



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

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

August 25th, 2022

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

RE: **Notice of Exempt Modification for Verizon Wireless
Crown Site ID #881541; Verizon Site ID #468476
700 Grassy Hill Road, Orange, CT 06030
Latitude: 41° 17' 7.75" / Longitude: -72° 2' 33.27"**

Dear Ms. Bachman:

Verizon currently maintains (15) antennas at the 120-foot mounts on the existing 140-foot Monopole Tower located at **700 Grassy Hill Road, Orange**. The property is owned by GOIS Holdings of Connecticut LLC and the Tower by the Town of Orange. Verizon now intends to replace (9) 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) Amphenol BXA 171063-8BF-EDIN Antennas (**REMOVE**) (3) JMA 91900314-02 Antennas (**REPLACE**)

(3) Amphenol BXA 70063-6CF Antennas (**REMOVE**) (6) JMA MX06FRO660-03 Antennas (**REPLACE**)

(3) RYMSA- MGD3-800 TO Antennas (**REMOVE**) (3) Samsung – MT6407-77A

(1) OVP-6 (**REMOVE**)

(3) Nokia – UHID B4 RRH 2x40 RRHs (**REMOVE**)

(1) 6x12 Hybriflex cable (**REMOVE**) (1) 12x24 Hybrid Cable (**REPLACE**)

INSTALL

(3) Samsung B5/B13 RRH ORAN RRH's

(3) Samsung B2/B66A RRH ORAN RRHs

Ground:

REMOVE

(3) Nokia UHBC B13 TRDU 2x40 RRHs

The Facility was approved by the Connecticut Siting Council in Docket No. 262 on January 12, 2004. The approval was given with conditions which this exempt modification comply with.

The Foundation for a Wireless World.

CrownCastle.com



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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 James M. Zeoli, First Selectman & Property Owner, and Jack Demirjian, Zoning Administrator & Enforcement Officer.

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, Verizon 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,

Katie Adams

Katie Adams
Crown Castle, Agent for Verizon Wireless
kadams@nbcllc.com
(781) 392-7547



1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

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

cc:

James M. Zeoli, First Selectman & Property Owner
Orange Town Hall
617 Orange Center Road
Orange, CT 06477

Jack Demirjian, Zoning Administrator & Enforcement Officer
Orange Town Hall
617 Orange Center Road
Orange, CT 06477

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 10:14 AM
To: Katie Adams
Subject: FedEx Shipment 777765889210: Your package has been delivered



Hi. Your package was
delivered Fri, 08/26/2022 at
10:03am.



Delivered to 617 ORANGE CENTER RDSELEC, ORANGE, CT 06477
Received by A.DENNY

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [777765889210](#)

FROM NB+C
100 Apollo Drive
Suite 303
CHELMSFORD, MA, US, 01824

TO Orange Town Hall
James M. Zeoli, First Selectman
617 Orange Center Road
ORANGE, CT, US, 06477

REFERENCE 100788 - CSC
1

Katie Adams

From: TrackingUpdates@fedex.com
Sent: Friday, August 26, 2022 10:20 AM
To: Katie Adams
Subject: FedEx Shipment 777765906076: Your package has been delivered



Hi. Your package was
delivered Fri, 08/26/2022 at
10:09am.



Delivered to 617 ORANGE CENTER RD, ORANGE, CT 06477
Received by J.JACK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	777765906076
FROM	NB+C 100 Apollo Drive Suite 303 CHELMSFORD, MA, US, 01824
TO	Orange Town Hall Jack Demirjian, Zoning 617 Orange Center Road ORANGE, CT, US, 06477
REFERENCE	100788 - CSC 1

Exhibit A

Original Facility Approval

Connecticut Siting Council

Decisions

DOCKET NO. 262 - Sprint Spectrum, L.P. d/b/a Sprint	}	Connecticut
PCS application for a Certificate of Environmental	}	
Compatibility and Public Need for the construction,	}	Siting
maintenance and operation of a wireless telecommunications	}	
facility at 707 Cranberry Lane or off of Grassy Hill Road,	}	Council
Orange, Connecticut.	}	
	}	January 12, 2004

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a wireless telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Sprint Spectrum, L.P. d/b/a Sprint PCS (Sprint) for the construction, maintenance and operation of a wireless telecommunications facility at Site C off of Grassy Hill Road, Orange, Connecticut. The Council denies certification of Site A located at 707 Cranberry Lane and Site B located off of Grassy Hill Road, Orange, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Sprint and other entities, both public and private, but such tower shall not exceed a height of 140 feet above ground level, with a total overall height of 143 feet above ground level including appurtenances. Antennas to be installed on the tower shall be on a T-bar antenna platform or flush mounted.
2. The Certificate Holder shall prepare a D&M Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower location, tower foundation, antennas, equipment building, access road, provisions for underground utilities, utility line, and landscaping; and
 - b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power densities of all proposed entities'

antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
6. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function.
8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The New Haven Register, the Amity Observer and The Bulletin (Orange).

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

The parties and intervenors to this proceeding are:

Applicant

Sprint Spectrum, L.P. d/b/a Sprint PCS

-

Intervenor

AT&T Wireless PCS, LLC d/b/a AT&T Wireless

Its Representative

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

Its Representative

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, NY 10601

Intervenor

Cellco Partnership d/b/a Verizon Wireless

Its Representative

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

Content Last Modified on 1/15/2004 8:25:11 AM

Exhibit B

Property Card

700 GRASSY HILL RD

Location 700 GRASSY HILL RD

Mblu 60/ 6/ 1A/ I

Acct# 00182505

Owner TOWN OF ORANGE

Assessment \$119,300

Appraisal \$170,400

PID 5703

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$13,500	\$156,900	\$170,400
Assessment			
Valuation Year	Improvements	Land	Total
2017	\$9,500	\$109,800	\$119,300

Owner of Record

Owner TOWN OF ORANGE

Sale Price \$25,000

Co-Owner

Certificate

Address 617 ORANGE CENTER ROAD
ORANGE, CT 06477

Book & Page 0520/0156

Sale Date 05/28/2004

Instrument 00

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TOWN OF ORANGE	\$25,000		0520/0156	00	05/28/2004
SCHEN JULIA ROGERS & SAYLOR ELLEN &	\$0		0/0		

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

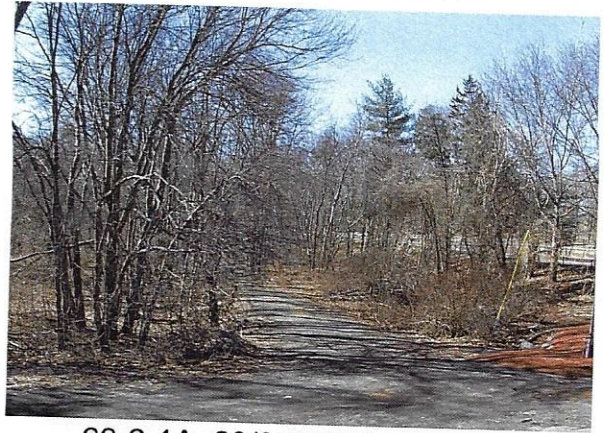
Replacement Cost

Less Depreciation: \$0

Building Attributes

Field	Description
Style	Outbuildings
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Floor 1	
Interior Floor 2	
Heat Fuel	
Heat Type	
AC Type	
Bedrooms	
Full Baths	
Half Baths	
Extra Fixtures	
Total Rooms	
Bathrm Style	
Kitchen Style	
Stacks	
Fireplace(S)	
Gas Fireplace(s)	
Attic	
Frame	
Traffic	
Bsmt Gar(s)	
Fireplaces	
SF FBM	
SF Rec Rm	
Basement_2	
Bsmt Floor	
Fndtn Cndtn	
Basement	

Building Photo



60-6-1A 03/05/2017

(<http://images.vgsi.com/photos/OrangeCTPhotos/A00\01\70\98.JPG>)

Building Layout

 Building Layout

(http://images.vgsi.com/photos/OrangeCTPhotos/Sketches/5703_5703.jpg)

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 510E
Description Exempt Vac
Zone RES
Neighborhood 010
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 0.62
Frontage
Depth
Assessed Value \$109,800
Appraised Value \$156,900

Outbuildings

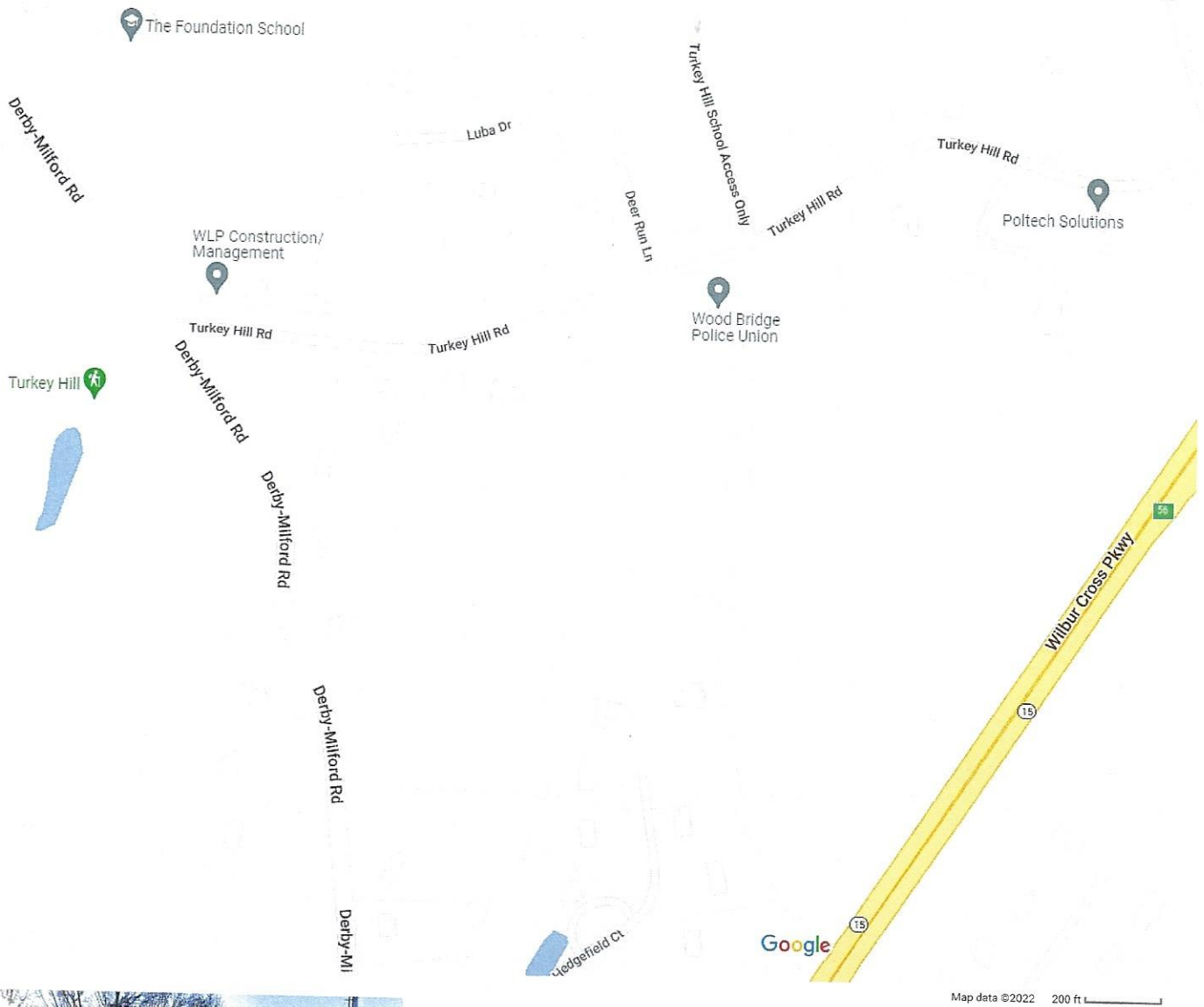
Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD7	Cell Shed			240.00 UNITS	\$13,500	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$13,500	\$156,900	\$170,400
2019	\$13,500	\$156,900	\$170,400
2018	\$13,500	\$156,900	\$170,400

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$9,500	\$109,800	\$119,300
2019	\$9,500	\$109,800	\$119,300
2018	\$9,500	\$109,800	\$119,300

700 Grassy Hill Rd



700 Grassy Hill Rd

Orange, CT 06477
Building

- Directions
- Save
- Nearby
- Send to your phone
- Share

Photos

Exhibit C

Construction Drawings



VERIZON SITE NUMBER:

468476

VERIZON SITE NAME:

ORANGE 3 CT

SITE TYPE:

MONOPOLE

TOWER HEIGHT:

139'-6"

BUSINESS UNIT #:

881541

SITE ADDRESS:

700 GRASSY HILL ROAD

COUNTY:

ORANGE, CT 06477

JURISDICTION:

NEW HAVEN

CONNECTICUT SITING COUNCIL

VERIZON 850 ADD

verizon

180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CC

CROWN
CASTLE

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP

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

VERIZON SITE NUMBER:
468476

BU #: 881541
ROGERS PROPERTY

700 GRASSY HILL ROAD
ORANGE, CT 06477

EXISTING 139'-6" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/18/22	TDG	CONSTRUCTION	LR



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23
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:	REVISION:
T-1	0

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	ROGERS PROPERTY
SITE ADDRESS:	700 GRASSY HILL ROAD ORANGE, CT 06477
COUNTY:	NEW HAVEN
MAP/PARCEL #:	60-6-1A
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.285486°
LONGITUDE:	-73.042583°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	108'
CURRENT ZONING:	RES
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TOWN OF ORANGE 617 ORANGE CENTER ROAD ORANGE, CT 06477
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	VERIZON WIRELESS 180 WASHINGTON VALLEY ROAD BEDMINSTER, NJ 07921
ELECTRIC PROVIDER:	UNITED ILLUMINATING CO. 800-722-5584
TELCO PROVIDER:	LIGHTTOWER 855-91-FIBER

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS MARVIN.PHILLIPS@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 WILLIAM GATES - PROJECT MANAGER WILLIAM.GATES@CROWNCastle.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCastle.COM
VERIZON CONTACT:	TIMOTHY PARKS TIMOTHY.PARKS@VERIZONWIRELESS.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	EQUIPMENT SCHEDULES
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT DETAILS
C-6	PLUMBING DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	SPECIFICATION PER MOUNT ANALYSIS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR
FULL SIZE. 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.

