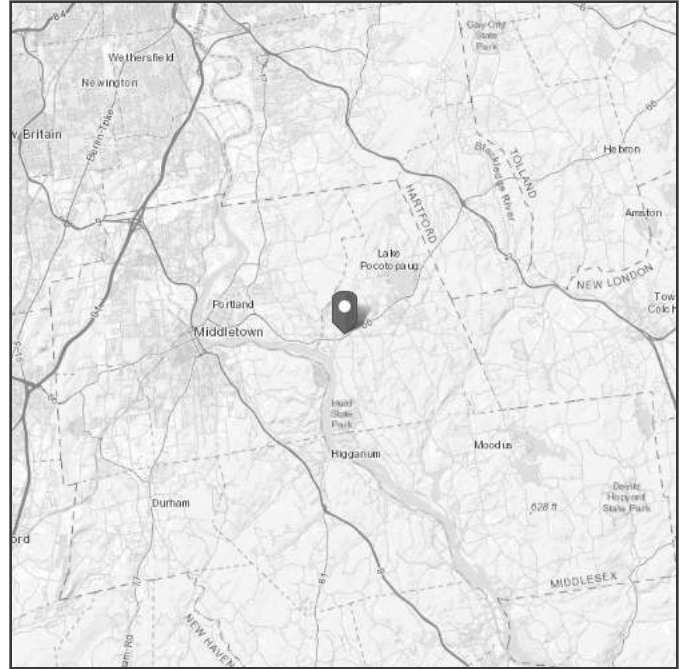
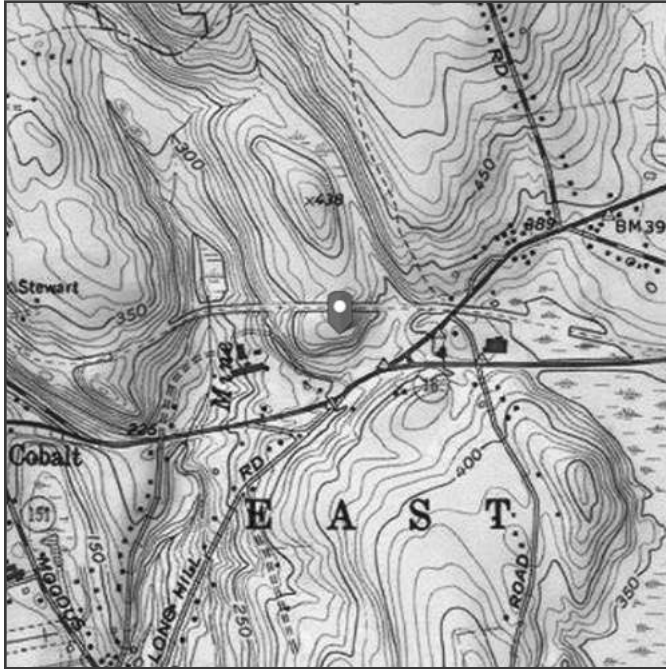
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 378.98 ft (NAVD 88)
Latitude: 41.564761
Longitude: -72.543106



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

Date Accessed: Fri Oct 01 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

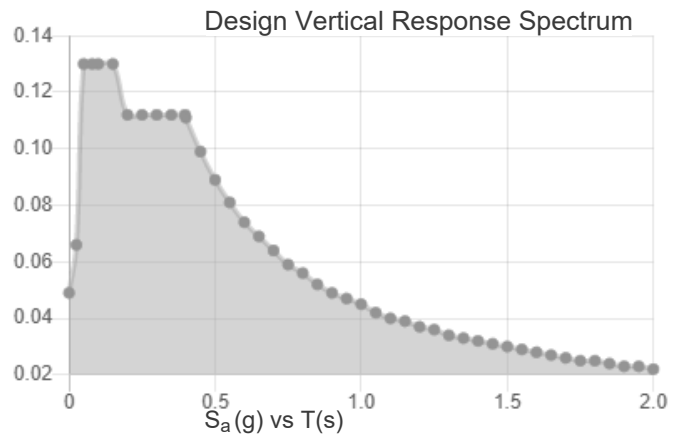
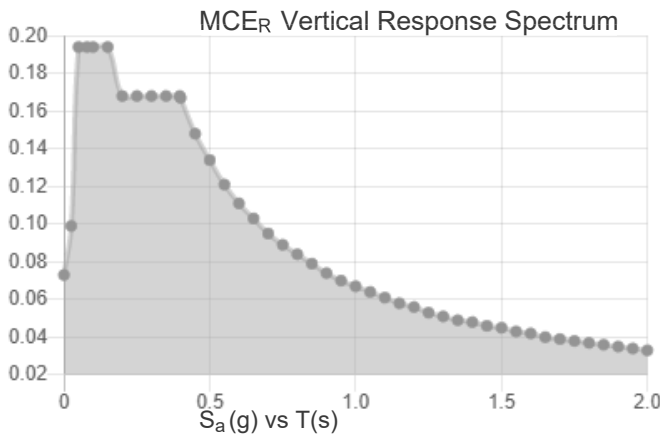
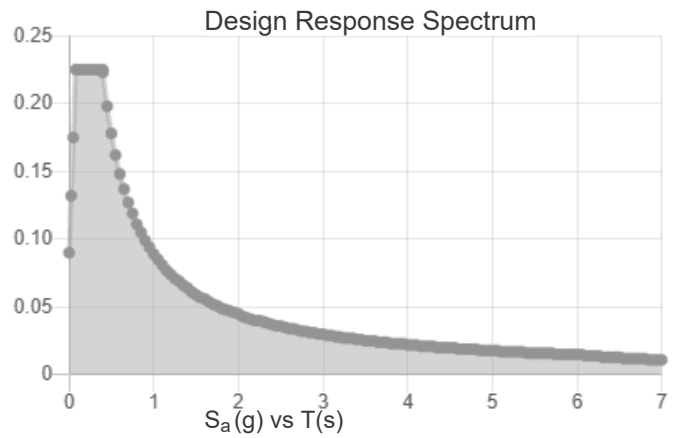
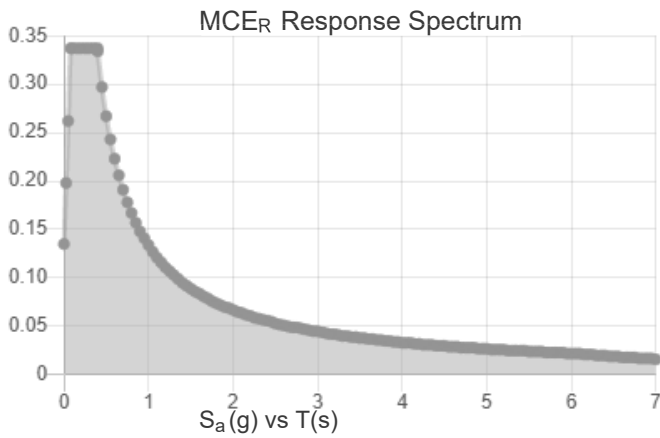
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.211	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.117
F_v :	2.4	PGA _M :	0.184
S_{MS} :	0.337	F_{PGA} :	1.565
S_{M1} :	0.134	I_e :	1
S_{DS} :	0.225	C_v :	0.721

Seismic Design Category B



Data Accessed:

Fri Oct 01 2021

Date Source:

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

Results:

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

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

Date Accessed: Fri Oct 01 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 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

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

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

Exhibit E

Mount Analysis

September 24, 2021



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
CrownMA@tepgroup.net

Subject: Mount Analysis

Carrier Designation: T-Mobile Reconfiguration
Client Site Number: CTHA696A
Client Site Name: CTHA696A

Crown Castle Designation: **Crown Castle BU Number:** 876368
Crown Castle Site Name: Yankee Lake/East Hampton/Town
Crown Castle JDE Job Number: 684635
Crown Castle Order Number: 584618 Rev. 0

Engineering Firm Designation: **TEP Project Number:** 218229.601930

Site Data: 1 Public Works Dr, East Hampton, Middlesex County, CT 06032
Latitude 41° 33' 53.14", Longitude -72° 32' 35.18"

Structure Information: **Tower Height & Type:** 180.0± ft Monopole
Mount Elevation: 177.0 ft
Mount Width & Type: 13.0 ft Platform w/ Support Rail

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

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

Platform w/ Support Rail Mount

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph from the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Jordan Marks / GHM

Respectfully submitted by:

Aaron T. Rucker, P.E.
Structural Division Manager
919-661-6351
arucker@tepgroup.net



Electronic Copy

09/24/2021

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

Wire Frame and Rendered Models

6) APPENDIX B

Software Input Calculations

7) APPENDIX C

Software Analysis Output

8) APPENDIX D

Additional Calculations

1) INTRODUCTION

The mount is an existing 13.0-ft 3-sector Platform w/ Support Rail mount, designed by Valmont. The mount is installed at the 177.0 ft elevation on the 180.0± ft Monopole.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Category at Base:	1.0
Topographic Category at Mount:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic Design Category:	B
Seismic S_s:	0.211
Seismic S₁:	0.056
Live Loading Wind Speed:	30 mph
Live Loading at Mid/End-Points:	250 lb
Man Live Loading at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
177.0	178.0	3	Ericsson	AIR6449 B41_T-Mobile	Platform w/ Support Rail Mount
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	Radio 4460 B2/B25 B66_TMO	
		3	Ericsson	Radio 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Previous Mount Analysis	GPD Engineering and Architecture	9566978	CCIsites
Loading Application	T-Mobile	Order 584618 Rev. 0	CCIsites
RFDS	T-Mobile	Site ID: CTHA696A	CCIsites
Tower and Mount Drawings	Valmont	1513979	CCIsites

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A and Appendix C.

TEP Mount Analysis Tool, a tool internally developed by TEP using Microsoft Excel, was used to calculate member loading for various load cases. Selected output from the analysis is included in Appendix B.

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

3.2) Assumptions

- 1) The mount was built in accordance with the manufacturer's specifications.
- 2) The mount has been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, mounts and other appurtenances are as specified in Table 1. All mount components have been assumed to be in sufficient condition to carry their full design capacity for this analysis. Refer to the issued mapping for any structural and/or maintenance issues found during our site visit if applicable.
- 4) All mount components are in sufficient condition to carry their full design capacity.
- 5) TEP did not analyze the collar mount connection to the pole and assumes it to have sufficient structural capacity to transfer the applied forces from the mount to the tower.
- 6) All material grades used for this analysis, unless verified by mount manufacturer design, were assumed per AISC Table 2-4, 15th Edition. See RISA-3D output for confirmation on grades used in this analysis.