APPROVALS

SIGNATURE	DATE
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT	https://pmi.vxwsmart.com
SMART TOOL VENDOR	
PROJECT NUMBER	10141840
VzW LOCATION CODE (PSLC)	468476

*** PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT
ANALYSIS REPORT

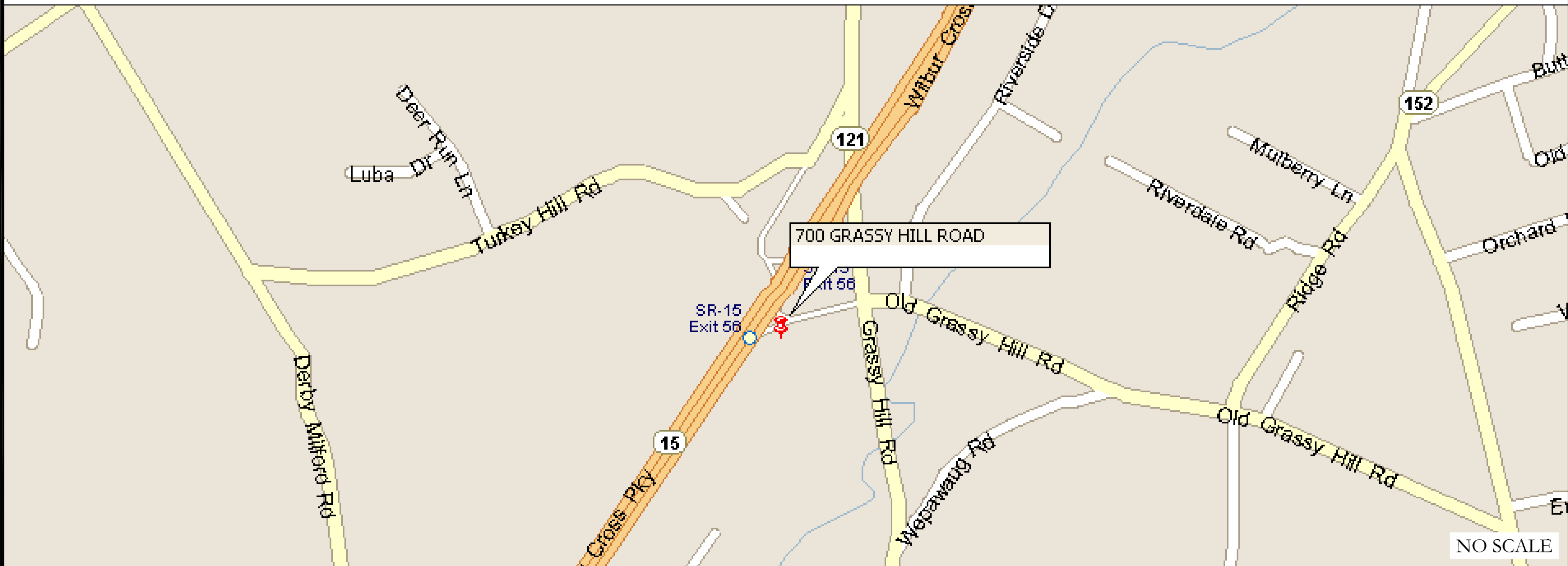
MOUNT MODIFICATION REQUIRED

Y

VzW APPROVED SMART KIT VENDORS

REFER TO MOUNT MODIFICATION DRAWINGS PAGE FOR
VzW SMART KIT APPROVED VENDORS

LOCATION MAP



DRIVING DIRECTIONS FROM VERIZON LOCAL OFFICE (1621 BOSTON POST RD, MILFORD, CT 06460)

HEAD SOUTHWEST TOWARD BOSTON POST RD. TURN RIGHT TOWARD BOSTON POST RD. TURN LEFT ONTO BOSTON POST RD. TURN RIGHT ONTO
WOODRUFF RD. PASS BY MATTRESS FIRM DIRECT MILFORD (ON THE RIGHT). TURN RIGHT ONTO NORTH ST. TURN LEFT ONTO FLAX MILL LN.
TURN LEFT ONTO W RIVER ST. TURN RIGHT ONTO WOLF HARBOR RD. TURN RIGHT TO MERGE WITH CT-15 N TOWARD. MERGE WITH CT-15 N. TAKE
EXIT 56 FOR CT-121 TOWARD ORANGE. DESTINATION WILL BE ON THE RIGHT.

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 SBC/IBC 2015
MECHANICAL	2018 CONNECTICUT SBC/IMC 2015
ELECTRICAL	2018 CONNECTICUT SBC/NEC 2017

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	7/5/22
MOUNT ANALYSIS:	MASER CONSULTING
DATED:	5/24/22
RFDS REVISION:	-
DATED:	5/17/22
ORDER ID:	623008
REVISION:	2



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



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 (3) AMPHENOL - BXA-171063-8BF-EDIN-0 ANTENNAS
- REMOVE (3) AMPHENOL - BXA-70063-6CF ANTENNAS
- REMOVE (3) RYMSA - MGD3-800TO ANTENNAS
- REMOVE (1) OVP-6
- REMOVE (3) NOKIA - UHID B4 RRH 2X40 RRHs
- REMOVE (1) 6X12 HYBRIFLEX CABLE
- INSTALL MOUNT MODIFICATIONS PER MOUNT ANALYSIS BY
MASER CONSULTING DATED MAY 24, 2022
- INSTALL (3) JMA - 91900314-02 DUAL ANTENNA MOUNTS
- INSTALL (6) JMA - MX06FRO660-03 ANTENNAS
- INSTALL (3) SAMSUNG - MT6407-77A ANTENNAS
- INSTALL (3) SAMSUNG - B5/B13 RRH ORAN RRHs
- INSTALL (3) SAMSUNG - B2/B66A RRH ORAN RRHs
- INSTALL (1) RAYCAP - RVZDC-6627-PF-48 OVP
- INSTALL (1) 12X24 HYBRID CABLE

GROUND SCOPE OF WORK:

- REMOVE (3) NOKIA - UHBC B13 TRDU 2X40 RRHs

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

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GREENFIELD GROUNDING NOTES:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

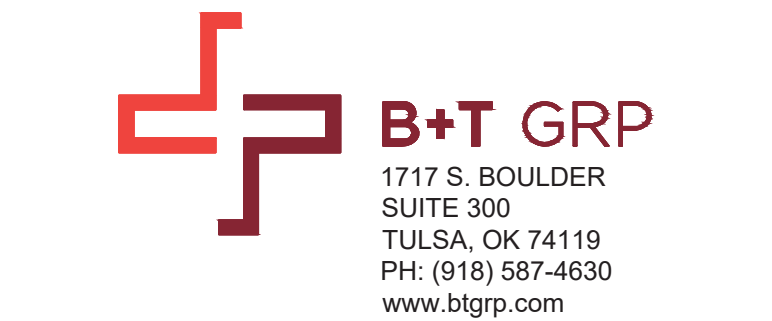
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
-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

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

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

ABBREVIATIONS:

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



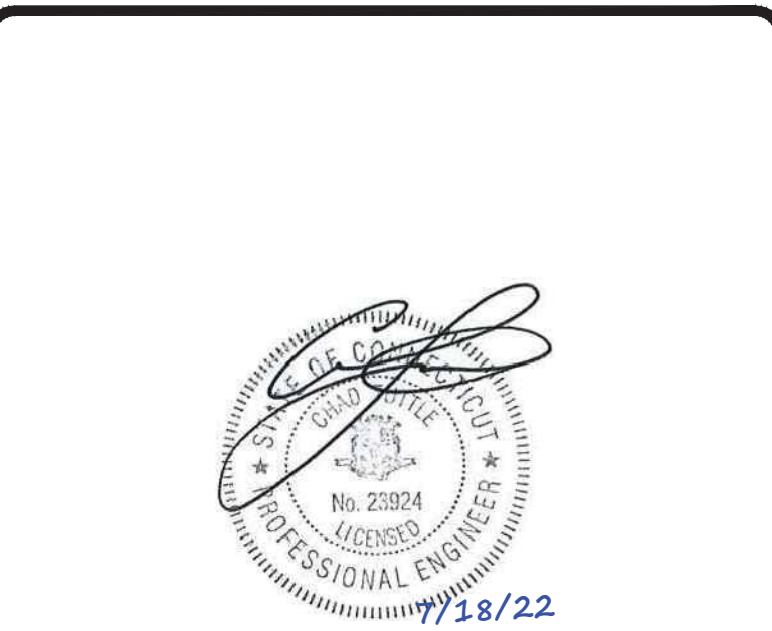
VERIZON SITE NUMBER:
468476

BU #: 881541
ROGERS PROPERTY

700 GRASSY HILL ROAD
ORANGE, CT 06477

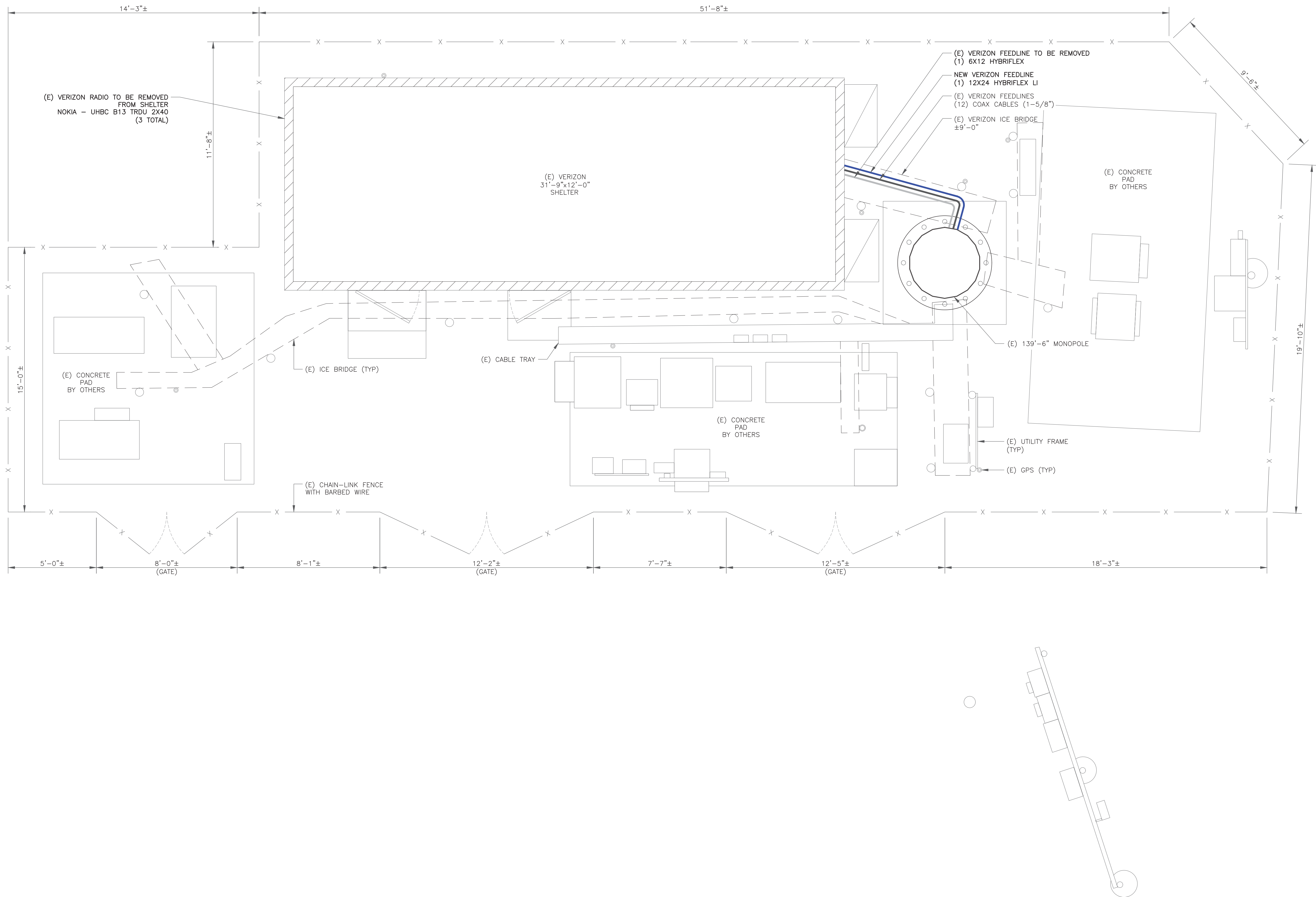
EXISTING 139'-6" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/18/22	TDG	CONSTRUCTION	LR



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23
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-2
REVISION:
0