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform w/ Support Rail Mount)

Notes	Component	Critical Member	Mount Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontals	SF1-TH	177.0	19.6	Pass
1	Support Rail	SF1-HR	177.0	42.8	Pass
1	Internals	GSI-2	177.0	37.7	Pass
1	Support Horizontals	SA-3	177.0	11.5	Pass
1	Corner Plates	CP-3	177.0	52.3	Pass
1	Kicker	K3	177.0	8.7	Pass
1	Mount Pipes	MP-10	177.0	37.5	Pass
2	Connection Bolts	-	177.0	8.9	Pass
2	Connection Plate	-	177.0	8.4	Pass

Structure Rating (max from all components) =	52.3%
---	--------------

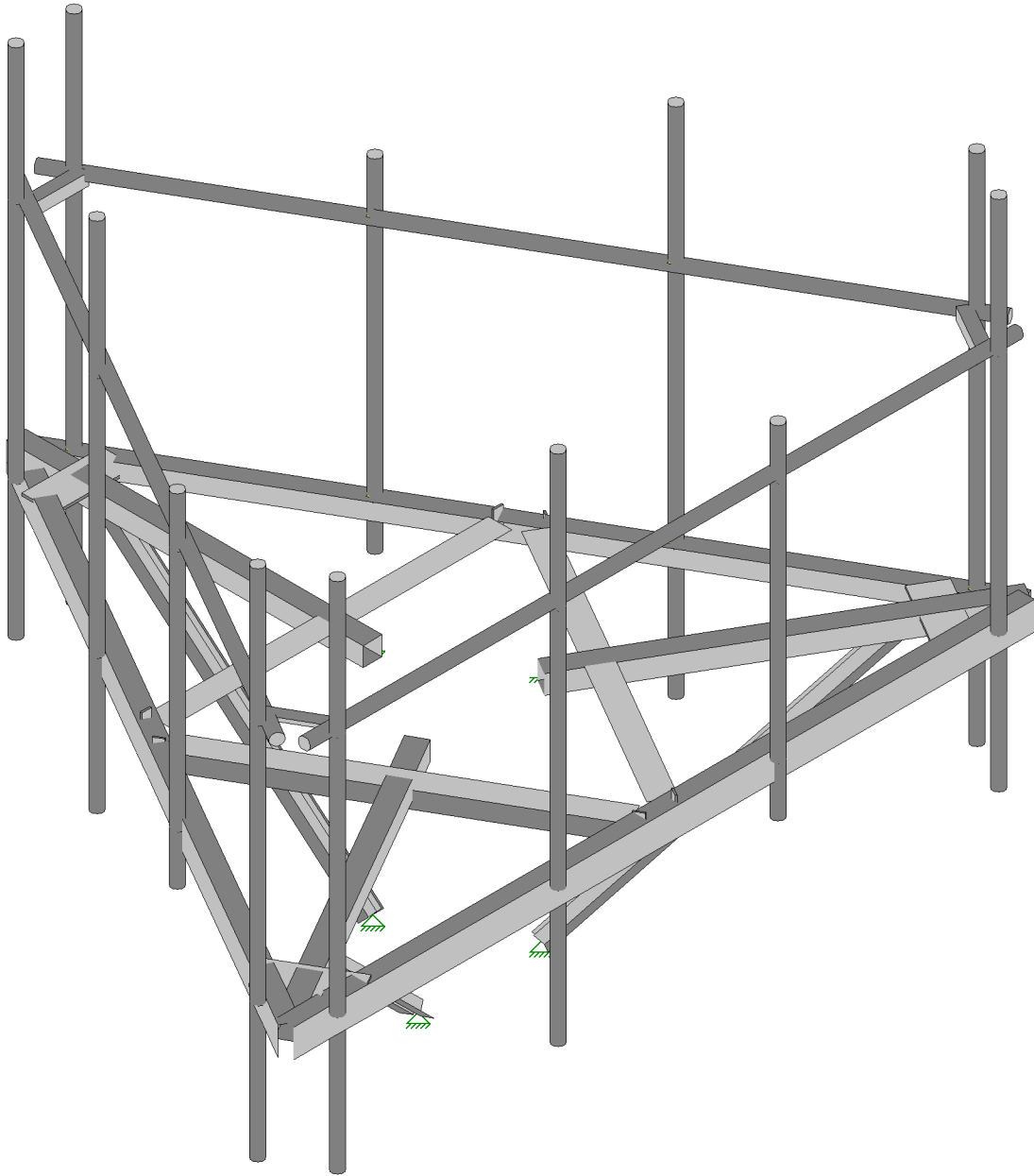
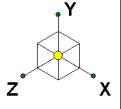
Notes:

- 1) See additional documentation in "Appendix C - Analysis Output" for calculations supporting the % capacity listed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

- 1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The mount and its connection have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Tower Engineering Profess...

JCM

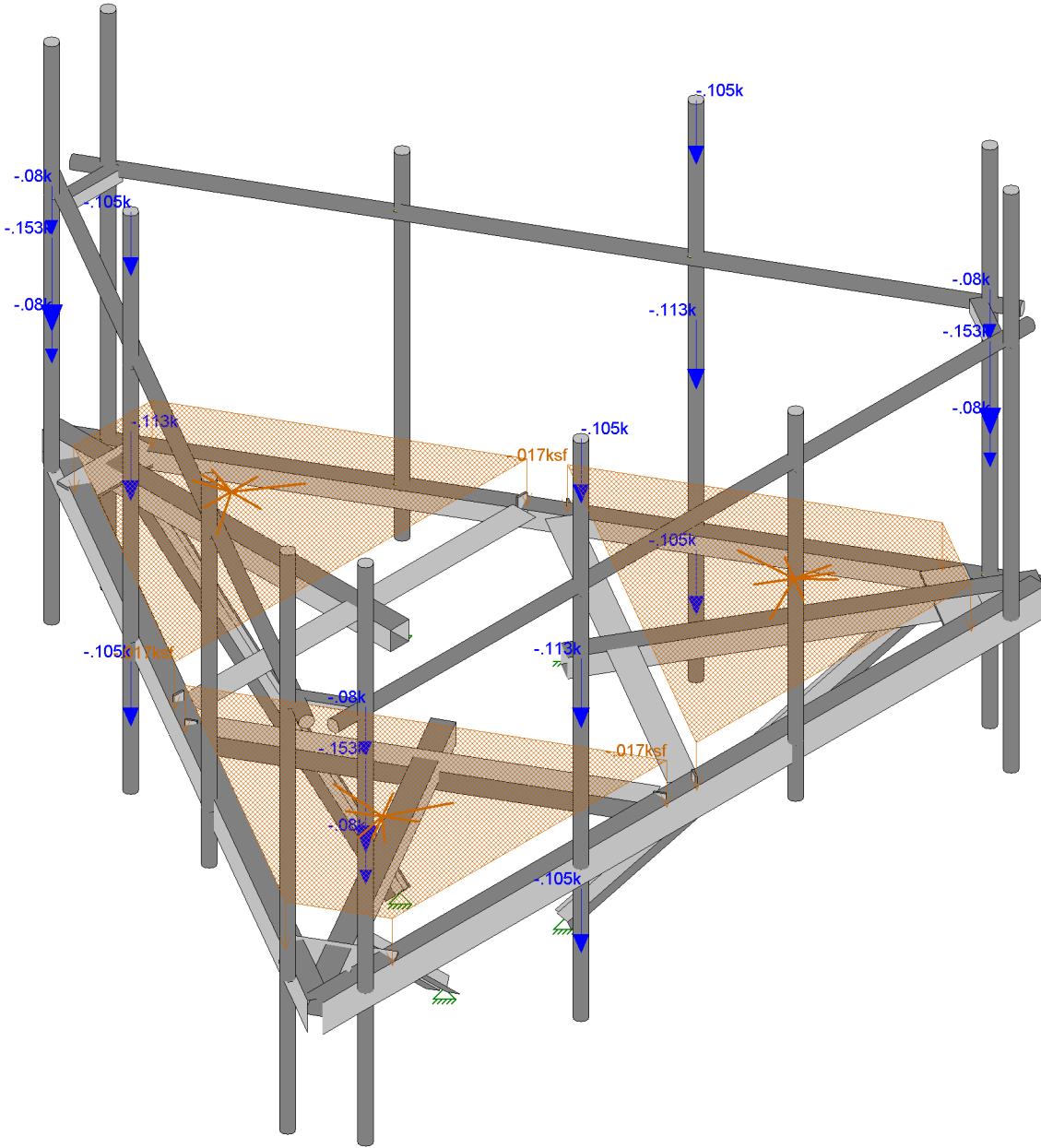
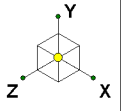
TEP No.218229.601930

Yankee Lake/East Hampton/Town (876368)

SK - 1

Sept 24, 2021 at 9:30 AM

Mount Rev H.r3d

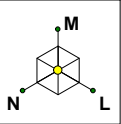


Loads: LC 1, 1.4D
Envelope Only Solution

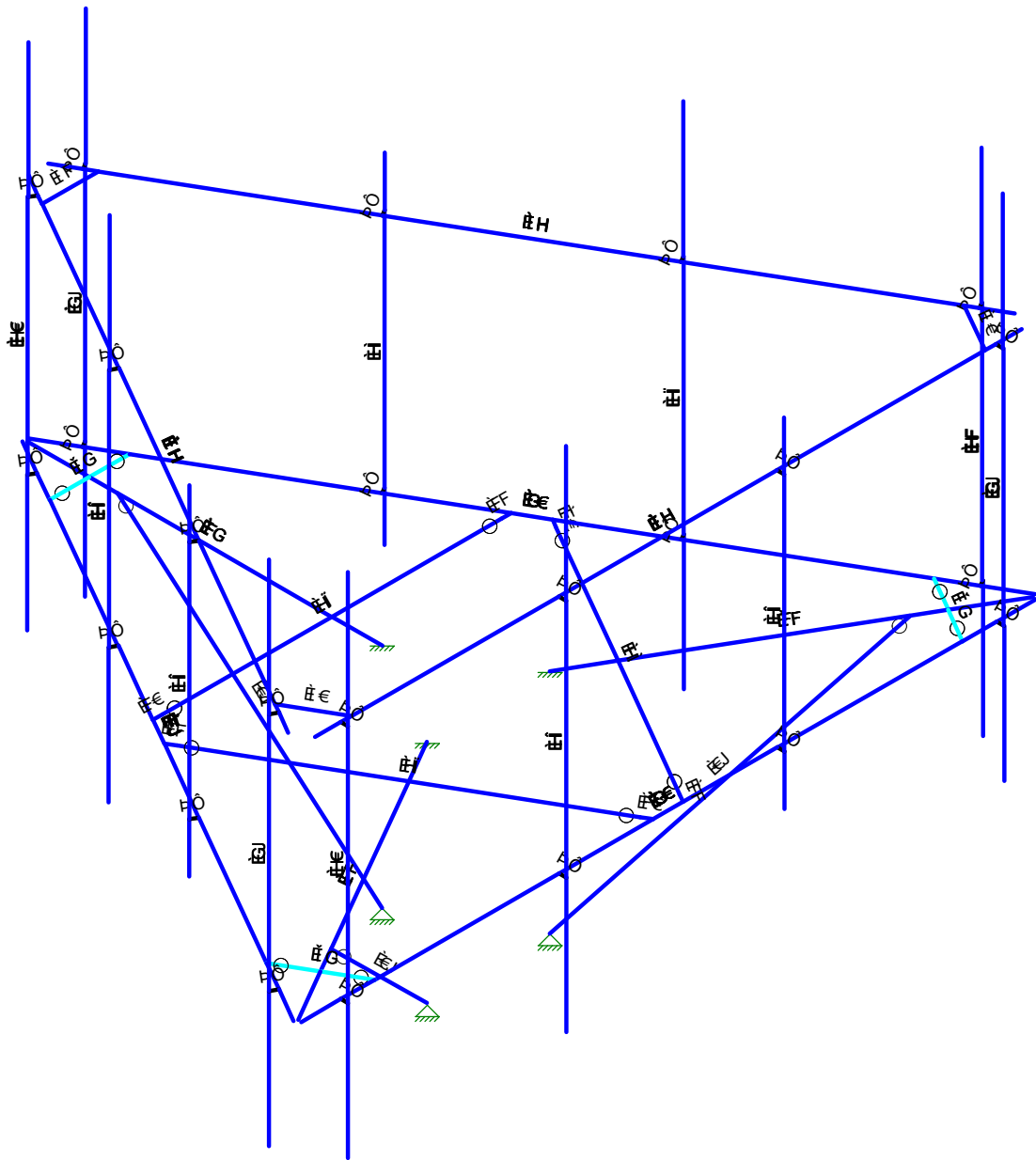
Tower Engineering Profess...
JCM
TEP No.218229.601930

Yankee Lake/East Hampton/Town (876368)

SK - 2
Sept 24, 2021 at 9:30 AM
Mount Rev H.r3d



- Ô|ã^Ã@&
- (Ô)ç/D
- |Ã&g&
- Ã|V|E
- 白|E|E
- E|E|E
- E|E|E
- Ã|E|E



T^({ã^Ã@&•Ãa}|ã^ã(Ô)ç|[]^ãD
 Ô)ç|[]^ã)|^Ã|[]ç}

V|, ^|Ã) *ã^ã *Ã|[] ^••E

RÔT

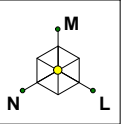
VÒÚ|P| EÈ| GG|E|FJ|E

ÿã\^ã^ã^DœçPç]ç}E|,}Ã|ÏH|D

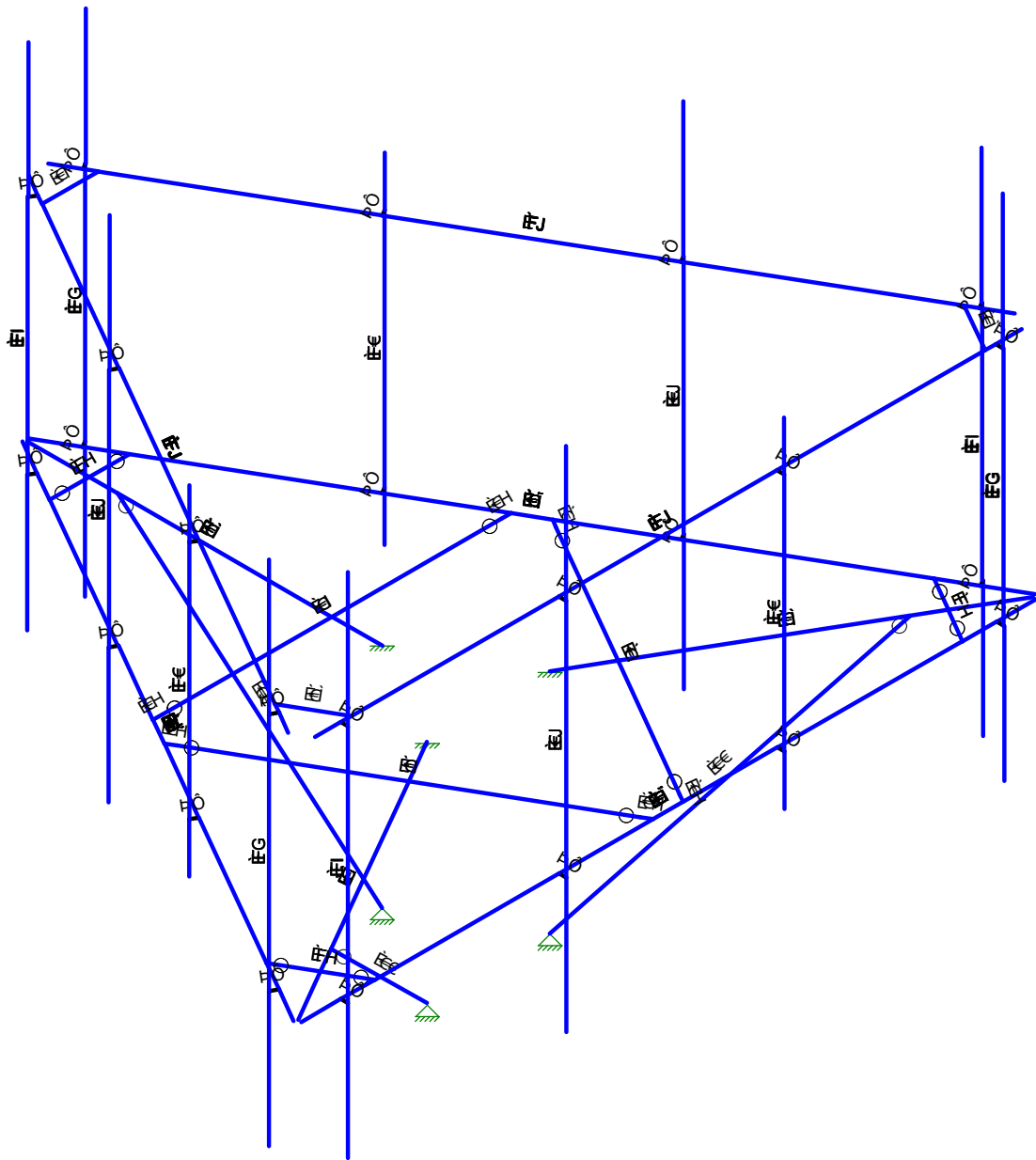
ÛSãH

Ù|]ç|E|G|F|ã|K|E|E

T[~)ã^ã^ã^ã



U@asA@a&
 (O) cD
 p[A@a&
 AAVtE
 白eE
 E|Ee
 EEEI
 AEEE e



T^(a:A)@asA@a&•Aa] |as^aA) c[[]^aD
 O) c[[]^A) |^A[|^a}

V, ^A) *a^a *A[^••E
 RÔT
 VOU^P[EÈI GGÈ E FJHE

ÿa\^A^Sae^DœcPae]c}E[, }A)iiHID

ÛSÄÄ
 Û\] aG ECG^aA^KEÄE
 T[~] a\^c^PÈhÄ

APPENDIX B
SOFTWARE INPUT CALCULATIONS



Code Revisions:	TIA-222-H	IBC 2015
Tower Type:	Monopole	

Wind Inputs:		
Ult. Wind Velocity:	120.0	mph
Live Load Velocity:	30.0	mph
Ice Wind Velocity:	50.0	mph
Base Ice Thickness:	1.00	inches
Mount Centerline:	177.0	ft
Antenna Centerline:	178.0	ft
Exposure Category:	B	
Topo Category:	1	
Risk Category:	II	
Ground Elevation:	379	ft

Wind Calculations:		
K_{zt} :	1.000	Section 2.6.6
K_d :	0.950	
$K_{z-Mount}$:	1.163	Section 2.6.5.2
$K_{z-Antenna}$:	1.165	Section 2.6.5.2
K_{iz} :	1.183	Section 2.6.10
Ice Thickness:	1.183	inches - Section 2.6.10

Without Ice - (psf)	With Ice - (psf)
$(q_z G_h)_{Mount}$: 40.19	$(q_z G_h)_{Mount}$: 6.98
$(q_z G_h)_{Antenna}$: 40.25	$(q_z G_h)_{Antenna}$: 6.99

Seismic Code Revisions:	TIA-222-H
Seismic Risk Category:	II

Seismic Input		
S_{DS} :	0.225	Design Short Period Spectral Accel.
I_p :	1.0	Importance Factor
R_p :	2.0	Response Modification Factor
ρ :	1.0	
A_5 :	1.0	Applification Factor - TIA-222-H Section 2.7.8.1
S_1 :	0.056	Spectral Acceleration at a Period of 1 Second

Seismic Design Force			
Cs:	0.113	kips/kip	TIA-H Sec 2.7.7.1.1
Cs-min:	0.030	kips/kip	TIA-H Sec 2.7.7.1.1



Yankee Lake/East Hampton/Town (876368)
 TEP No. 218229.601930
 Analysis By: JCM 9/24/2021
 Checked By: GHM 9/24/2021

Antenna Loads are Calculated in Accordance with TIA-222-H

Azimuth is the absolute angle measured clockwise from RISA-3D global X-axis.

MFR	Model	Height (in)	Width (in)	Depth (in)	Wt. (lbs)	Azimuth°	Qty	Shape	Member Label	Distance from start node of the member		
										Location #1 (ft,%)	Location #2 (ft,%)	Location #3 (ft,%)
ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	114.63	0.00	1	Flat	MP-4	3.00	5.00	
RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	95.90	24.00	8.50	149.90	0.00	1	Flat	MP-3	1.00	8.00	
ERICSSON	RADIO 4460 B2/B25 B66_TMO	17.00	15.10	11.90	109.00	0.00	1	Flat	MP-4	4.50		
ERICSSON	RADIO 4480_TMOV2	22.00	15.70	7.50	81.00	0.00	1	Flat	MP-3	4.50		
ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	114.63	120.00	1	Flat	MP-8	3.00	5.00	
RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	95.90	24.00	8.50	149.90	120.00	1	Flat	MP-7	1.00	8.00	
ERICSSON	RADIO 4460 B2/B25 B66_TMO	17.00	15.10	11.90	109.00	120.00	1	Flat	MP-8	4.50		
ERICSSON	RADIO 4480_TMOV2	22.00	15.70	7.50	81.00	120.00	1	Flat	MP-7	4.50		
ERICSSON	AIR6449 B41_T-MOBILE	33.11	20.51	8.54	114.63	240.00	1	Flat	MP-12	3.00	5.00	
RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	95.90	24.00	8.50	149.90	240.00	1	Flat	MP-11	1.00	8.00	
ERICSSON	RADIO 4460 B2/B25 B66_TMO	17.00	15.10	11.90	109.00	240.00	1	Flat	MP-12	4.50		
ERICSSON	RADIO 4480_TMOV2	22.00	15.70	7.50	81.00	240.00	1	Flat	MP-11	4.50		



Yankee Lake/East Hampton/Town (876368)