180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065



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

VERIZON SITE NUMBER:
468476

BU #: **881541**
ROGERS PROPERTY

700 GRASSY HILL ROAD
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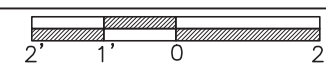
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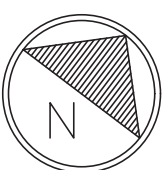
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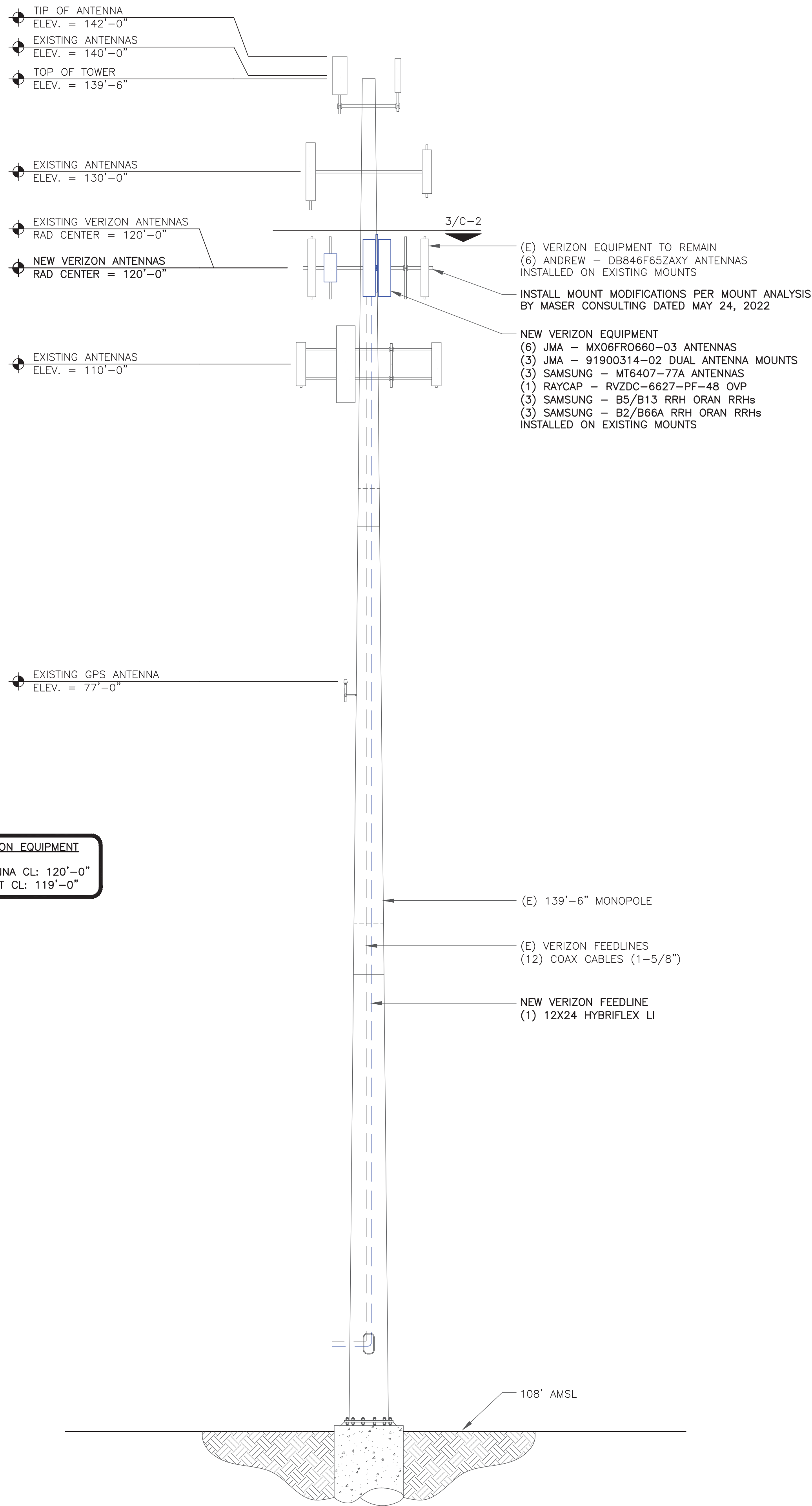
1 SITE PLAN

SCALE:

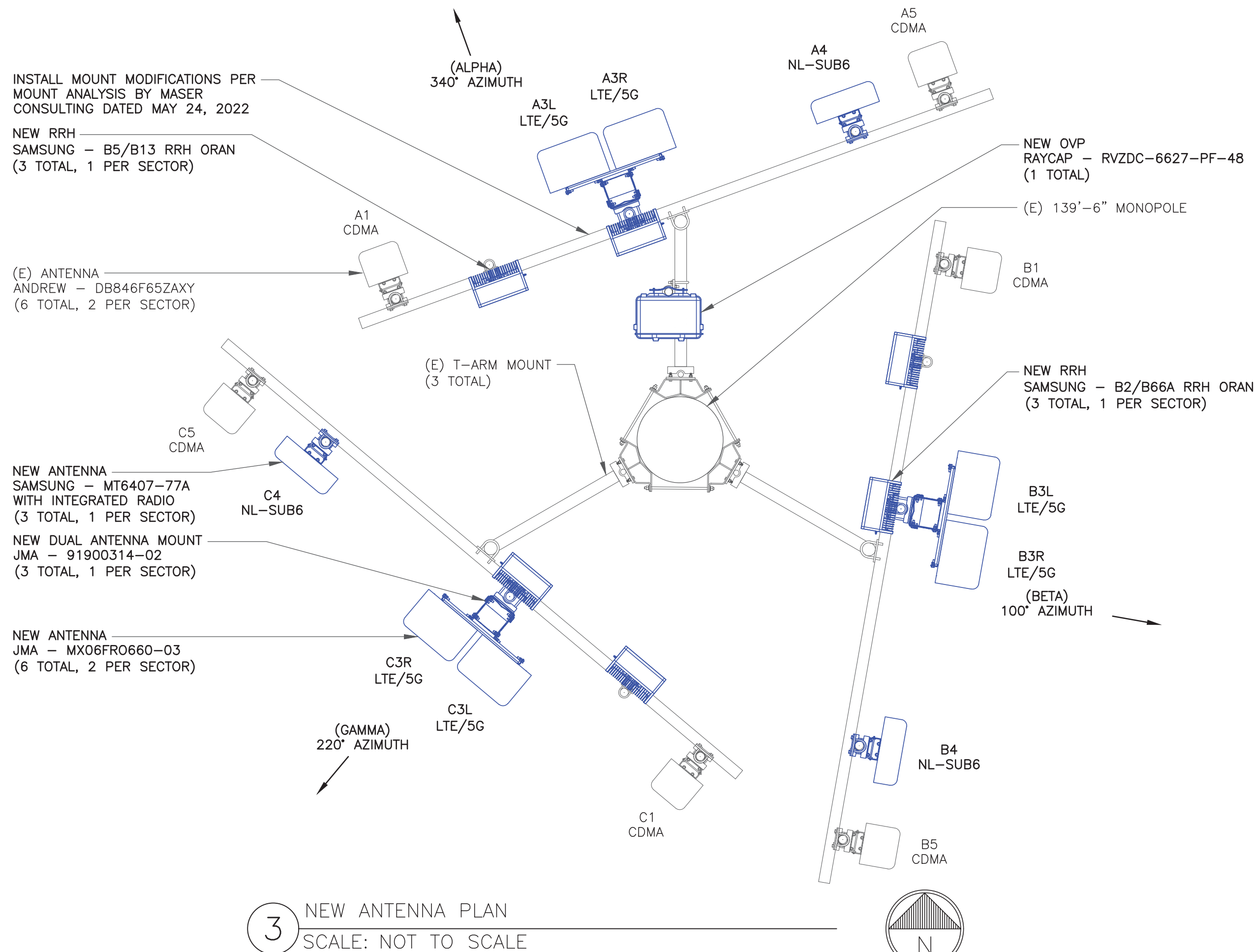
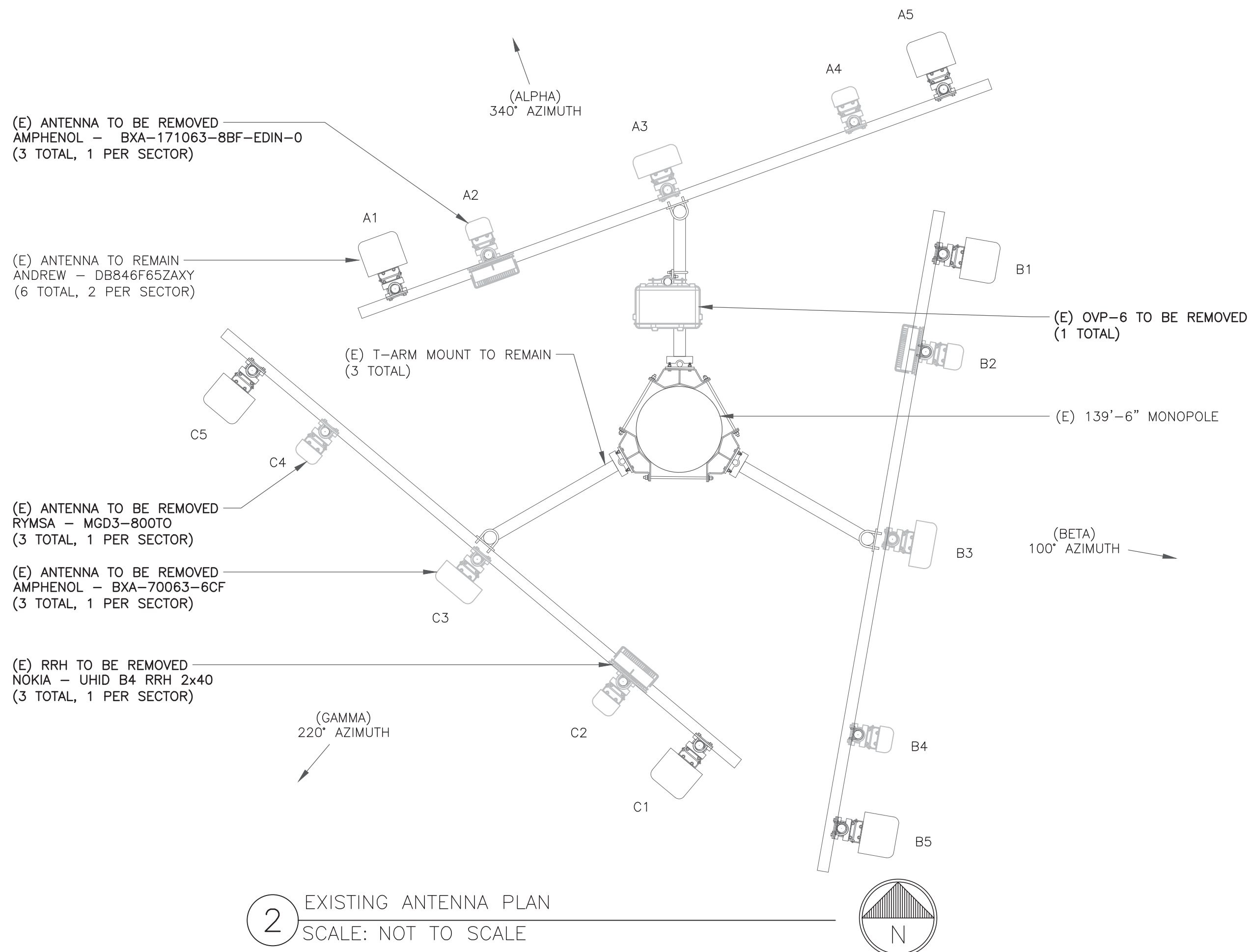


3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)





1 TOWER ELEVATION
SCALE: NOT TO SCALE



verizon

180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

**CROWN
CASTLE**

3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP

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

VERIZON SITE NUMBER:
468476

BU #: **881541**
ROGERS PROPERTY

700 GRASSY HILL ROAD
ORANGE, CT 06477

EXISTING 139'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	7/18/22	TDG	CONSTRUCTION	LR



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C-2

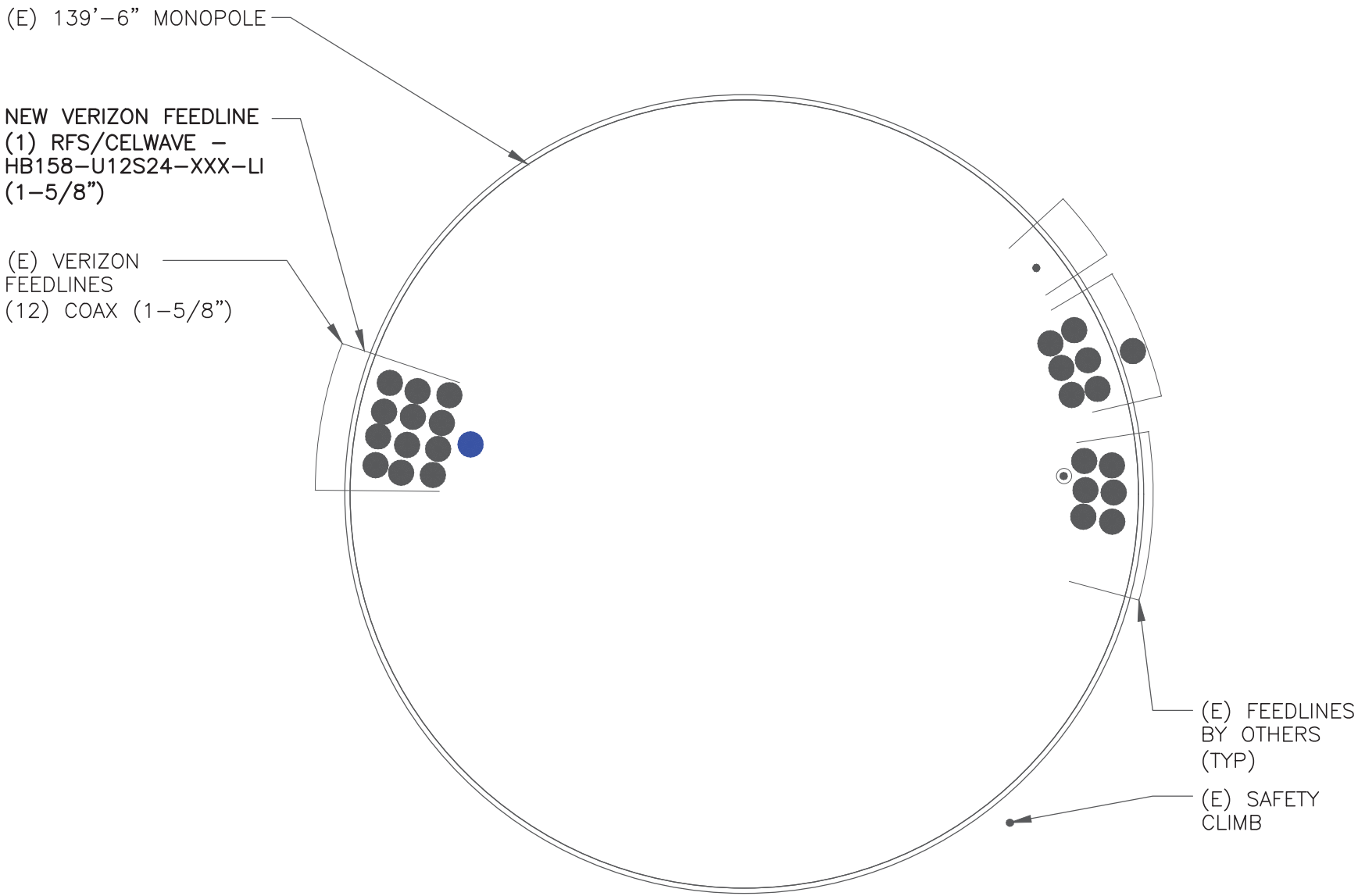
REVISION:

0

ANTENNA/RRH SCHEDULE									
SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	ANDREW	DB846F65ZAXY	120'–0"	340°	0°	0°	–	–
A2	–	–	–	–	–	–	–	SAMSUNG	(1) B5/B13 RRH ORAN
A3L	NEW	JMA	MX06FRO660–03	120'–0"	340°	0°	2' / 2' / 2' / 0° / 0°	SAMSUNG	(1) B2/B66A RRH ORAN
A3R	NEW	JMA	MX06FRO660–03	120'–0"	340°	0°	2' / 2' / 2' / 0° / 0°		
A4	NEW	SAMSUNG	MT6407–77A	120'–0"	340°	0°	6°	–	INTEGRATED RRH
A5	EXISTING	ANDREW	DB846F65ZAXY	120'–0"	340°	0°	0°	RAYCAP	(1) RVZDC–6627–PF–48 OVP
B1	EXISTING	ANDREW	DB846F65ZAXY	120'–0"	100°	0°	0°	–	–
B2	–	–	–	–	–	–	–	SAMSUNG	(1) B5/B13 RRH ORAN
B3L	NEW	JMA	MX06FRO660–03	120'–0"	100°	0°	2' / 2' / 2' / 0° / 0°	SAMSUNG	(1) B2/B66A RRH ORAN
B3R	NEW	JMA	MX06FRO660–03	120'–0"	100°	0°	2' / 2' / 2' / 0° / 0°		
B4	NEW	SAMSUNG	MT6407–77A	120'–0"	100°	0°	6°	–	INTEGRATED RRH
B5	EXISTING	ANDREW	DB846F65ZAXY	120'–0"	100°	0°	0°	–	–
C1	EXISTING	ANDREW	DB846F65ZAXY	120'–0"	220°	0°	0°	–	–
C2	–	–	–	–	–	–	–	SAMSUNG	(1) B5/B13 RRH ORAN
C3L	NEW	JMA	MX06FRO660–03	120'–0"	220°	0°	2' / 2' / 2' / 0° / 0°	SAMSUNG	(1) B2/B66A RRH ORAN
C3R	NEW	JMA	MX06FRO660–03	120'–0"	220°	0°	2' / 2' / 2' / 0° / 0°		
C4	NEW	SAMSUNG	MT6407–77A	120'–0"	220°	0°	6°	–	INTEGRATED RRH
C5	EXISTING	ANDREW	DB846F65ZAXY	120'–0"	220°	0°	0°	–	–


1 VERIZON TOWER EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

CABLE SCHEDULE				
STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1–5/8"	169'–0"±	12
NEW	HYBRID	12X24	169'–0"±	1
TOTAL CABLE QTY:				13




2 BASE LEVEL DETAIL
SCALE: NOT TO SCALE






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VERIZON SITE NUMBER:
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BU #: 881541
ROGERS PROPERTY

700 GRASSY HILL ROAD
ORANGE, CT 06477

EXISTING 139'-6" MONOPOLE

ISSUED FOR:				
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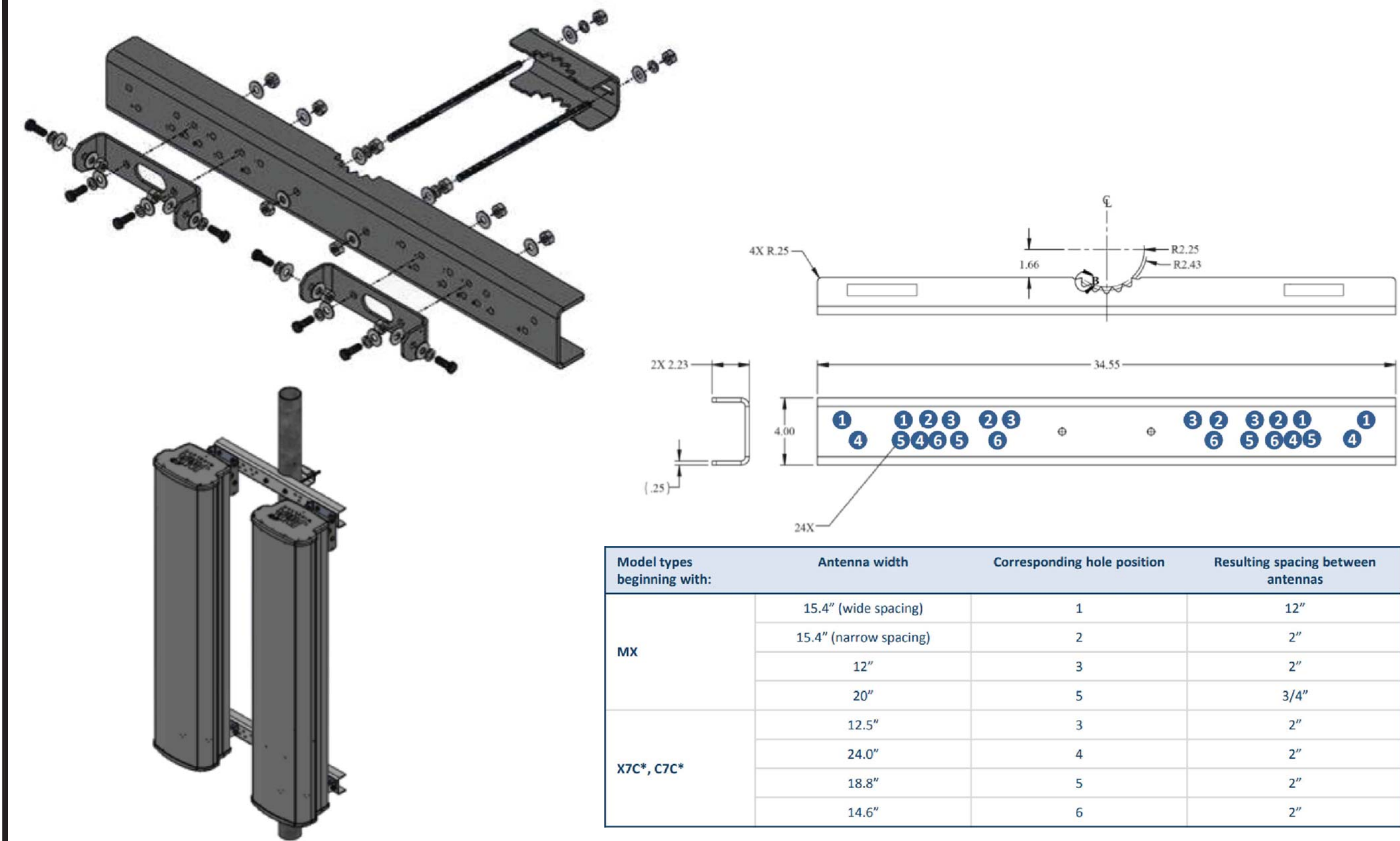
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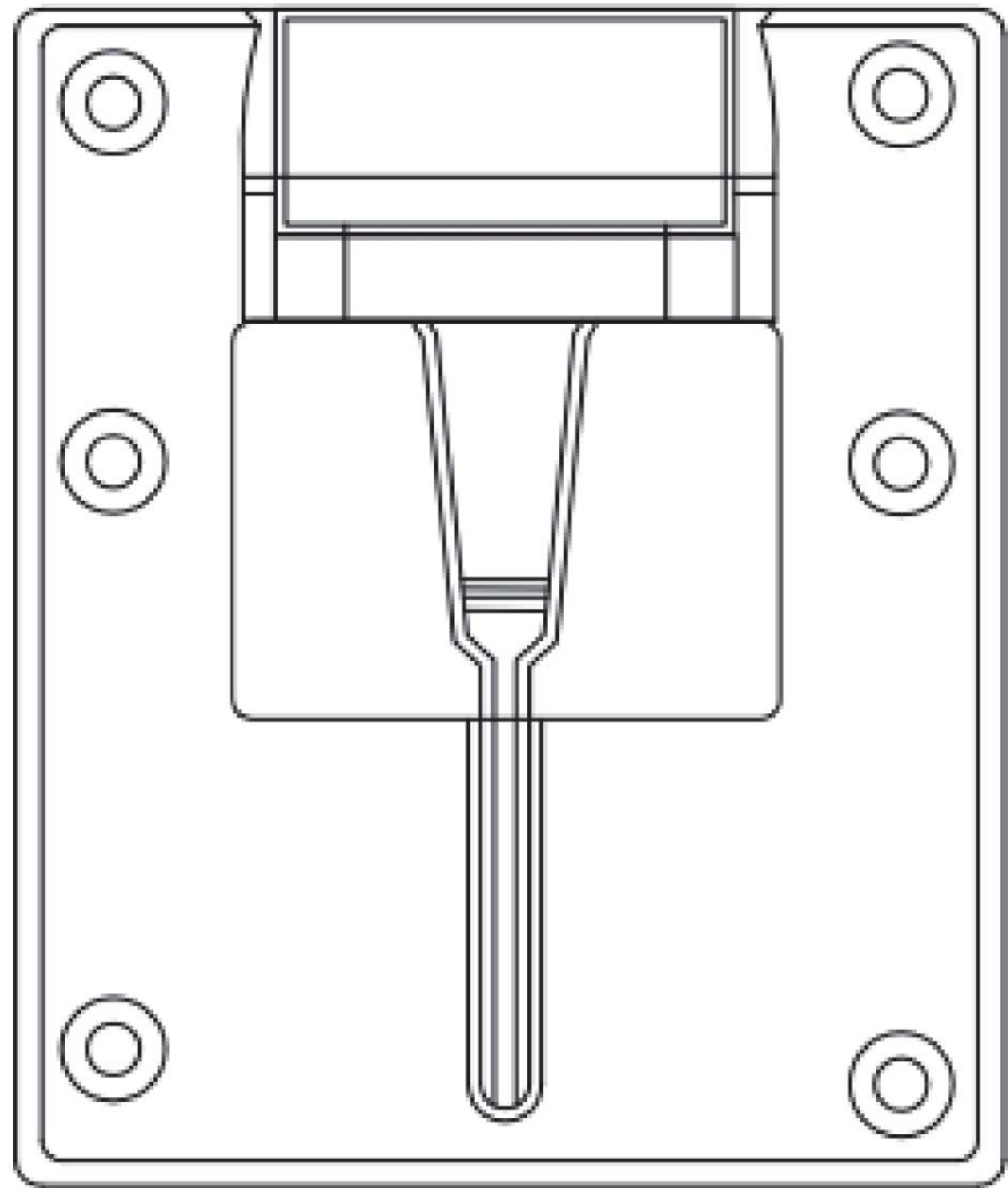
SHEET NUMBER:
C-3

REVISION:
0

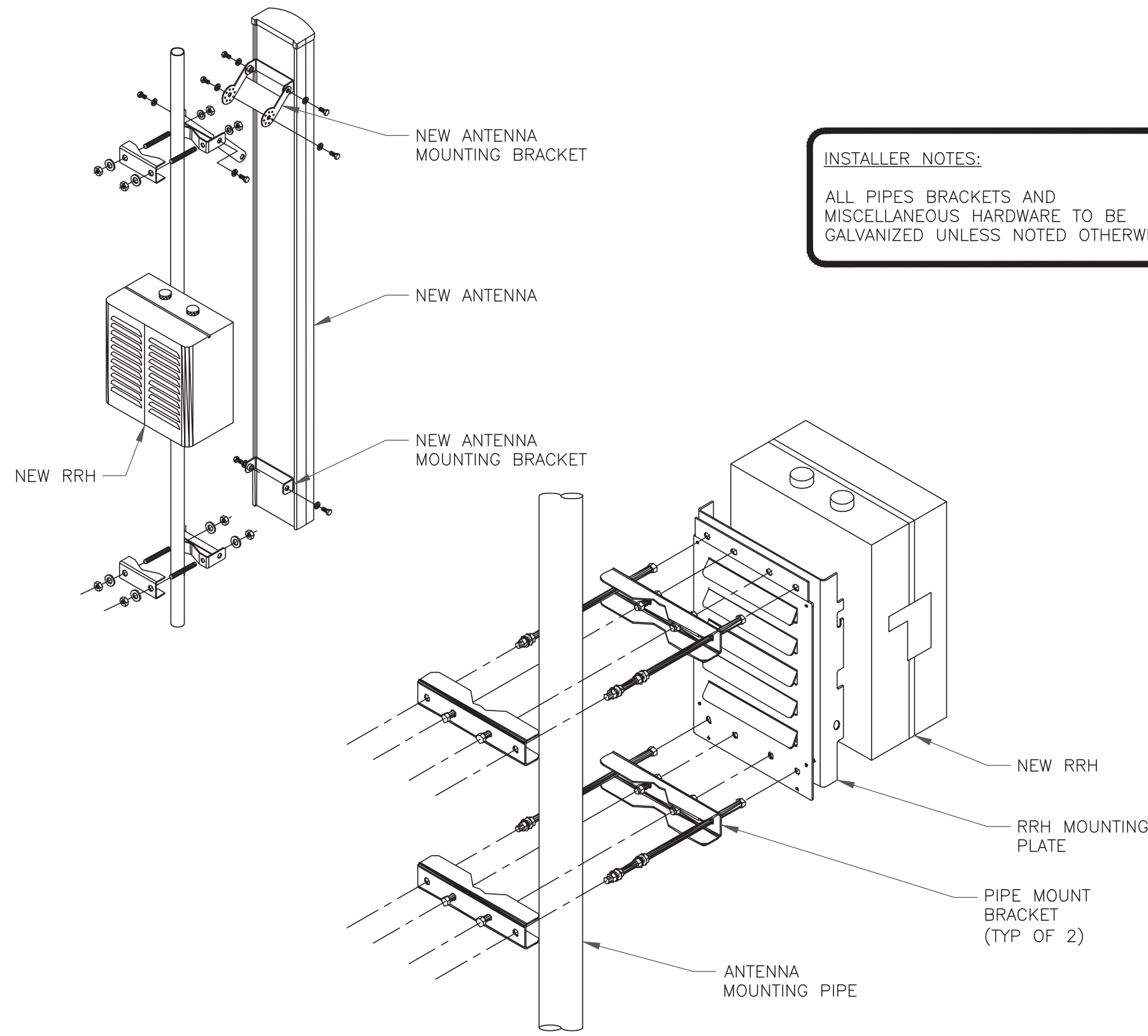


Model types beginning with:	Antenna width	Corresponding hole position	Resulting spacing between antennas
MX	15.4" (wide spacing)	1	12"
	15.4" (narrow spacing)	2	2"
	12"	3	2"
	20"	5	3/4"
X7C*, C7C*	12.5"	3	2"
	24.0"	4	2"
	18.8"	5	2"
	14.6"	6	2"