TEP No. 218229.601930
 Analysis By: JCM 9/24/2021
 Checked By: GHM 9/24/2021

Member Forces are Calculated in Accordance with TIA-222-H

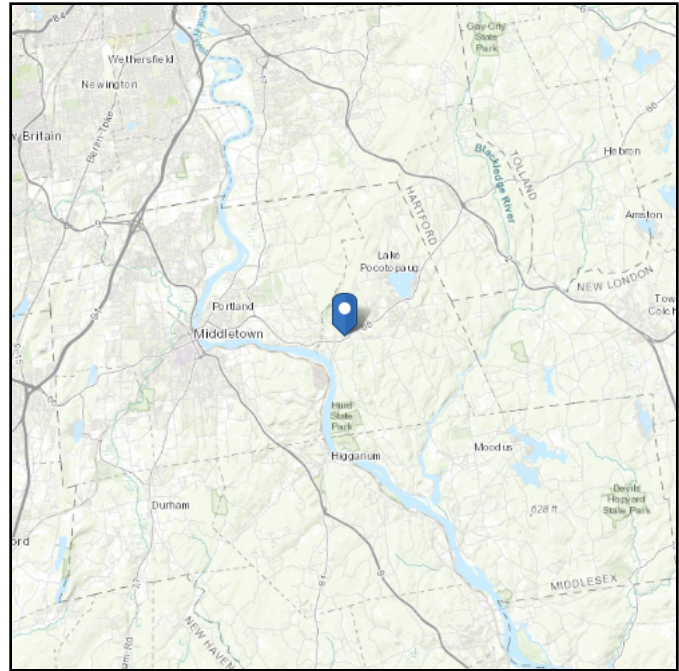
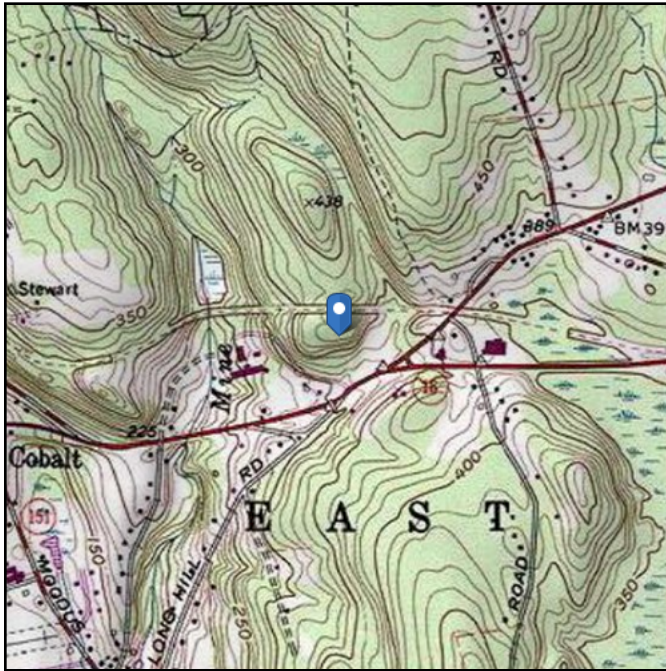
Member Name	Wind Proj. (in)	Length (in)	Shape	θ (°)	Perimeter (in)
CP-1	0.500	16.86	Flat	-30.00	15.00
CP-1U	2.500	11.96	Flat	-30.00	10.00
CP-2	0.500	16.86	Flat	30.00	15.00
CP-2U	2.500	11.96	Flat	30.00	10.00
CP-3	0.500	16.86	Flat	90.00	15.00
CP-3U	2.500	11.96	Flat	90.00	10.00
FF-HR	2.375	150.00	Round	90.00	7.46
FFTH	6.000	156.00	Flat	90.00	19.00
GSI-1	3.500	72.00	Flat	30.00	17.00
GSI-2	3.500	72.00	Flat	-30.00	17.00
GSI-3	3.500	72.00	Flat	90.00	17.00
INT1-P1	5.000	2.00	Flat	30.00	10.75
INT1-P2	5.000	2.00	Flat	30.00	10.75
INT2-P1	5.000	2.00	Flat	90.00	10.75
INT2-P2	5.000	2.00	Flat	90.00	10.75
INT3-P1	5.000	2.00	Flat	-30.00	10.75
INT3-P2	5.000	2.00	Flat	-30.00	10.75
K1	2.500	73.65	Flat		10.00
K2	2.500	73.65	Flat		10.00
K3	2.500	73.65	Flat		10.00
MP-1	2.375	108.00	Round		7.46
MP-2	2.375	72.00	Round		7.46
MP-3	2.375	108.00	Round		7.46
MP-4	2.375	108.00	Round		7.46
MP-5	2.375	108.00	Round		7.46
MP-6	2.375	72.00	Round		7.46
MP-7	2.375	108.00	Round		7.46
MP-8	2.375	108.00	Round		7.46
MP-9	2.375	108.00	Round		7.46
MP-10	2.375	72.00	Round		7.46
MP-11	2.375	108.00	Round		7.46
MP-12	2.375	108.00	Round		7.46
SA-1	4.000	75.00	Flat	-60.00	16.00
SA-2	4.000	75.00	Flat	60.00	16.00
SA-3	4.000	75.00	Flat	0.00	16.00
SF1-HR	2.375	150.00	Round	30.00	7.46
SF1-TH	6.000	156.00	Flat	30.00	19.00
SF2-HR	2.375	150.00	Round	-30.00	7.46
SF2-TH	6.000	156.00	Flat	-30.00	19.00

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 378.98 ft (NAVD 88)
Latitude: 41.564761
Longitude: -72.543106



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

Date Accessed: Thu Sep 23 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

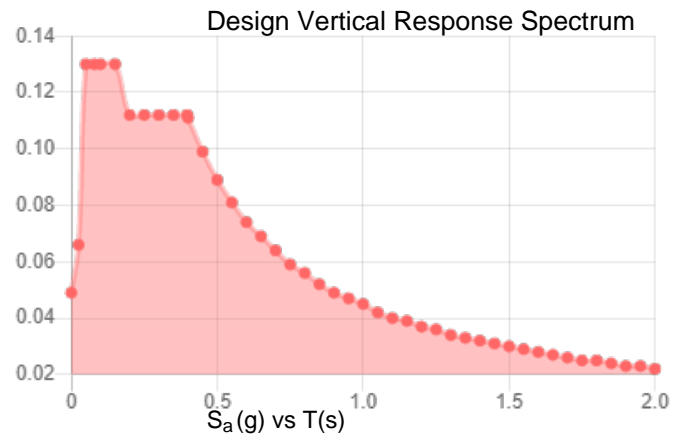
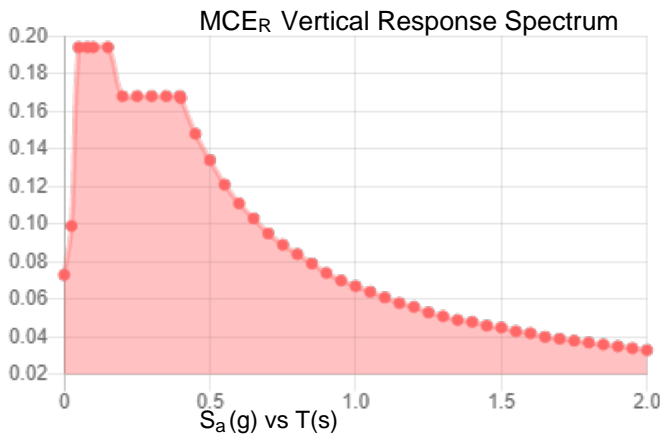
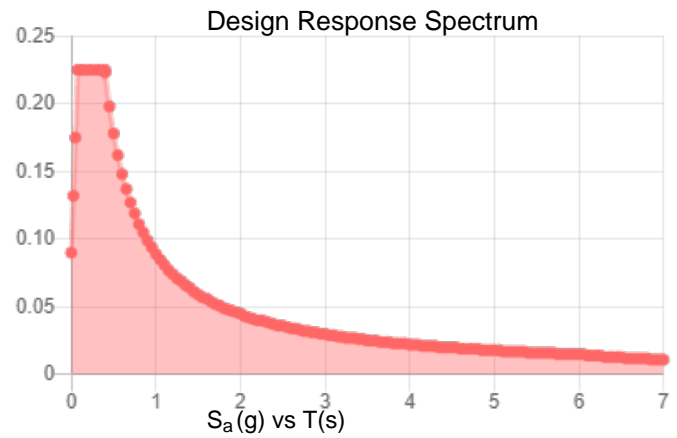
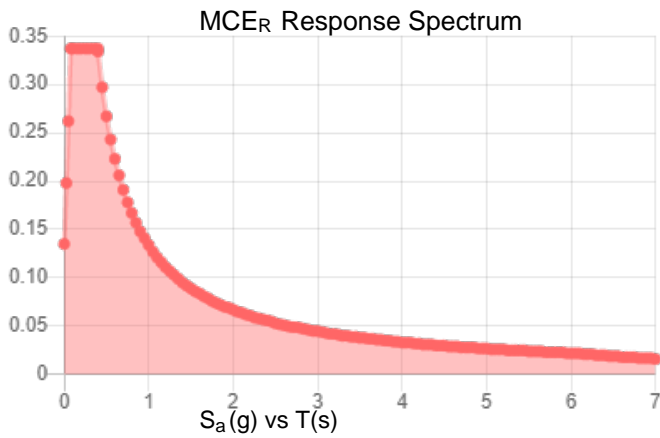
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.211	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.117
F_v :	2.4	PGA _M :	0.184
S_{MS} :	0.337	F_{PGA} :	1.565
S_{M1} :	0.134	I_e :	1
S_{DS} :	0.225	C_v :	0.721

Seismic Design Category B



Data Accessed: Thu Sep 23 2021
Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

Date Accessed: Thu Sep 23 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 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

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

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

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

A Ya Vyf'Dc]bh@UXg'f @ ' : ' \$'K]bX!'Bc ÷WŁ'f'cb]h]bi YXŁ

	T^ { á^! Áæ ^ }	Öá^&çá}	T æ } æ á^ Á Æ Écá	Š } &çá } ŽeĀ á
J	T ÚĚG	Ý	ĚĚ	H
F€	T ÚĚF	Ý	ĚĚJH	F
FF	T ÚĚG	Ý	ĚĚ I	I Ě
FG	T ÚĚF	Ý	ĚĚ J	I Ě
FH	T ÚĚ	Ý	ĚĚ	í
FI	T ÚĚH	Ý	ĚĚJH	í
FÍ	T ÚĚ	Ý	ĚĚHG	í
FĪ	T ÚĚ	Ý	ĚĚ H	í
FĪ	T ÚĚG	Ý	ĚĚ	í
FĪ	T ÚĚF	Ý	ĚĚJH	í
FJ	T ÚĚ	Z	ĚĚ	H
€	T ÚĚH	Z	ĚĚFG	F
Gf	T ÚĚ	Z	ĚĚH	I Ě
Gg	T ÚĚH	Z	ĚĚ I	I Ě
Gh	T ÚĚ	Z	ĚĚF	H
G	T ÚĚ	Z	ĚĚ I	F
Ĝ	T ÚĚ	Z	ĚĚF	I Ě
ĝ	T ÚĚ	Z	ĚĚG	I Ě
Ğ	T ÚĚG	Z	ĚĚ	H
Ġ	T ÚĚF	Z	ĚĚFG	F
GJ	T ÚĚG	Z	ĚĚH	I Ě
H€	T ÚĚF	Z	ĚĚ I	I Ě
HF	T ÚĚ	Z	ĚĚ	í
HG	T ÚĚH	Z	ĚĚFG	í
HH	T ÚĚ	Z	ĚĚF	í
HI	T ÚĚ	Z	ĚĚ I	í
HÍ	T ÚĚG	Z	ĚĚ	í
HĪ	T ÚĚF	Z	ĚĚFG	í