1 JMA — 91900314-02
SCALE: NOT TO SCALE



3 SAMSUNG — EP97-01585A BRACKET DETAIL
SCALE: NOT TO SCALE



4 ANTENNA & RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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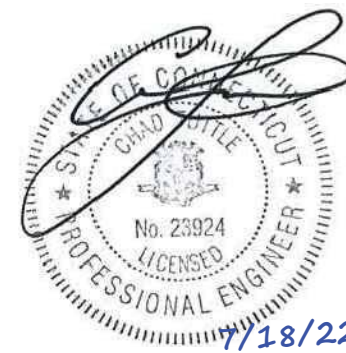
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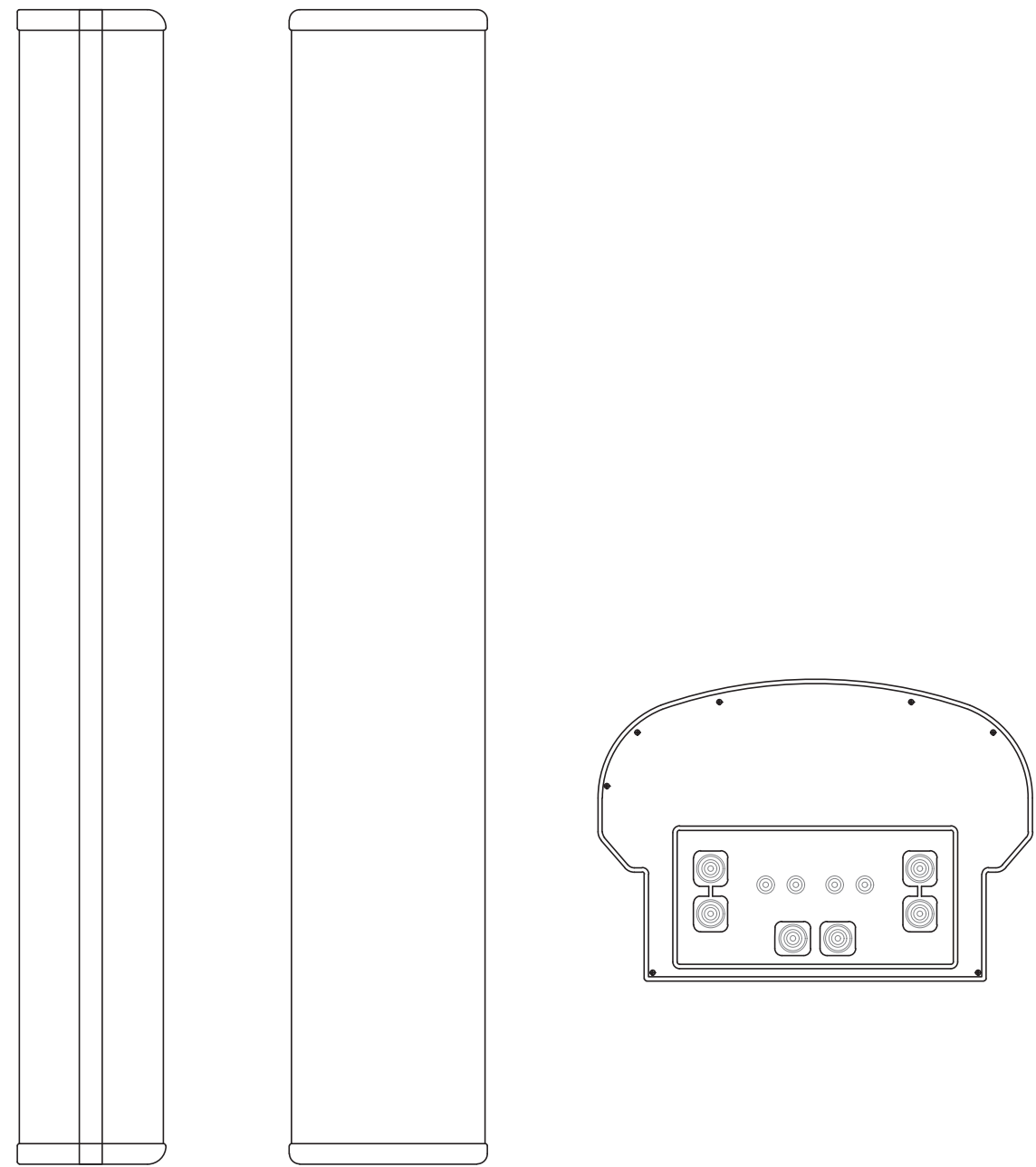
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SHEET NUMBER:

C-4

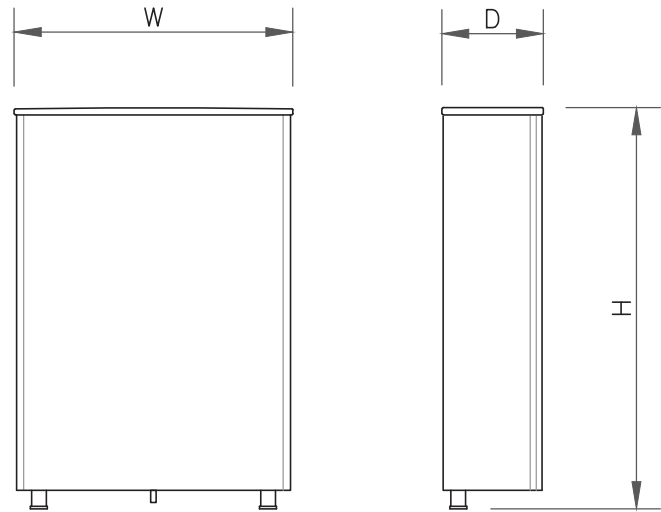
REVISION:

0



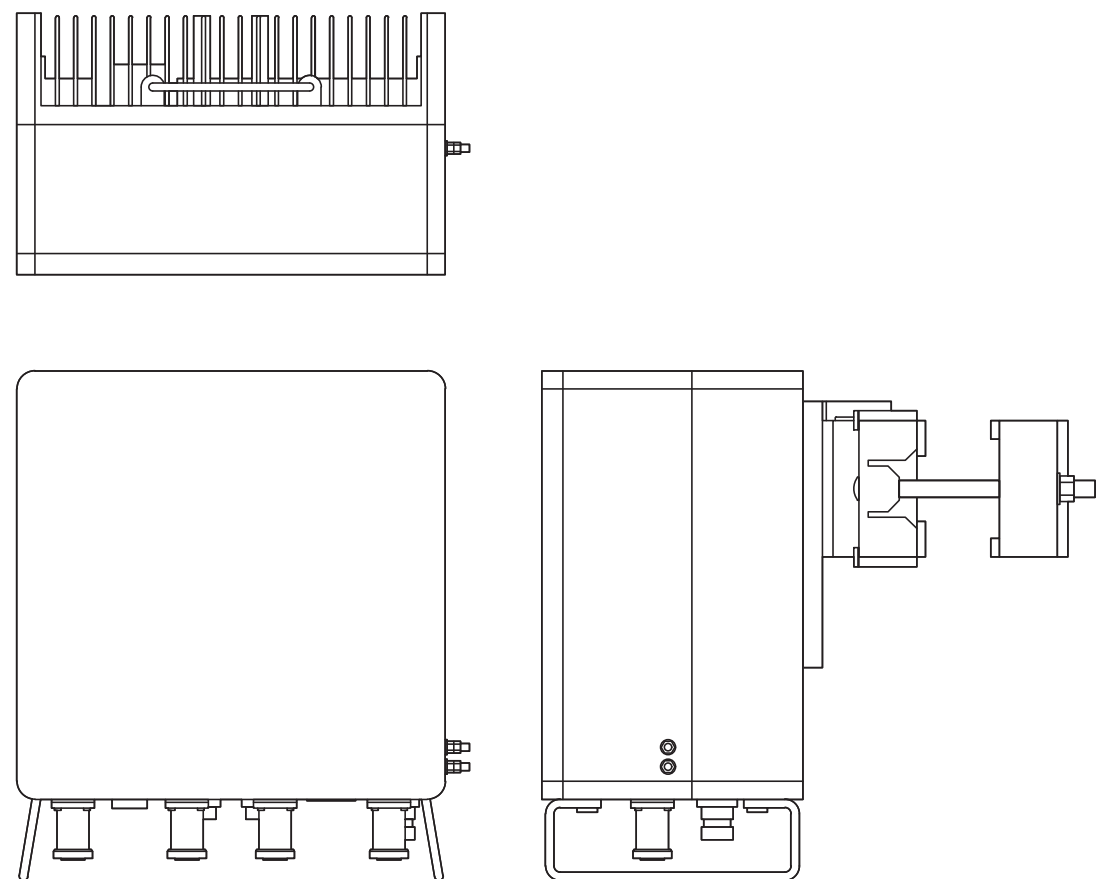
JMA WIRELESS – MX06FRO660–03
WEIGHT (WITHOUT MOUNTING HARDWARE): 78 LBS
SIZE (HxWxD): 71.3x15.4x10.7 IN.
RATED WIND VELOCITY: 150.0 MPH

1 JMA WIRELESS – MX06FRO660–03
SCALE: NOT TO SCALE



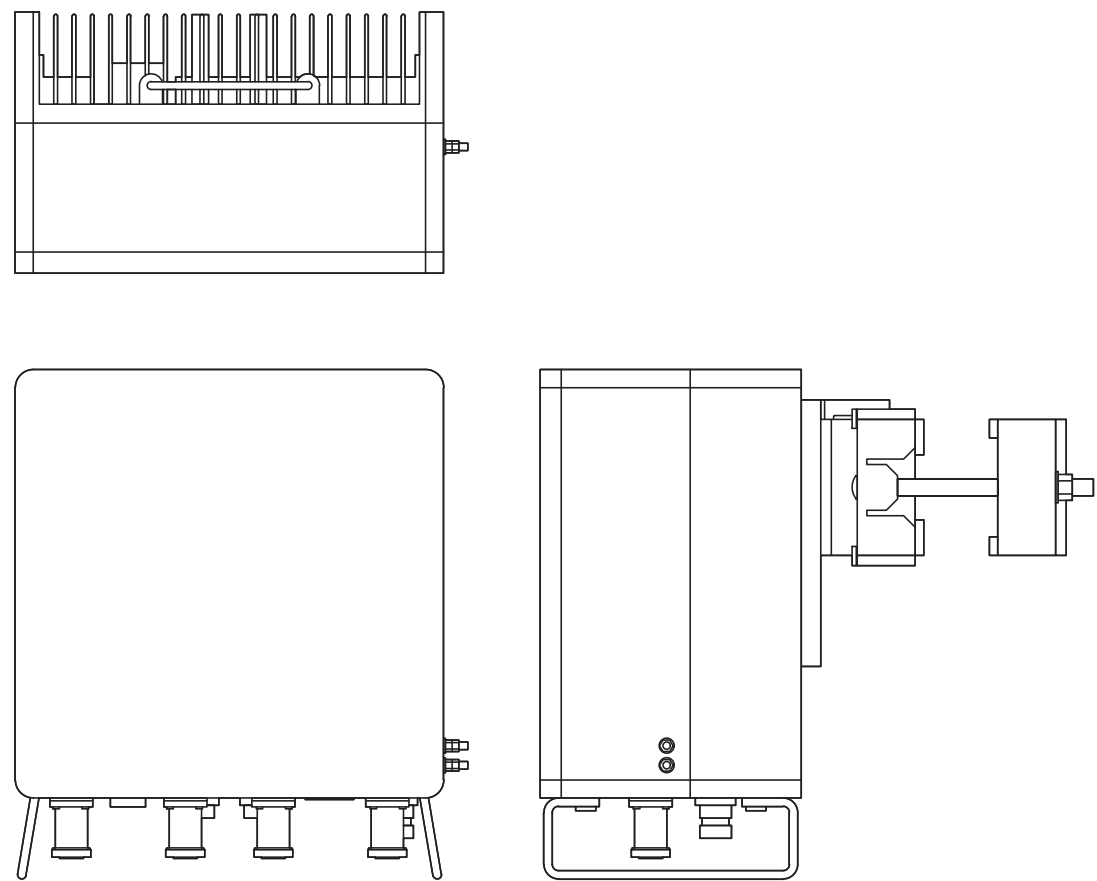
ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407–77A
WIDTH	16.06”
DEPTH	5.51”
HEIGHT	35.06”
WEIGHT	81.57 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



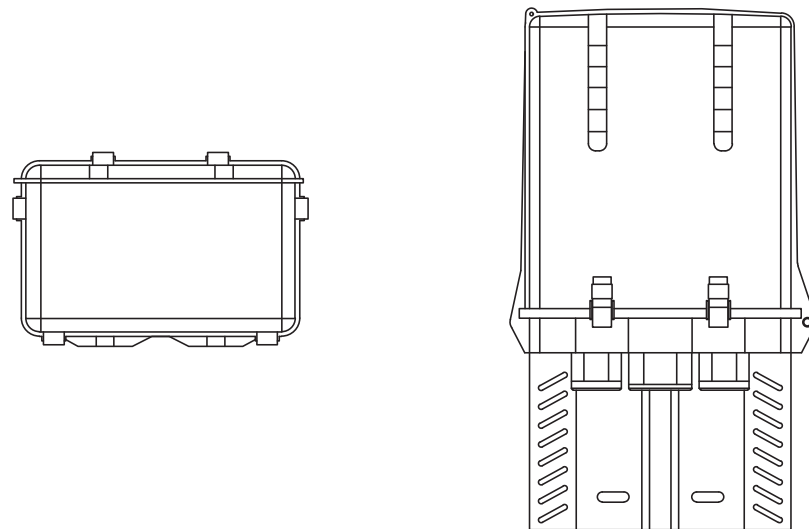
RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B5/B13 RRH–BR04C
WIDTH	14.96”
DEPTH	9.06”
HEIGHT	14.96”
WEIGHT	72.5 LBS

3 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B2/B66A RRH–BR049
WIDTH	14.96”
DEPTH	10.04”
HEIGHT	14.96”
WEIGHT	74.7 LBS

4 RRU SPECS
SCALE: NOT TO SCALE




RAYCAP – RVZDC–6627–PF–48
WEIGHT (WITHOUT MOUNTING HARDWARE): 32.0 LBS
SIZE (HxWxD): 29.5x16.5x12.6 IN.


RATED WIND VELOCITY: 150 MPH (SUSTAINED)
OPERATING TEMPERATURE: –40° C TO +80° C
NOMINAL OPERATING DC VOLTAGE: 48 VDC

5 RAYCAP – RVZDC–6627–PF–48
SCALE: NOT TO SCALE


6 NOT USED
SCALE: NOT TO SCALE



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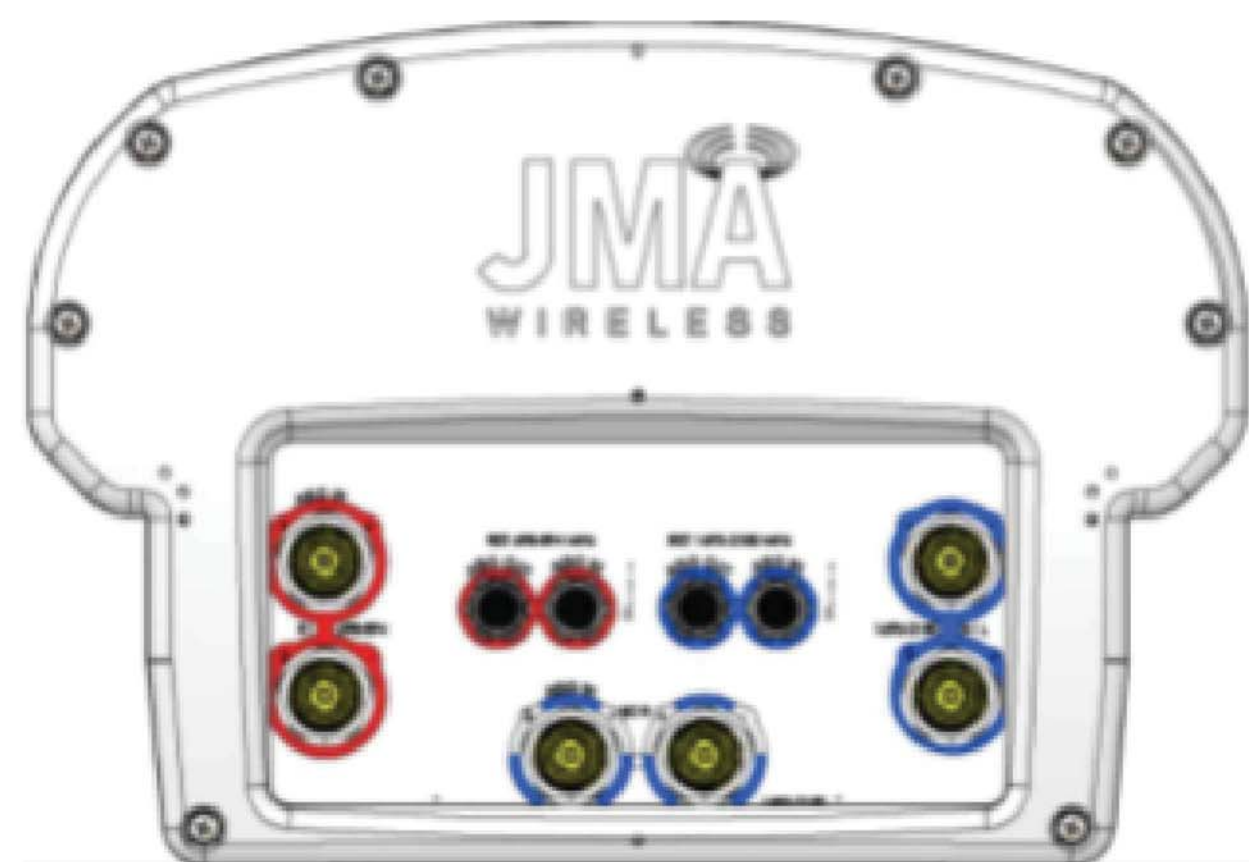
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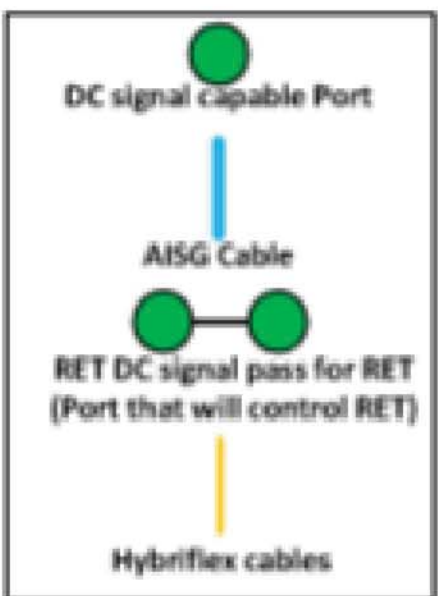
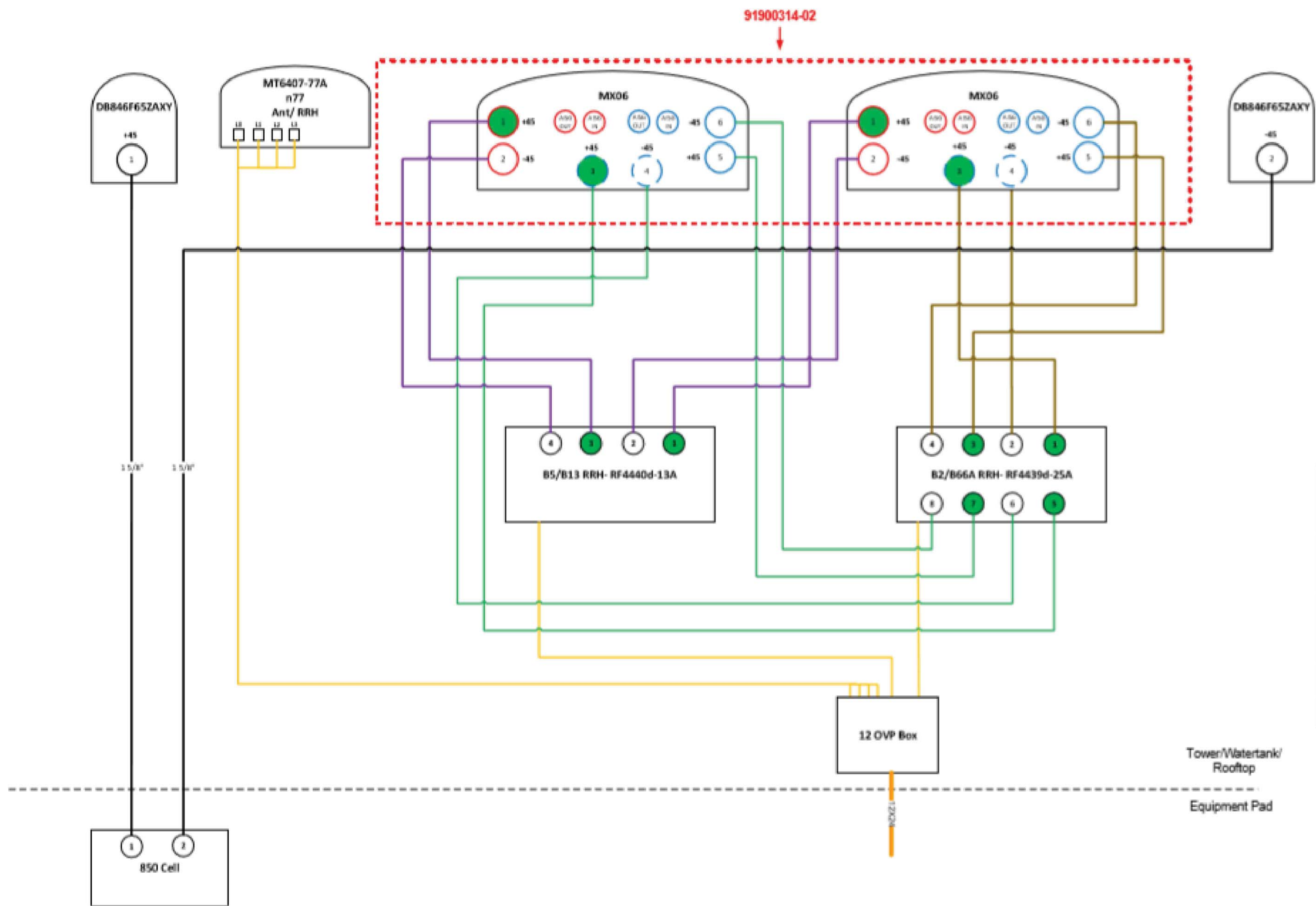
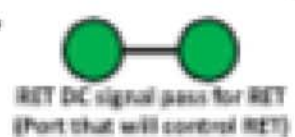
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C-5

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- Port 1 & 2 are for low band (698-896 MHz).
- Port 3,4,5, & 6 are for high band (1695-2360 MHz).
- Smart Bias Tee (SBT) is through port 1 & 3 for low band and port 1 for high band.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.



Comments:

Diagram shows antenna port configuration as viewed from below antennas.

Antenna positions are indicated as viewed from **IN FRONT** of antennas.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable. (For the coax colors follow Coax Colors guide above)

verizon
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CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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B+T GRP
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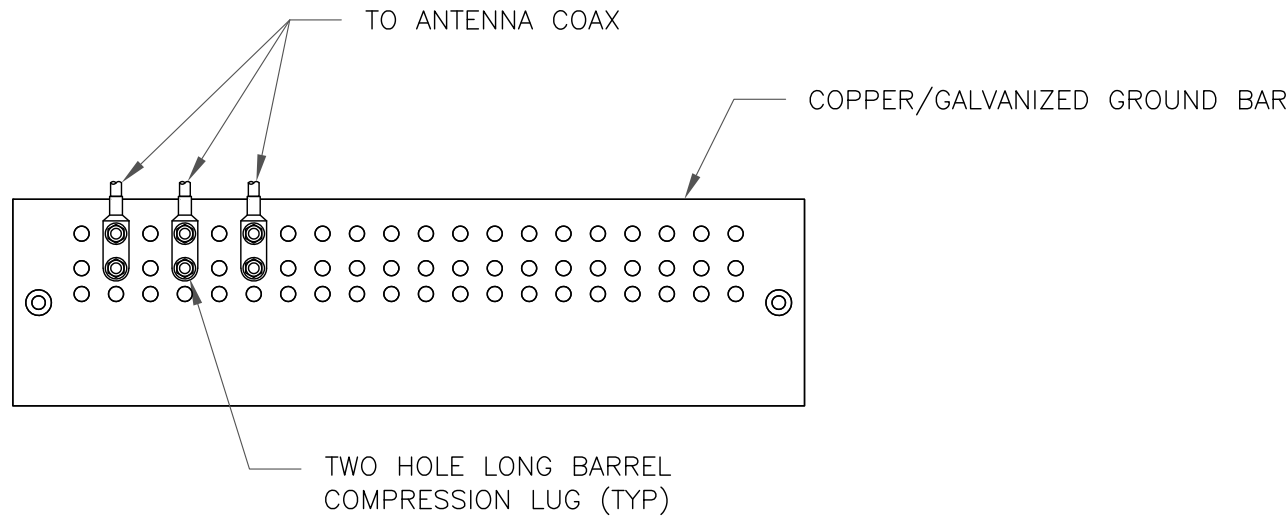
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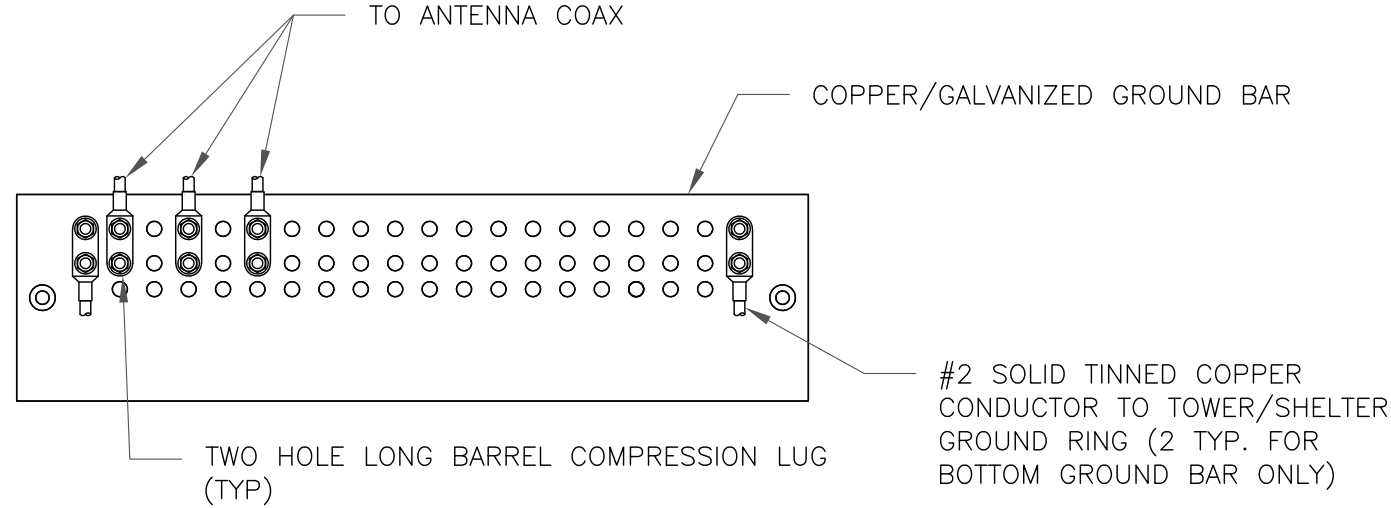
C-6

REVISION:

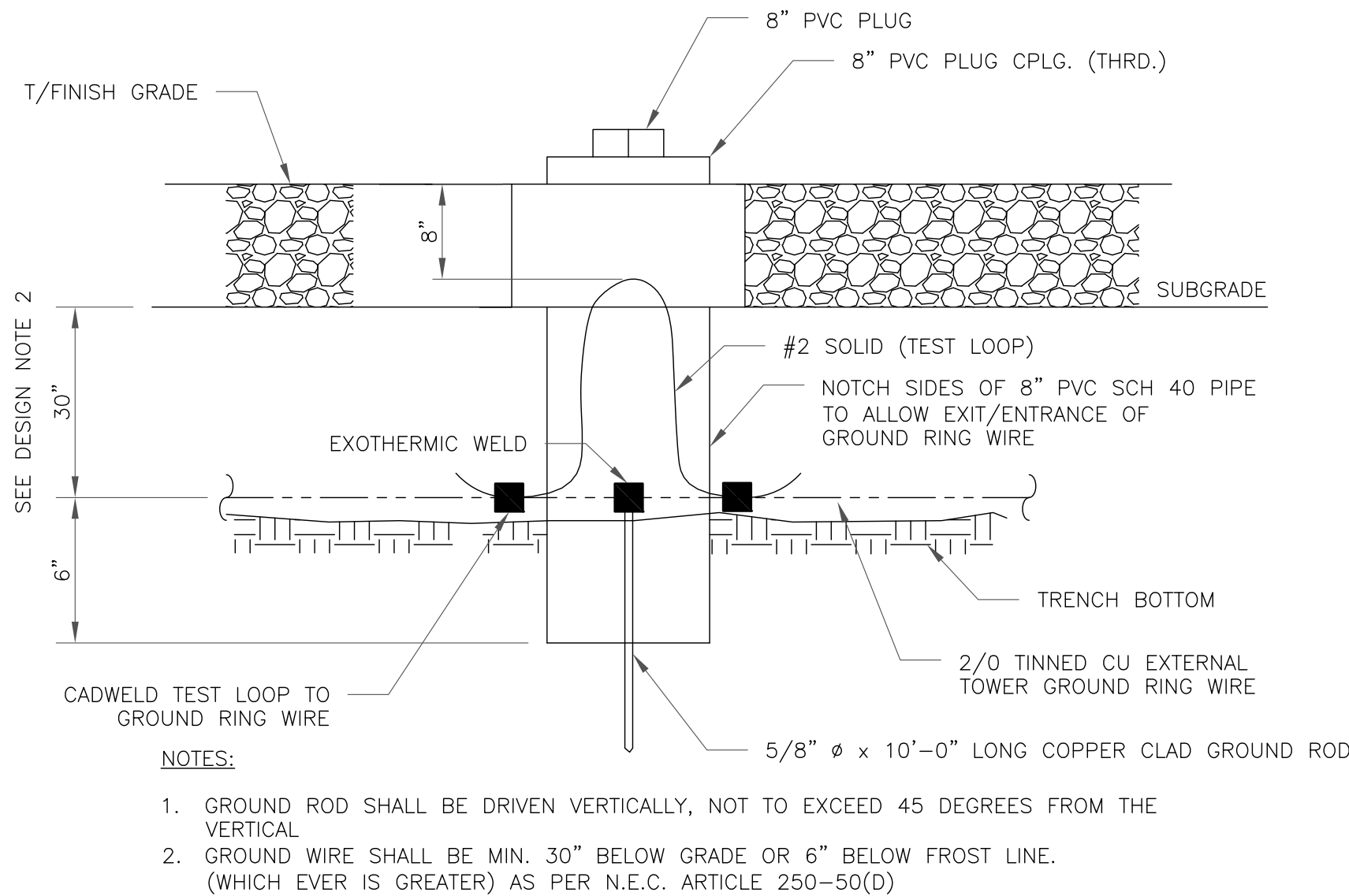
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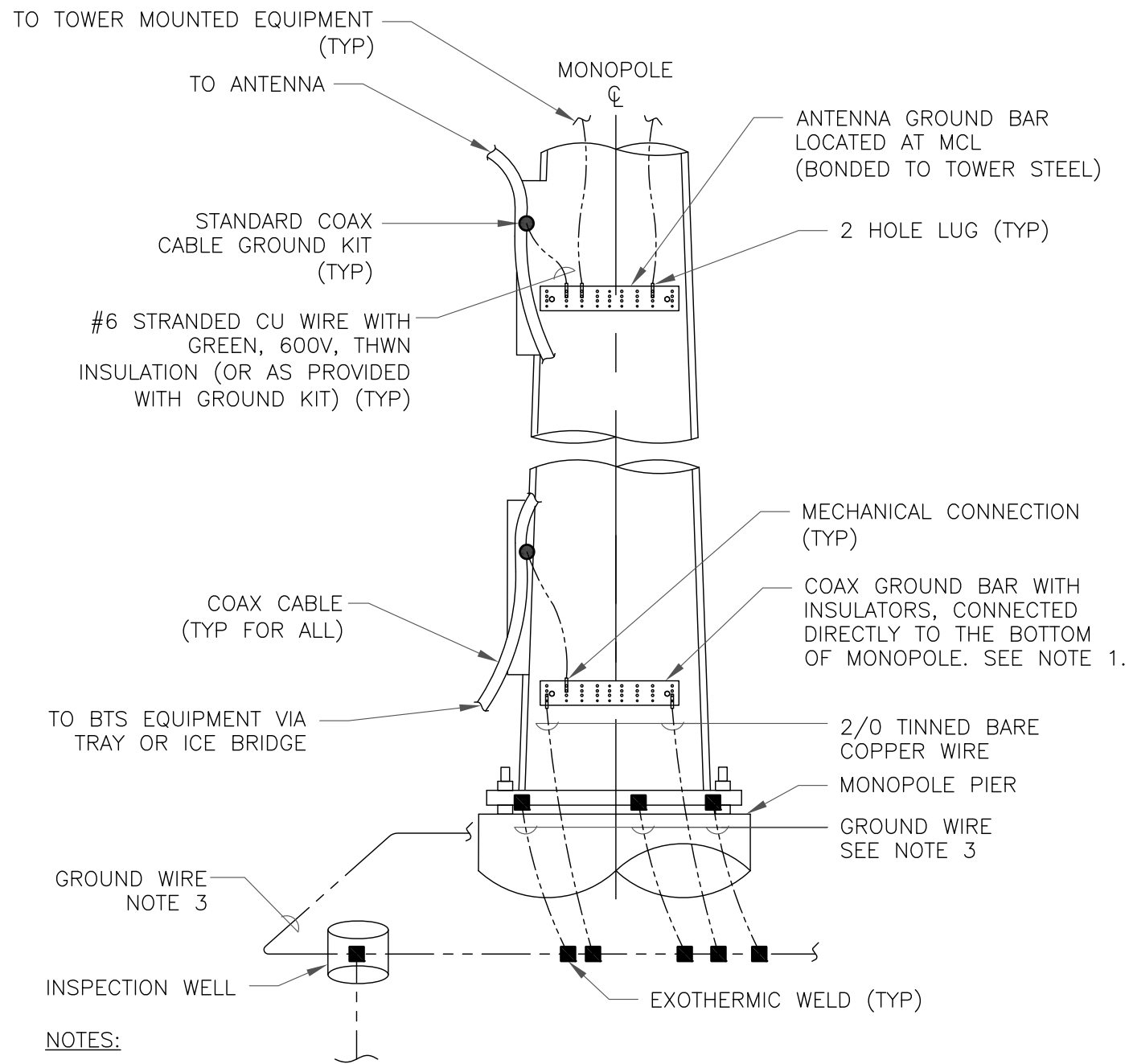
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



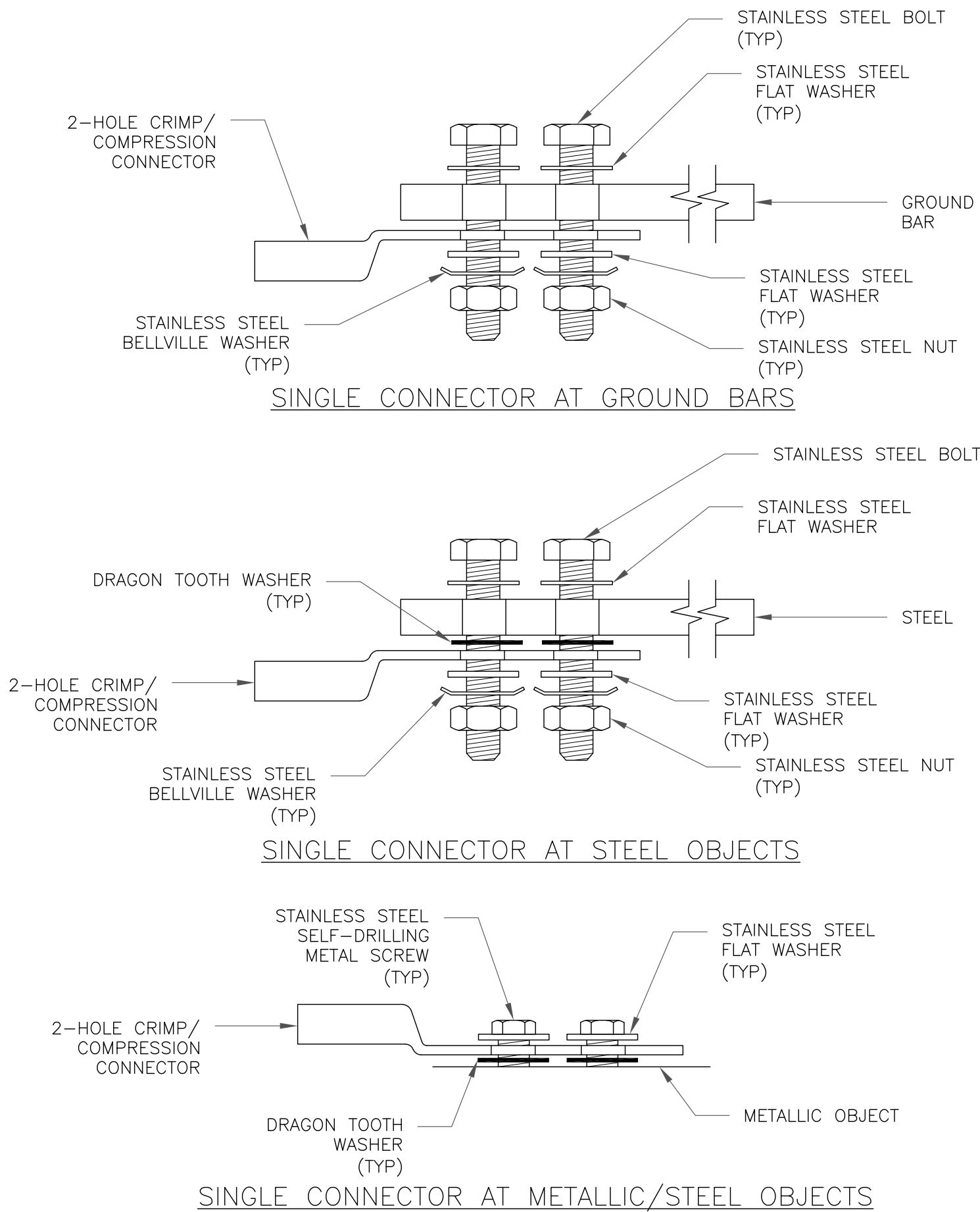
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