A Ya Vyf'Dc]bh@UXg'f @ (: () 'K]bX!'Bc ÷WŁ

	T^ { á^! Áæ ^ }	Öá^&çá}	T æ } æ á^ Á Æ Écá	Š } &çá } ŽeĀ á
F	T ÚĚ	Ý	ĚĚ I	H
G	T ÚĚH	Ý	ĚĚG	F
H	T ÚĚ	Ý	ĚĚ J	I Ě
I	T ÚĚH	Ý	ĚĚ I	I Ě
Í	T ÚĚ	Ý	ĚĚG	H
Ī	T ÚĚ	Ý	ĚĚ I	F
Ī	T ÚĚ	Ý	ĚĚ I	I Ě
İ	T ÚĚ	Ý	ĚĚH	I Ě
J	T ÚĚG	Ý	ĚĚ I	H
F€	T ÚĚF	Ý	ĚĚH	F
FF	T ÚĚG	Ý	ĚĚJ	I Ě
FG	T ÚĚF	Ý	ĚĚG	I Ě
FH	T ÚĚ	Ý	ĚĚG	í
FI	T ÚĚH	Ý	ĚĚ J	í
FÍ	T ÚĚ	Ý	ĚĚG	í
FĪ	T ÚĚ	Ý	ĚĚ J	í
FĪ	T ÚĚG	Ý	ĚĚ I	í
FĪ	T ÚĚF	Ý	ĚĚH	í
FJ	T ÚĚ	Z	ĚĚ I	H
€	T ÚĚH	Z	ĚĚFG	F
Gf	T ÚĚ	Z	ĚĚ I	I Ě
Gg	T ÚĚH	Z	ĚĚ I	I Ě
Gh	T ÚĚ	Z	ĚĚ I	H
G	T ÚĚ	Z	ĚĚG	F
Ĝ	T ÚĚ	Z	ĚĚ I	I Ě
ĝ	T ÚĚ	Z	ĚĚ I	I Ě
Ğ	T ÚĚG	Z	ĚĚ H	H
Ġ	T ÚĚF	Z	ĚĚH	F
GJ	T ÚĚG	Z	ĚĚ I	I Ě
H€	T ÚĚF	Z	ĚĚJ	I Ě
HF	T ÚĚ	Z	ĚĚ I	í
HG	T ÚĚH	Z	ĚĚG	í

A Ya Vyf'Dc]bh@UXg'f @ (: () 'K]bX!'Bc ÷WŁ'f'cb]h]bi YXŁ

	T^ { á^! Áæ ^ }	Öá^&çá}	T æ } æ á^ Á Æ Écá	Š } &çá } ŽeĀ á
Gf	T ÚĚ	Z	ĚĚ J	I Ě
Gg	T ÚĚH	Z	ĚĚ I	I Ě
Gh	T ÚĚ	Z	ĚĚJ	H
G	T ÚĚ	Z	ĚĚ I	F
Ĝ	T ÚĚ	Z	ĚĚ I	I Ě
ĝ	T ÚĚ	Z	ĚĚH	I Ě
Ğ	T ÚĚG	Z	ĚĚ I	H
Ġ	T ÚĚF	Z	ĚĚ	F
GJ	T ÚĚG	Z	ĚĚ I	I Ě
H€	T ÚĚF	Z	ĚĚ F	I Ě
HF	T ÚĚ	Z	ĚĚ I	í
HG	T ÚĚH	Z	ĚĚG	í
HH	T ÚĚ	Z	ĚĚJ	í
HI	T ÚĚ	Z	ĚĚ I	í
HÍ	T ÚĚG	Z	ĚĚ I	í
HĪ	T ÚĚF	Z	ĚĚ	í

A Ya Vyf'Dc]bh@UXg'f @) : * \$'K]bX!'Bc ÷WŁ

	T^ { á^! Áæ ^ }	Öá^&çá}	T æ } æ á^ Á Æ Écá	Š } &çá } ŽeĀ á
F	T ÚĚ	Ý	ĚĚG	H
G	T ÚĚH	Ý	ĚĚ J	F
H	T ÚĚ	Ý	ĚĚH	I Ě
I	T ÚĚH	Ý	ĚĚHG	I Ě
Í	T ÚĚ	Ý	ĚĚG	H
Ī	T ÚĚ	Ý	ĚĚ J	F
Ī	T ÚĚ	Ý	ĚĚH	I Ě
İ	T ÚĚ	Ý	ĚĚHG	I Ě
J	T ÚĚG	Ý	ĚĚ I	H
F€	T ÚĚF	Ý	ĚĚH	F
FF	T ÚĚG	Ý	ĚĚJ	I Ě
FG	T ÚĚF	Ý	ĚĚG	I Ě
FH	T ÚĚ	Ý	ĚĚG	í
FI	T ÚĚH	Ý	ĚĚ J	í
FÍ	T ÚĚ	Ý	ĚĚG	í
FĪ	T ÚĚ	Ý	ĚĚ J	í
FĪ	T ÚĚG	Ý	ĚĚ I	í
FĪ	T ÚĚF	Ý	ĚĚH	í
FJ	T ÚĚ	Z	ĚĚ I	H
€	T ÚĚH	Z	ĚĚFG	F
Gf	T ÚĚ	Z	ĚĚ I	I Ě
Gg	T ÚĚH	Z	ĚĚ I	I Ě
Gh	T ÚĚ	Z	ĚĚ I	H
G	T ÚĚ	Z	ĚĚG	F
Ĝ	T ÚĚ	Z	ĚĚ I	I Ě
ĝ	T ÚĚ	Z	ĚĚ I	I Ě
Ğ	T ÚĚG	Z	ĚĚ H	H
Ġ	T ÚĚF	Z	ĚĚH	F
GJ	T ÚĚG	Z	ĚĚ I	I Ě
H€	T ÚĚF	Z	ĚĚJ	I Ě
HF	T ÚĚ	Z	ĚĚ I	í
HG	T ÚĚH	Z	ĚĚG	í



Ó([]æ^ K V(, ^!Á) *á^!á *ÁU(-..á) æ ÆQ&E
 Ô^ á}^! K RÖT
 R á^P{ à^! K VÖU^P[ÆFí GGíE €JHE
 T[á^!Pæ^ K Ýæ\ ^^Áæ^Eæ^Pæ] ç}E[,) ÁíííHíD

Ú^] óGí ÆQ&E
 JIGJÁE
 Ó@&^áÁÓ^KÖPT

A Ya Vyf'Dc]bh@UXg'f6 @ ; : %) 'K]bX'! Bc ÷WLF7 cb]bi YXL

	T^ (á^!Áæ^)	Öá^&çá}	T æ) æ á^Z Æ Écá	Š &çá} ŽeĀ á
HÍ	T UĚF	Z	ĚĪ	Ī

A Ya Vyf'Dc]bh@UXg'f6 @ - : %) \$ 'K]bX'! Bc ÷WLF

	T^ (á^!Áæ^)	Öá^&çá}	T æ) æ á^Z Æ Écá	Š &çá} ŽeĀ á
F	T UĚ	Y	Ě	H
G	T UĚH	Y	ĚJH	F
H	T UĚ	Y	ĚI	IĚ
I	T UĚH	Y	ĚJ	IĚ
Í	T UĚ	Y	Ě	H
Ī	T UĚ	Y	ĚJH	F
Ī	T UĚ	Y	ĚI	IĚ
ì	T UĚ	Y	ĚJ	IĚ
J	T UĚG	Y	ĚHG	H
F€	T UĚF	Y	ĚH	F
FF	T UĚG	Y	ĚH	IĚ
FG	T UĚF	Y	ĚI	IĚ
FH	T UĚ	Y	Ě	ì
FI	T UĚH	Y	ĚJH	ì
FÍ	T UĚ	Y	Ě	ì
FĪ	T UĚ	Y	ĚJH	ì
FĪ	T UĚG	Y	ĚHG	ì
FĪ	T UĚF	Y	ĚH	ì
FJ	T UĚ	Z	Ě	H
€	T UĚH	Z	ĚFG	F
GF	T UĚ	Z	ĚH	IĚ
GG	T UĚH	Z	ĚI	IĚ
GH	T UĚ	Z	Ě	H
G	T UĚ	Z	ĚFG	F
G	T UĚ	Z	ĚH	IĚ
G	T UĚ	Z	ĚI	IĚ
G	T UĚG	Z	ĚFI	H
G	T UĚF	Z	ĚI	F
GJ	T UĚG	Z	ĚHF	IĚ
H€	T UĚF	Z	ĚEG	IĚ
HF	T UĚ	Z	Ě	ì
HG	T UĚH	Z	ĚFG	ì
HH	T UĚ	Z	Ě	ì
HI	T UĚ	Z	ĚFG	ì
HÍ	T UĚG	Z	ĚFI	ì
HĪ	T UĚF	Z	ĚI	ì

A Ya Vyf'Dc]bh@UXg'f6 @ %\$. % \$ 'K]bX'! Bc ÷WLF

	T^ (á^!Áæ^)	Öá^&çá}	T æ) æ á^Z Æ Écá	Š &çá} ŽeĀ á
F	T UĚ	Y	ĚJ	H
G	T UĚH	Y	ĚI	F
H	T UĚ	Y	ĚI	IĚ
I	T UĚH	Y	Ě	IĚ
Í	T UĚ	Y	ĚF	H
Ī	T UĚ	Y	ĚHU	F
Ī	T UĚ	Y	ĚI	IĚ
ì	T UĚ	Y	ĚI	IĚ

ÚQÖĚHÖÁ^!á} ĀĪ ĒĒ ĀĀĀĀÖĀ^!á} æ\áD[&{ ^} çáD[, } ā ČĀ^á]á^áííHí]at[~} áU^çPĒĒáUæ^ĀĪ



Ó([]æ^ K V(, ^!Á) *á^!á *ÁU(-..á) æ ÆQ&E
 Ô^ á}^! K RÖT
 R á^P{ à^! K VÖU^P[ÆFí GGíE €JHE
 T[á^!Pæ^ K Ýæ\ ^^Áæ^Eæ^Pæ] ç}E[,) ÁíííHíD

Ú^] óGí ÆQ&E
 JIGJÁE
 Ó@&^áÁÓ^KÖPT

A Ya Vyf'Dc]bh@UXg'f6 @ %\$. % \$ 'K]bX'! Bc ÷WLF7 cb]bi YXL

	T^ (á^!Áæ^)	Öá^&çá}	T æ) æ á^Z Æ Écá	Š &çá} ŽeĀ á
J	T UĚG	Y	ĚF	H
F€	T UĚF	Y	ĚHU	F
FF	T UĚG	Y	ĚI	IĚ
FG	T UĚF	Y	ĚI	IĚ
FH	T UĚ	Y	ĚJ	ì
FI	T UĚH	Y	ĚI	ì
FÍ	T UĚ	Y	ĚF	ì
FĪ	T UĚ	Y	ĚHU	ì
FĪ	T UĚG	Y	ĚF	ì
FĪ	T UĚF	Y	ĚHU	ì

A Ya Vyf'Dc]bh@UXg'f6 @ %\$. % \$ 'K]bX'! Bc ÷WLF

	T^ (á^!Áæ^)	Öá^&çá}	T æ) æ á^Z Æ Écá	Š &çá} ŽeĀ á
F	T UĚ	Y	Ě	H
G	T UĚH	Y	ĚJH	F
H	T UĚ	Y	ĚI	IĚ
I	T UĚH	Y	ĚJ	IĚ
Í	T UĚ	Y	ĚHG	H
Ī	T UĚ	Y	ĚH	F
Ī	T UĚ	Y	ĚH	IĚ
ì	T UĚ	Y	ĚI	IĚ
J	T UĚG	Y	Ě	H
F€	T UĚF	Y	ĚJH	F
FF	T UĚG	Y	ĚI	IĚ
FG	T UĚF	Y	ĚJ	IĚ
FH	T UĚ	Y	Ě	ì
FI	T UĚH	Y	ĚJH	ì
FÍ	T UĚ	Y	ĚHG	ì
FĪ	T UĚ	Y	ĚH	ì
FĪ	T UĚG	Y	Ě	ì
FĪ	T UĚF	Y	ĚJH	ì
FJ	T UĚ	Z	Ě	H
€	T UĚH	Z	ĚFG	F
GF	T UĚ	Z	ĚH	IĚ
GG	T UĚH	Z	ĚI	IĚ
GH	T UĚ	Z	ĚFI	H
G	T UĚ	Z	ĚI	F
G	T UĚ	Z	ĚHF	IĚ
G	T UĚ	Z	ĚG	IĚ
G	T UĚG	Z	Ě	H
G	T UĚF	Z	ĚFG	F
GJ	T UĚG	Z	ĚH	IĚ
H€	T UĚF	Z	ĚI	IĚ
HF	T UĚ	Z	Ě	ì
HG	T UĚH	Z	ĚFG	ì
HH	T UĚ	Z	ĚFI	ì
HI	T UĚ	Z	ĚI	ì
HÍ	T UĚG	Z	Ě	ì
HĪ	T UĚF	Z	ĚFG	ì

ÚQÖĚHÖÁ^!á} ĀĪ ĒĒ ĀĀĀĀÖĀ^!á} æ\áD[&{ ^} çáD[, } ā ČĀ^á]á^áííHí]at[~} áU^çPĒĒáUæ^ĀĪ

A Ya Vyf'Dc]bhi@UXg'f6 @ '&+. % \$ 'K jX'! =ML'f7 cbljbi YXL

	T^ { á^!Pæ^ }	Öá^&á}	T æ) æ á^Z Æ Écá	Š &æ} ŽeĀ á
F	T ÚË	Ý	ÆGF	H
G	T ÚËH	Ý	ÆH	F
H	T ÚË	Ý	ÆFÍ	I Æ
I	T ÚËH	Ý	ÆGH	I Æ
Í	T ÚË	Ý	ÆGF	H
Ī	T ÚË	Ý	ÆH	F
İ	T ÚË	Ý	ÆFÍ	I Æ
ì	T ÚË	Ý	ÆGH	I Æ
J	T ÚËG	Ý	ÆGF	H
F€	T ÚËF	Ý	ÆH	F
FF	T ÚËG	Ý	ÆFÍ	I Æ
FG	T ÚËF	Ý	ÆGH	I Æ
FH	T ÚË	Ý	ÆGF	I
FI	T ÚËH	Ý	ÆH	I
FÍ	T ÚË	Ý	ÆGF	I
FĪ	T ÚË	Ý	ÆH	I
Fİ	T ÚËG	Ý	ÆGF	I
Fì	T ÚËF	Ý	ÆH	I

A Ya Vyf'Dc]bhi@UXg'f6 @ '& : . &\$ 'K jX'! =ML

	T^ { á^!Pæ^ }	Öá^&á}	T æ) æ á^Z Æ Écá	Š &æ} ŽeĀ á
F	T ÚË	Ý	ÆFÍ	H
G	T ÚËH	Ý	ÆH	F
H	T ÚË	Ý	ÆFÍ	I Æ
I	T ÚËH	Ý	ÆFÍ	I Æ
Í	T ÚË	Ý	ÆG	H
Ī	T ÚË	Ý	ÆG	F
İ	T ÚË	Ý	ÆFH	I Æ
ì	T ÚË	Ý	ÆFF	I Æ
J	T ÚËG	Ý	ÆFÍ	H
F€	T ÚËF	Ý	ÆH	F
FF	T ÚËG	Ý	ÆFÍ	I Æ
FG	T ÚËF	Ý	ÆFÍ	I Æ
FH	T ÚË	Ý	ÆFÍ	I
FI	T ÚËH	Ý	ÆH	I
FÍ	T ÚË	Ý	ÆG	I
FĪ	T ÚËG	Ý	ÆFÍ	I
Fİ	T ÚËF	Ý	ÆH	I
FJ	T ÚË	Z	ÆG	H
G€	T ÚËH	Z	ÆGH	F
Gf	T ÚË	Z	ÆG	I Æ
Gg	T ÚËH	Z	ÆF	I Æ
Gh	T ÚË	Z	ÆG	H
Gı	T ÚË	Z	ÆFÍ	F
Gİ	T ÚË	Z	ÆG	I Æ
Gì	T ÚË	Z	ÆG	I Æ
Gĵ	T ÚËG	Z	ÆG	H
Gĸ	T ÚËF	Z	ÆH	F
Gġ	T ÚËG	Z	ÆFG	I Æ
H€	T ÚËF	Z	ÆFÍ	I Æ
Hf	T ÚË	Z	ÆFF	I
Hg	T ÚËH	Z	ÆG	I
Hh	T ÚË	Z	ÆG	I
Hi	T ÚË	Z	ÆFÍ	I
Hı	T ÚËG	Z	ÆFÍ	I
Hİ	T ÚËF	Z	ÆH	I

A Ya Vyf'Dc]bhi@UXg'f6 @ '& : . &\$ 'K jX'! =ML'f7 cbljbi YXL

	T^ { á^!Pæ^ }	Öá^&á}	T æ) æ á^Z Æ Écá	Š &æ} ŽeĀ á
HF	T ÚË	Z	ÆG	I
HG	T ÚËH	Z	ÆGH	I
HH	T ÚË	Z	ÆG	I
HI	T ÚË	Z	ÆFG	I
HÍ	T ÚËG	Z	ÆG	I
HĪ	T ÚËF	Z	ÆGH	I

A Ya Vyf'Dc]bhi@UXg'f6 @ '& : . && 'K jX'! =ML

	T^ { á^!Pæ^ }	Öá^&á}	T æ) æ á^Z Æ Écá	Š &æ} ŽeĀ á
F	T ÚË	Ý	ÆFF	H
G	T ÚËH	Ý	ÆG	F
H	T ÚË	Ý	ÆFF	I Æ
I	T ÚËH	Ý	ÆFH	I Æ
Í	T ÚË	Ý	ÆG	H
Ī	T ÚË	Ý	ÆFÍ	F
İ	T ÚË	Ý	ÆF	I Æ
ì	T ÚË	Ý	ÆG	I Æ
J	T ÚËG	Ý	ÆFÍ	H
F€	T ÚËF	Ý	ÆH	F
FF	T ÚËG	Ý	ÆFG	I Æ
FG	T ÚËF	Ý	ÆFÍ	I Æ
FH	T ÚË	Ý	ÆFF	I
FI	T ÚËH	Ý	ÆG	I
FÍ	T ÚË	Ý	ÆG	I
FĪ	T ÚË	Ý	ÆFÍ	I
Fİ	T ÚËG	Ý	ÆFÍ	I
Fì	T ÚËF	Ý	ÆH	I
FJ	T ÚË	Z	ÆFF	H
G€	T ÚËH	Z	ÆG	F
Gf	T ÚË	Z	ÆFF	I Æ
Gg	T ÚËH	Z	ÆFH	I Æ
Gh	T ÚË	Z	ÆG	H
Gı	T ÚË	Z	ÆFÍ	F
Gİ	T ÚË	Z	ÆG	I Æ
Gì	T ÚËG	Z	ÆFÍ	H
Gĵ	T ÚËF	Z	ÆH	F
Gĸ	T ÚËG	Z	ÆFG	I Æ
H€	T ÚËF	Z	ÆFÍ	I Æ
Hf	T ÚË	Z	ÆFF	I
Hg	T ÚËH	Z	ÆG	I
Hh	T ÚË	Z	ÆG	I
Hi	T ÚË	Z	ÆFÍ	I
Hı	T ÚËG	Z	ÆFÍ	I
Hİ	T ÚËF	Z	ÆH	I

A Ya Vyf'Dc]bhi@UXg'f6 @ ' " \$: & (\$ 'K jX'! =ML

	T^ { á^!Pæ^ }	Öá^&á}	T æ) æ á^Z Æ Écá	Š &æ} ŽeĀ á
F	T ÚË	Ý	ÆG	H
G	T ÚËH	Ý	ÆFÍ	F
H	T ÚË	Ý	ÆG	I Æ

A Ya Vyf Dc Jbh @ UXg f6 @ ' , : GYga JW @ UK'NL'f c bh bi YXL

	T^ (à^!Áæ^ ^)	Öá^&çá}	T æ} æ á^Z ÉÉçá	Š } &çá} ŽčÁ á
F€	T ÚÉF	Z	ÉÉÍ	F
FF	T ÚÉG	Z	ÉÉÉ	I É
FG	T ÚÉF	Z	ÉÉF	I É
FH	T ÚÉ	Z	ÉÉÍ	
FI	T ÚÉH	Z	ÉÉÍ	
FÍ	T ÚÉ	Z	ÉÉÍ	
FĪ	T ÚÉ	Z	ÉÉÍ	
Fİ	T ÚÉG	Z	ÉÉÍ	
Fİ	T ÚÉF	Z	ÉÉÍ	

A Ya Vyf 8 Jgh JVI hYX' @ UXg f6 @ ' & . \$ K JbX' Bc ÷WL

	T^ (à^!Áæ^ ^)	Öá^&çá}	Úçæ^Á æ} æ á^Z ÉÉçá} áÁ æ} æ á^Z ÉÉçá} Úçæ^Á } &çá} ŽčÁ á	Ó) áÁ } &çá} ŽčÁ á	
F	ÓÚÉ	Ý	ÉÉÉF	É	Á FEE
G	ÓÚÉW	Ý	ÉÉÉ	É	Á FEE
H	ÓÚÉG	Ý	ÉÉÉF	É	Á FEE
I	ÓÚÉW	Ý	ÉÉÉ	É	Á FEE
Í	ÓÚÉH	Ý	ÉÉÉH	É	Á FEE
Ī	ÓÚÉW	Ý	ÉÉÉ	É	Á FEE
İ	ØØP Ü	Ý	ÉÉÉJ	É	Á FEE
İ	ØØP	Ý	ÉÉÉ	É	Á FEE
J	ÓÚÉ	Ý	ÉÉÉ	É	Á FEE
F€	ÓÚÉG	Ý	ÉÉÉ	É	Á FEE
FF	ÓÚÉH	Ý	ÉÉÉ	É	Á FEE
FG	ØVFÉÚF	Ý	ÉÉÉJ	É	Á FEE
FH	ØVFÉÚG	Ý	ÉÉÉJ	É	Á FEE
FI	ØVGÉÚF	Ý	ÉÉÉF	É	Á FEE
FÍ	ØVGÉÚG	Ý	ÉÉÉF	É	Á FEE
FĪ	ØVHÉÚF	Ý	ÉÉÉJ	É	Á FEE
Fİ	ØVHÉÚG	Ý	ÉÉÉJ	É	Á FEE
Fİ	SF	Ý	ÉÉÉF	É	Á FEE
FJ	SG	Ý	ÉÉÉF	É	Á FEE
G€	SH	Ý	ÉÉÉF	É	Á FEE
GF	T ÚÉ	Ý	ÉÉÉJ	É	Á FEE
GG	T ÚÉG	Ý	ÉÉÉJ	É	Á FEE
GH	T ÚÉH	Ý	ÉÉÉJ	É	Á FEE
G	T ÚÉ	Ý	ÉÉÉJ	É	Á FEE
Ĝ	T ÚÉ	Ý	ÉÉÉJ	É	Á FEE
GĪ	T ÚÉ	Ý	ÉÉÉJ	É	Á FEE
Gİ	T ÚÉ	Ý	ÉÉÉJ	É	Á FEE
GJ	T ÚÉ	Ý	ÉÉÉJ	É	Á FEE
HE	T ÚÉ€	Ý	ÉÉÉJ	É	Á FEE
HF	T ÚÉF	Ý	ÉÉÉJ	É	Á FEE
HG	T ÚÉG	Ý	ÉÉÉJ	É	Á FEE
HH	ÚØÉ	Ý	ÉÉÉF	É	Á FEE
HI	ÚØÉG	Ý	ÉÉÉF	É	Á FEE
HÍ	ÚØÉH	Ý	É	É	Á FEE
HĪ	ÚØÉP Ü	Ý	ÉÉÉ	É	Á FEE
Hİ	ÚØÉV P	Ý	ÉÉÉF	É	Á FEE
Hİ	ÚØÉP Ü	Ý	ÉÉÉ	É	Á FEE
Hİ	ÚØÉP Ü	Ý	ÉÉÉ	É	Á FEE

A Ya Vyf 8 Jgh JVI hYX' @ UXg f6 @ ' & . \$ K JbX' Bc ÷WL'f c bh bi YXL

	T^ (à^!Áæ^ ^)	Öá^&çá}	Úçæ^Á æ} æ á^Z ÉÉçá} áÁ æ} æ á^Z ÉÉçá} Úçæ^Á } &çá} ŽčÁ á	Ó) áÁ } &çá} ŽčÁ á	
HU	ÚØÉV P	Ý	ÉÉÉF	É	Á FEE

A Ya Vyf 8 Jgh JVI hYX' @ UXg f6 @ ' , : \$ K JbX' Bc ÷WL

	T^ (à^!Áæ^ ^)	Öá^&çá}	Úçæ^Á æ} æ á^Z ÉÉçá} áÁ æ} æ á^Z ÉÉçá} Úçæ^Á } &çá} ŽčÁ á	Ó) áÁ } &çá} ŽčÁ á	
F	ÓÚÉ	Ý	É	É	Á FEE
G	ÓÚÉW	Ý	É	É	Á FEE
H	ÓÚÉG	Ý	ÉÉÉG	ÉÉÉG	Á FEE
I	ÓÚÉW	Ý	ÉÉÉ	ÉÉÉ	Á FEE
Í	ÓÚÉH	Ý	ÉÉÉG	ÉÉÉG	Á FEE
Ī	ÓÚÉW	Ý	ÉÉÉ	ÉÉÉ	Á FEE
İ	ØØP Ü	Ý	ÉÉÉ	ÉÉÉ	Á FEE
İ	ØØP	Ý	ÉÉÉ	ÉÉÉ	Á FEE
J	ÓÚÉ	Ý	ÉÉFG	ÉÉFG	Á FEE
F€	ÓÚÉG	Ý	É	É	Á FEE
FF	ÓÚÉH	Ý	ÉÉFÍ	ÉÉFÍ	Á FEE
FG	ØVFÉÚF	Ý	ÉÉFÍ	ÉÉFÍ	Á FEE
FH	ØVFÉÚG	Ý	ÉÉFÍ	ÉÉFÍ	Á FEE
FI	ØVGÉÚF	Ý	ÉÉFÍ	ÉÉFÍ	Á FEE
FÍ	ØVGÉÚG	Ý	ÉÉFÍ	ÉÉFÍ	Á FEE
FĪ	ØVHÉÚF	Ý	É	É	Á FEE
Fİ	ØVHÉÚG	Ý	É	É	Á FEE
Fİ	SF	Ý	ÉÉFH	ÉÉFH	Á FEE
FJ	SG	Ý	ÉÉFH	ÉÉFH	Á FEE
G€	SH	Ý	ÉÉFH	ÉÉFH	Á FEE
GF	T ÚÉ	Ý	ÉÉÉ	ÉÉÉ	Á FEE
GG	T ÚÉG	Ý	ÉÉÉ	ÉÉÉ	Á FEE
GH	T ÚÉH	Ý	ÉÉÉ	ÉÉÉ	Á FEE
G	T ÚÉ	Ý	ÉÉÉ	ÉÉÉ	Á FEE
Ĝ	T ÚÉ	Ý	ÉÉÉ	ÉÉÉ	Á FEE
GĪ	T ÚÉ	Ý	ÉÉÉ	ÉÉÉ	Á FEE
Gİ	T ÚÉ	Ý	ÉÉÉ	ÉÉÉ	Á FEE
GJ	T ÚÉ	Ý	ÉÉÉ	ÉÉÉ	Á FEE
HE	T ÚÉ€	Ý	ÉÉÉ	ÉÉÉ	Á FEE
HF	T ÚÉF	Ý	ÉÉÉ	ÉÉÉ	Á FEE
HG	T ÚÉG	Ý	ÉÉÉ	ÉÉÉ	Á FEE
HH	ÚØÉ	Ý	ÉÉÉJ	ÉÉÉJ	Á FEE
HI	ÚØÉG	Ý	ÉÉÉF	ÉÉÉF	Á FEE
HÍ	ÚØÉH	Ý	ÉÉÉ	ÉÉÉ	Á FEE
HĪ	ÚØÉP Ü	Ý	ÉÉÉ	ÉÉÉ	Á FEE
Hİ	ÚØÉV P	Ý	ÉÉÉG	ÉÉÉG	Á FEE
Hİ	ÚØÉP Ü	Ý	É	É	Á FEE
Hİ	ÚØÉP Ü	Ý	É	É	Á FEE
I€	ÓÚÉ	Z	É	É	Á FEE
IF	ÓÚÉW	Z	É	É	Á FEE
IG	ÓÚÉG	Z	ÉÉÉF	ÉÉÉF	Á FEE
IH	ÓÚÉW	Z	ÉÉÉ	ÉÉÉ	Á FEE
II	ÓÚÉH	Z	ÉÉÉF	ÉÉÉF	Á FEE
IĪ	ÓÚÉW	Z	ÉÉÉ	ÉÉÉ	Á FEE
Iİ	ØØP Ü	Z	ÉÉÉ	ÉÉÉ	Á FEE
Iİ	ØØP	Z	ÉÉÉF	ÉÉÉF	Á FEE



Ó({ }æ^ Ó^•ã}^!
 R{ã^•{ à^!
 T[à^|ã^ ^

K V(, ^!Á) *ã^!ã *ÁU(-••ã) æ^ ÉQ&É
 K RÖT
 K VÖUã| ÉFÍ GGÍÉ ÉJHE
 K Ýæ\ ^^ãã ^Éæ oPæ] ç}ÉV(,) Áj i i H i D

Ù^] óG ÉæCF
 JKGJÁÉF
 Ó@&^ãÁÓ^KÓPT



Ó({ }æ^ Ó^•ã}^!
 R{ã^•{ à^!
 T[à^|ã^ ^

K V(, ^!Á) *ã^!ã *ÁU(-••ã) æ^ ÉQ&É
 K RÖT
 K VÖUã| ÉFÍ GGÍÉ ÉJHE
 K Ýæ\ ^^ãã ^Éæ oPæ] ç}ÉV(,) Áj i i H i D

Ù^] óG ÉæCF
 JKGJÁÉF
 Ó@&^ãÁÓ^KÓPT

A Ya Vyf'8 jgh|vi hyx' @ UXg fb @ % : & \$ K jbx'! Bc ðML'f7 cbfjbi YXL

	T^ { à^ ã^ ^	Öã^&çã}	ÚcæoÁ æ} æ à^Z ÉæíÉÖ) áÁ æ} æ à^Z ÉæíÉÉ	ÚcæoÁ } &æç} Žcã á	Ò) áÁ } &æç} Žcã á	
H	ÚÖÉG	Ý	ÉÉJ	ÉÉJ	€	Á FEE
Hí	ÚÖÉH	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
Hí	ÚÖÉPÚ	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
Hí	ÚÖÉV/P	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
Hí	ÚÖÉPÚ	Ý	ÉÉG	ÉÉG	€	Á FEE
HU	ÚÖÉV/P	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
I €	ÓÚÉF	Z	ÉÉF	ÉÉF	€	Á FEE
I F	ÓÚÉW	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I G	ÓÚÉG	Z	ÉÉH	ÉÉH	€	Á FEE
I H	ÓÚÉW	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I I	ÓÚÉH	Z	ÉÉF	ÉÉF	€	Á FEE
I í	ÓÚÉW	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I î	ÓÖPÚ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I ï	ÓÖV/P	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I j	ÓÚÉG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I €	ÓÚÉH	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I F	ÓVÉÚF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I G	ÓVÉÚG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I H	ÓVÉÚF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I I	ÓVÉÚG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I í	ÓVÉÚF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I î	ÓVÉÚG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I ï	SF	Z	ÉÉH	ÉÉH	€	Á FEE
I j	SG	Z	ÉÉH	ÉÉH	€	Á FEE
I J	SH	Z	ÉÉH	ÉÉH	€	Á FEE
I €	T ÚÉF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I F	T ÚÉG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I G	T ÚÉH	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I H	T ÚÉ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I I	T ÚÉ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I í	T ÚÉ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I î	T ÚÉ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I ï	T ÚÉ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I J	T ÚÉ€	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I €	T ÚÉF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I F	T ÚÉG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I G	ÚÖÉF	Z	€	€	€	Á FEE
I H	ÚÖÉG	Z	ÉÉH	ÉÉH	€	Á FEE
I I	ÚÖÉH	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I í	ÚÖÉPÚ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I î	ÚÖÉV/P	Z	ÉÉH	ÉÉH	€	Á FEE
I ï	ÚÖÉPÚ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I j	ÚÖÉV/P	Z	ÉÉÍ	ÉÉÍ	€	Á FEE

A Ya Vyf'8 jgh|vi hyx' @ UXg fb @ % : & \$ K jbx'! Bc ðML

	T^ { à^ ã^ ^	Öã^&çã}	ÚcæoÁ æ} æ à^Z ÉæíÉÖ) áÁ æ} æ à^Z ÉæíÉÉ	ÚcæoÁ } &æç} Žcã á	Ò) áÁ } &æç} Žcã á	
F	ÓÚÉF	Z	ÉÉH	ÉÉH	€	Á FEE
G	ÓÚÉW	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
H	ÓÚÉG	Z	ÉÉH	ÉÉH	€	Á FEE

ÚÖÉHÖã^!•ã} ÁÉ ÉÉÉ ÉÉÉÉÖã^!•ã} æ^•ã] & { ^} óã] (,) á Öã^!ã} •ã} i i H i at [^ } ó^çP ÉHãÁÚæ^Á J

A Ya Vyf'8 jgh|vi hyx' @ UXg fb @ % : & \$ K jbx'! Bc ðML'f7 cbfjbi YXL

	T^ { à^ ã^ ^	Öã^&çã}	ÚcæoÁ æ} æ à^Z ÉæíÉÖ) áÁ æ} æ à^Z ÉæíÉÉ	ÚcæoÁ } &æç} Žcã á	Ò) áÁ } &æç} Žcã á	
I	ÓÚÉW	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
I	ÓÚÉH	Z	€	€	€	Á FEE
I	ÓÚÉW	Z	€	€	€	Á FEE
I	ÓÖPÚ	Z	€	€	€	Á FEE
I	ÓÖV/P	Z	€	€	€	Á FEE
J	ÓÚÉF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
F €	ÓÚÉG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
FF	ÓÚÉH	Z	€	€	€	Á FEE
FG	ÓVÉÚF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
FH	ÓVÉÚG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
FI	ÓVÉÚF	Z	€	€	€	Á FEE
Fí	ÓVÉÚG	Z	€	€	€	Á FEE
Fî	ÓVÉÚF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
Fï	ÓVÉÚG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
Fj	SF	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
Fj	SG	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
G €	SH	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
GF	T ÚÉF	Z	ÉÉJ	ÉÉJ	€	Á FEE
GG	T ÚÉG	Z	ÉÉJ	ÉÉJ	€	Á FEE
GH	T ÚÉH	Z	ÉÉJ	ÉÉJ	€	Á FEE
GI	T ÚÉ	Z	ÉÉJ	ÉÉJ	€	Á FEE
Gí	T ÚÉ	Z	ÉÉJ	ÉÉJ	€	Á FEE
Gî	T ÚÉ	Z	ÉÉJ	ÉÉJ	€	Á FEE
Gï	T ÚÉ	Z	ÉÉJ	ÉÉJ	€	Á FEE
Gj	T ÚÉ	Z	ÉÉJ	ÉÉJ	€	Á FEE
H €	T ÚÉ€	Z	ÉÉJ	ÉÉJ	€	Á FEE
HF	T ÚÉF	Z	ÉÉJ	ÉÉJ	€	Á FEE
HG	T ÚÉG	Z	ÉÉJ	ÉÉJ	€	Á FEE
HH	ÚÖÉF	Z	ÉÉJ	ÉÉJ	€	Á FEE
HI	ÚÖÉG	Z	ÉÉJ	ÉÉJ	€	Á FEE
Hí	ÚÖÉH	Z	ÉÉG	ÉÉG	€	Á FEE
Hí	ÚÖÉPÚ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
Hí	ÚÖÉV/P	Z	ÉÉH	ÉÉH	€	Á FEE
Hí	ÚÖÉPÚ	Z	ÉÉÍ	ÉÉÍ	€	Á FEE
HU	ÚÖÉV/P	Z	ÉÉH	ÉÉH	€	Á FEE

A Ya Vyf'8 jgh|vi hyx' @ UXg fb @ % : & \$ K jbx'! Bc ðML

	T^ { à^ ã^ ^	Öã^&çã}	ÚcæoÁ æ} æ à^Z ÉæíÉÖ) áÁ æ} æ à^Z ÉæíÉÉ	ÚcæoÁ } &æç} Žcã á	Ò) áÁ } &æç} Žcã á	
F	ÓÚÉF	Ý	ÉÉF	ÉÉF	€	Á FEE
G	ÓÚÉW	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
H	ÓÚÉG	Ý	ÉÉÉ í F	ÉÉÉ í F	€	Á FEE
I	ÓÚÉW	Ý	ÉÉG	ÉÉG	€	Á FEE
I	ÓÚÉH	Ý	ÉÉÉ í H	ÉÉÉ í H	€	Á FEE
I	ÓÚÉW	Ý	ÉÉG	ÉÉG	€	Á FEE
I	ÓÖPÚ	Ý	ÉÉG	ÉÉG	€	Á FEE
I	ÓÖV/P	Ý	ÉÉJ	ÉÉJ	€	Á FEE
J	ÓÚÉF	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
F €	ÓÚÉG	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
FF	ÓÚÉH	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE
FG	ÓVÉÚF	Ý	ÉÉÍ	ÉÉÍ	€	Á FEE

ÚÖÉHÖã^!•ã} ÁÉ ÉÉÉ ÉÉÉÉÖã^!•ã} æ^•ã] & { ^} óã] (,) á Öã^!ã} •ã} i i H i at [^ } ó^çP ÉHãÁÚæ^Á €

APPENDIX D
ADDITIONAL CALCULATIONS



Yankee Lake/East Hampton/Town (876368)

TEP No. 218229.601930

Analysis By: JCM 9/24/2021

Checked By: GHM 9/24/2021

Moment Bolt Group - Support Arm

Code Revisions:	ANSI/TIA-222-H
Bolt Type:	Headed Bolts

Connection Inputs:

Bolt Size:	0.625	in
# Bolts:	4	
Plate Width:	8.50	in
Plate Height:	8.50	in
Bolt H Gap:	6.00	in
Bolt V Gap:	6.00	in
Plate T:	0.750	in
Slip Member Ø:	N/A	in
Bolt Grade:	A325N	

Capacities:

Bolt Capacity=	8.9%	PASS
Plate Capacity=	8.4%	PASS

Bolt Properties:

$F_{y_{bolt}}$:	92.0	ksi
$F_{u_{bolt}}$:	120.0	ksi
r:	4.2	in
J:	72.0	in ⁴ /in ²
A_{bolt} :	0.3	in ²
$A_{bolt, Net Tensile}$:	0.2	in ²
Pretension:	19.0	kips

Member Properties:

Member Shape:	Flat	
Plate F_y :	36.0	ksi
Plate F_u :	58.0	ksi
Member Height:	4.0	in
Member Width:	4.0	in

Exhibit F

Power Density/RF Emissions Report

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

T-Mobile Existing Facility

Site ID: CTHA696A

876368

I Public Works Drive
East Hampton, Connecticut 06032

November 17, 2021

EBI Project Number: 6221006880

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	15.43%

November 17, 2021

T-Mobile

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

Emissions Analysis for Site: CTHA696A - 876368

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1 Public Works Drive in East Hampton, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1 Public Works Drive in East Hampton, 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 Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 8) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 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.

- 14) The antenna mounting height centerline of the proposed antennas is 178 feet above ground level (AGL).
- 15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	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 / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	178 feet	Height (AGL):	178 feet	Height (AGL):	178 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	2.87%	Antenna B1 MPE %:	2.87%	Antenna C1 MPE %:	2.87%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	178 feet	Height (AGL):	178 feet	Height (AGL):	178 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	4.42%	Antenna B2 MPE %:	4.42%	Antenna C2 MPE %:	4.42%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	7.29%
Town	0.14%
AT&T	4.17%
Verizon	3.47%
Nextel	0.36%
Site Total MPE % :	15.43%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	7.29%
T-Mobile Sector B Total:	7.29%
T-Mobile Sector C Total:	7.29%
Site Total MPE % :	15.43%

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	178.0	1.44	600 MHz LTE	400	0.36%
T-Mobile 600 MHz NR	1	1577.94	178.0	1.92	600 MHz NR	400	0.48%
T-Mobile 700 MHz LTE	2	695.22	178.0	1.69	700 MHz LTE	467	0.36%
T-Mobile 1900 MHz GSM	4	1052.26	178.0	5.11	1900 MHz GSM	1000	0.51%
T-Mobile 1900 MHz LTE	2	2104.51	178.0	5.11	1900 MHz LTE	1000	0.51%
T-Mobile 2100 MHz LTE	2	2649.42	178.0	6.44	2100 MHz LTE	1000	0.64%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	178.0	13.42	2500 MHz LTE IC & 2C Traffic	1000	1.34%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	178.0	1.31	2500 MHz LTE IC & 2C Broadcast	1000	0.13%
T-Mobile 2500 MHz NR Traffic	1	22089.26	178.0	26.84	2500 MHz NR Traffic	1000	2.68%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	178.0	2.61	2500 MHz NR Broadcast	1000	0.26%
						Total:	7.29%

• 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:	7.29%
Sector B:	7.29%
Sector C:	7.29%
T-Mobile Maximum MPE % (Sector A):	7.29%
Site Total:	15.43%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **15.43%** 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.

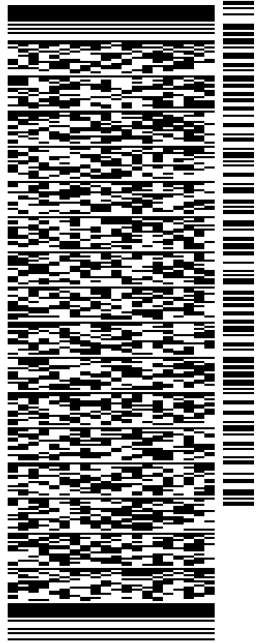
ORIGIN ID:QFEMA (551) 804-0667
 ERSILIA DAVIS
 1777 SENTRY PARKWAY
 VEVA 17, SUITE 210
 BLUE BELL, PA 19422
 UNITED STATES US

SHIP DATE: 19NOV21
 ACTWGT: 1.00 LB
 CAD: 108980334INNET4400

BILL SENDER

TO **MELANIE A. BACHMAN**
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE

NEW BRITAIN CT 06051
 (860) 827-2935 REF: 100789/CSC EAST HAMPTON
 INV: DEPT:
 PO:



56DJ29A7E/FE4A

TRK# 7752 6409 6879
 0201
 MON - 22 NOV 11:30A
 PRIORITY OVERNIGHT

XE BDLA
 06051
 CT-US BDL

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.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.