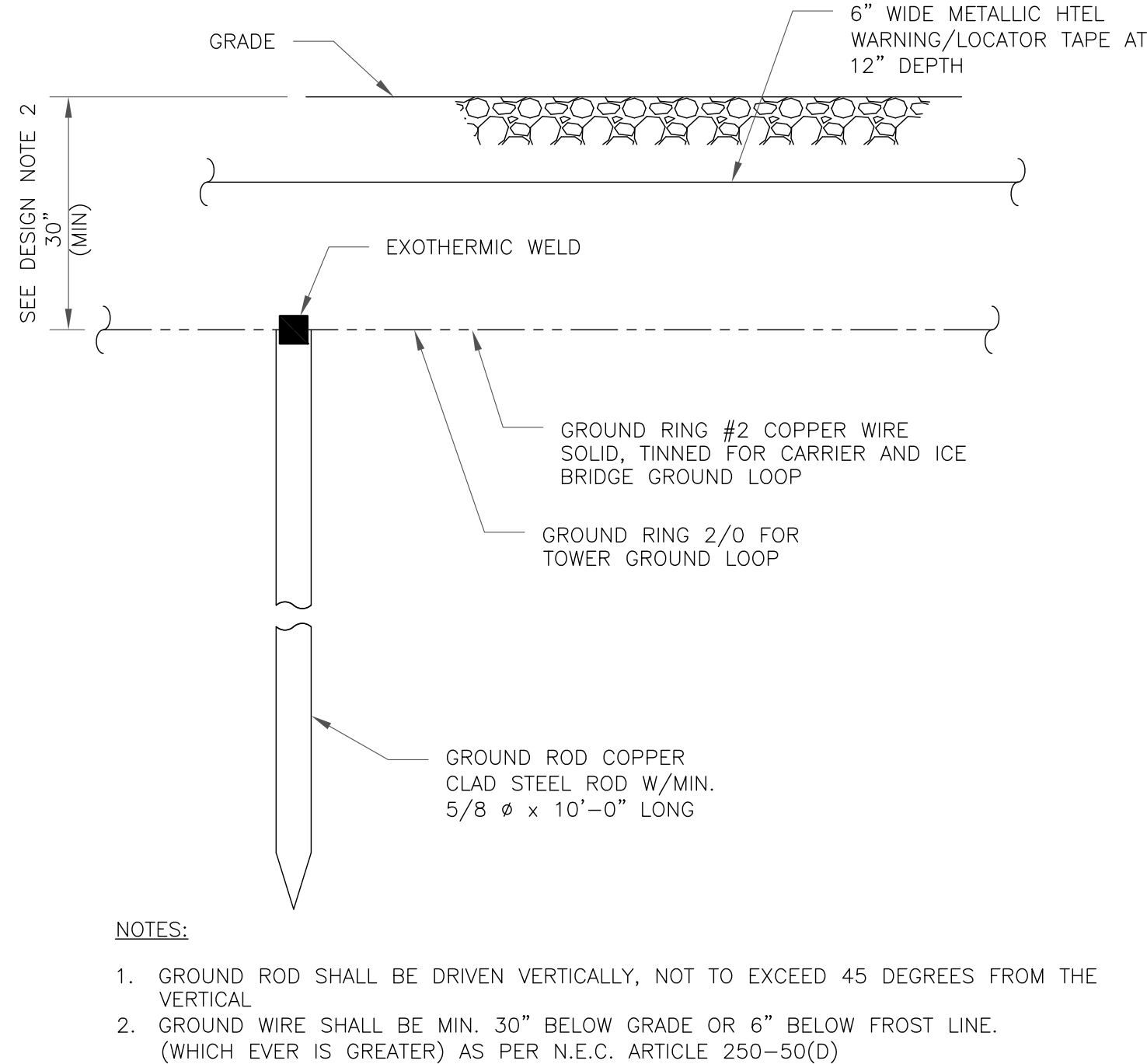
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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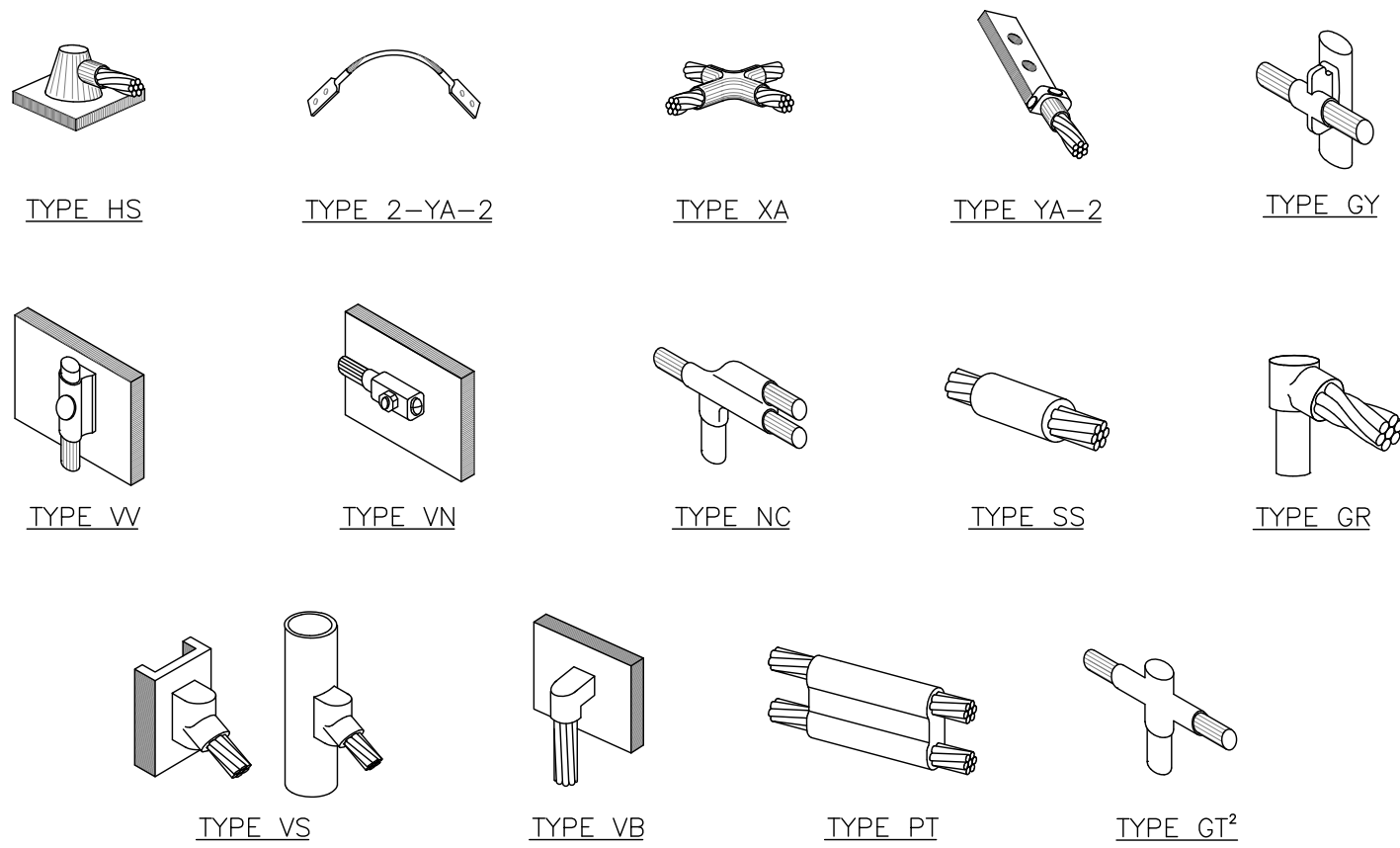
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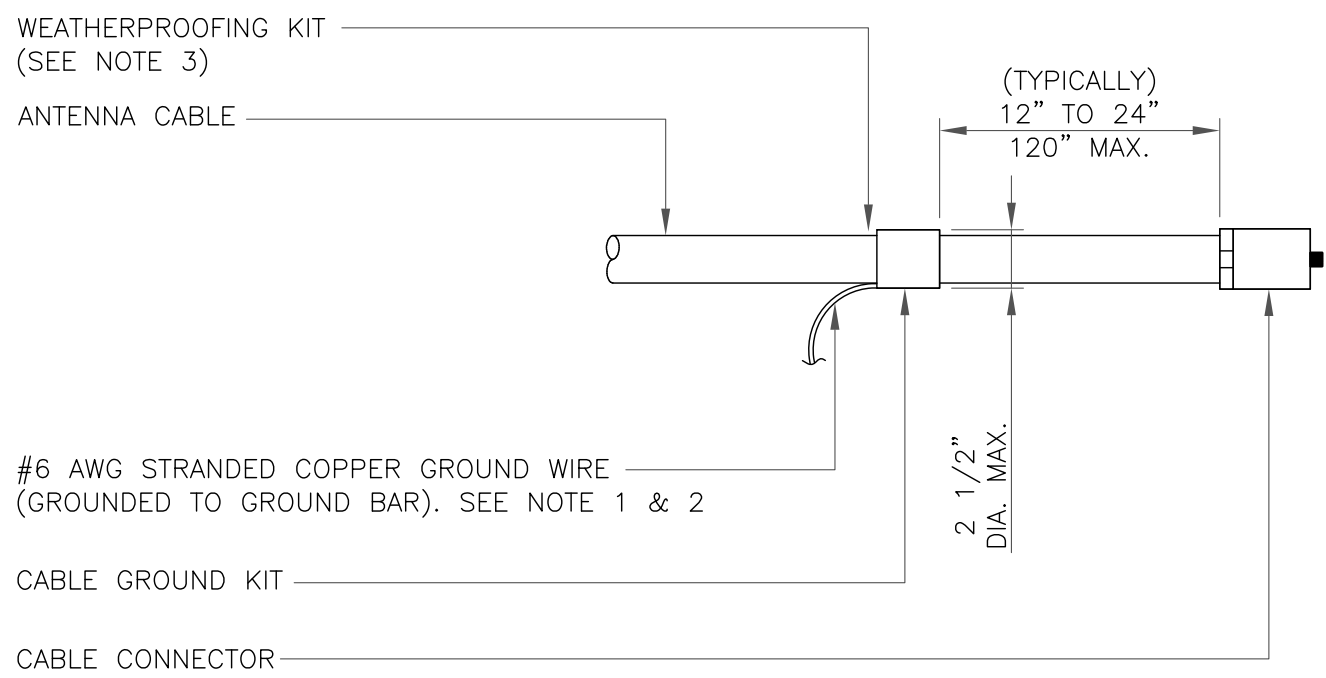
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NOTE:

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

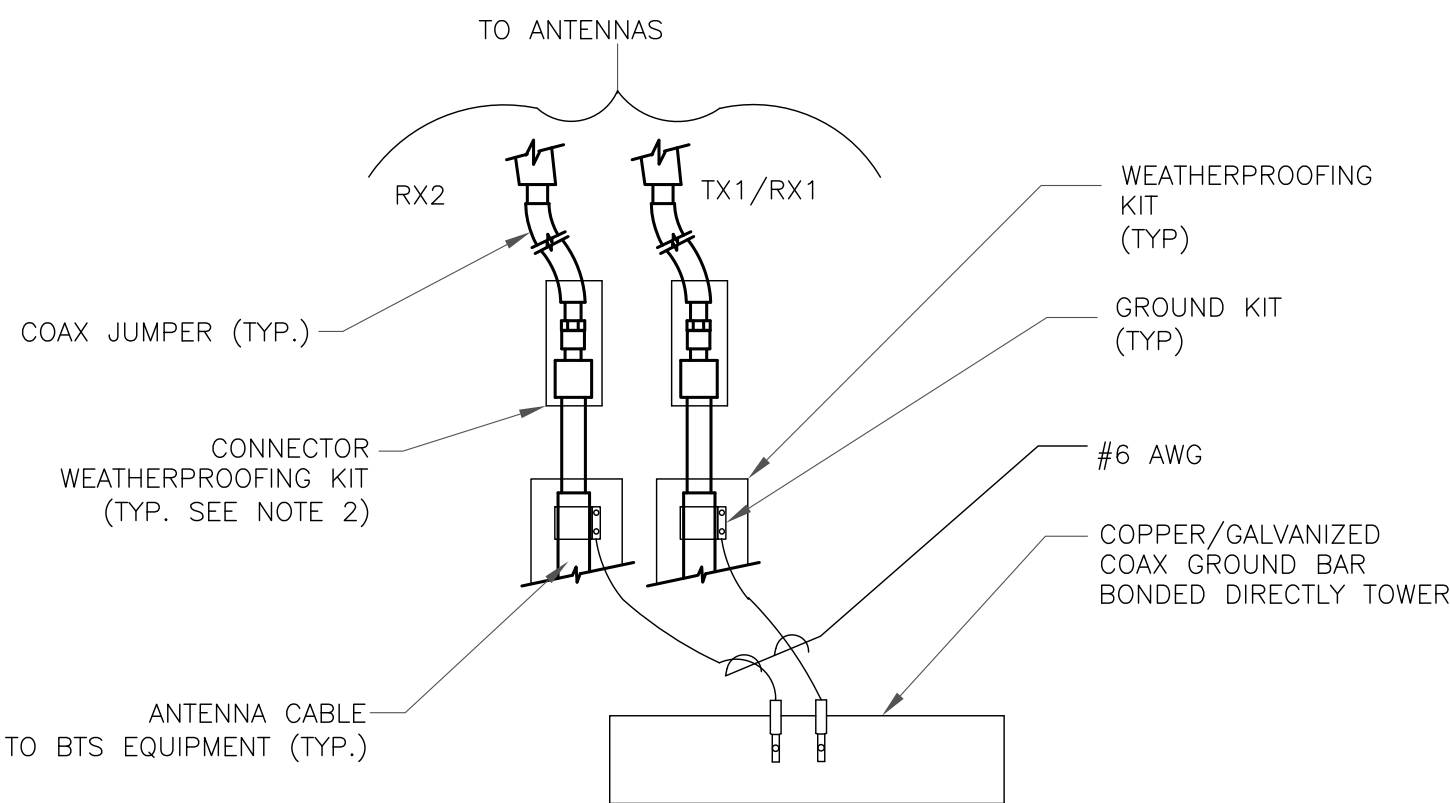
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

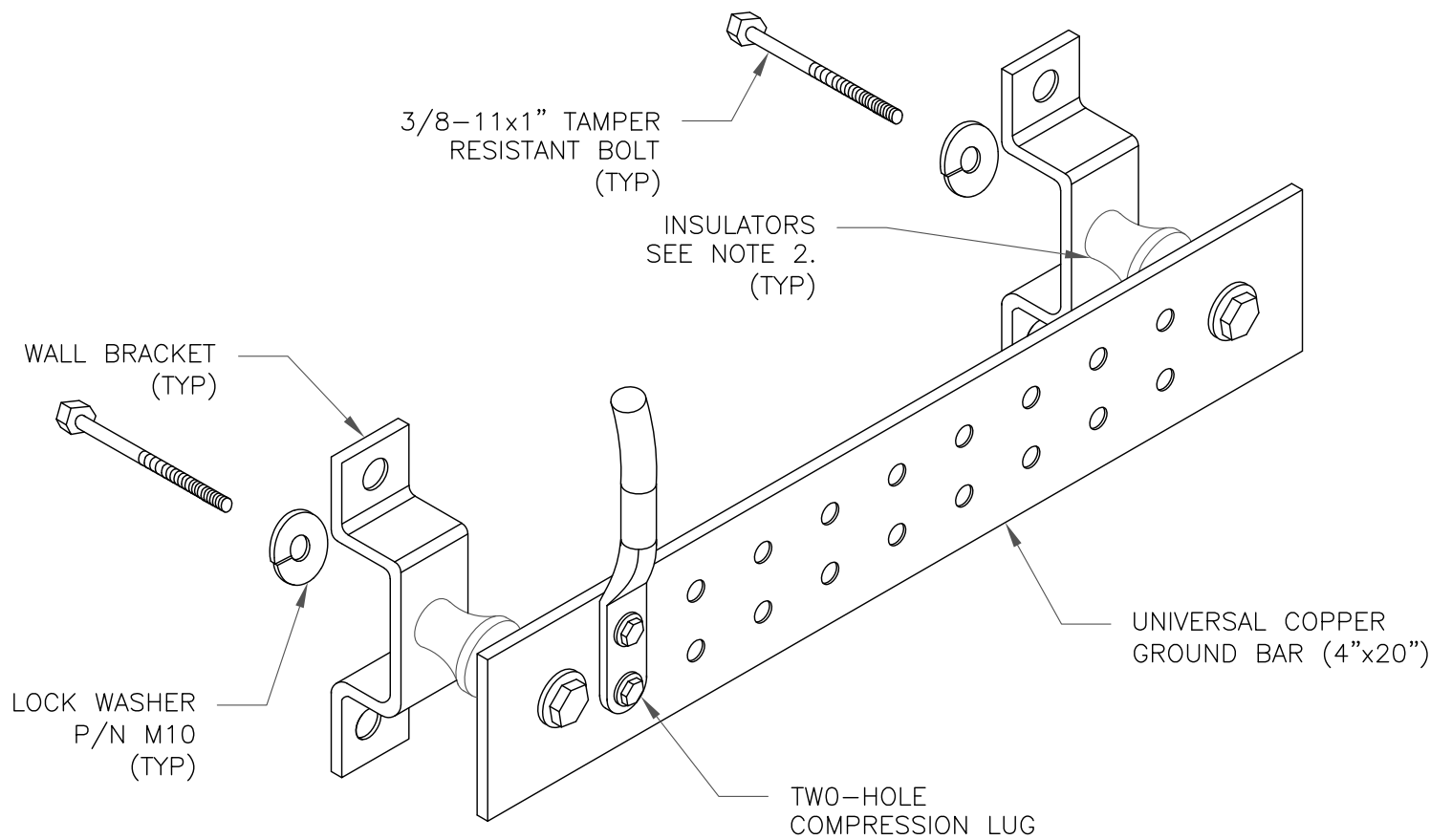
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

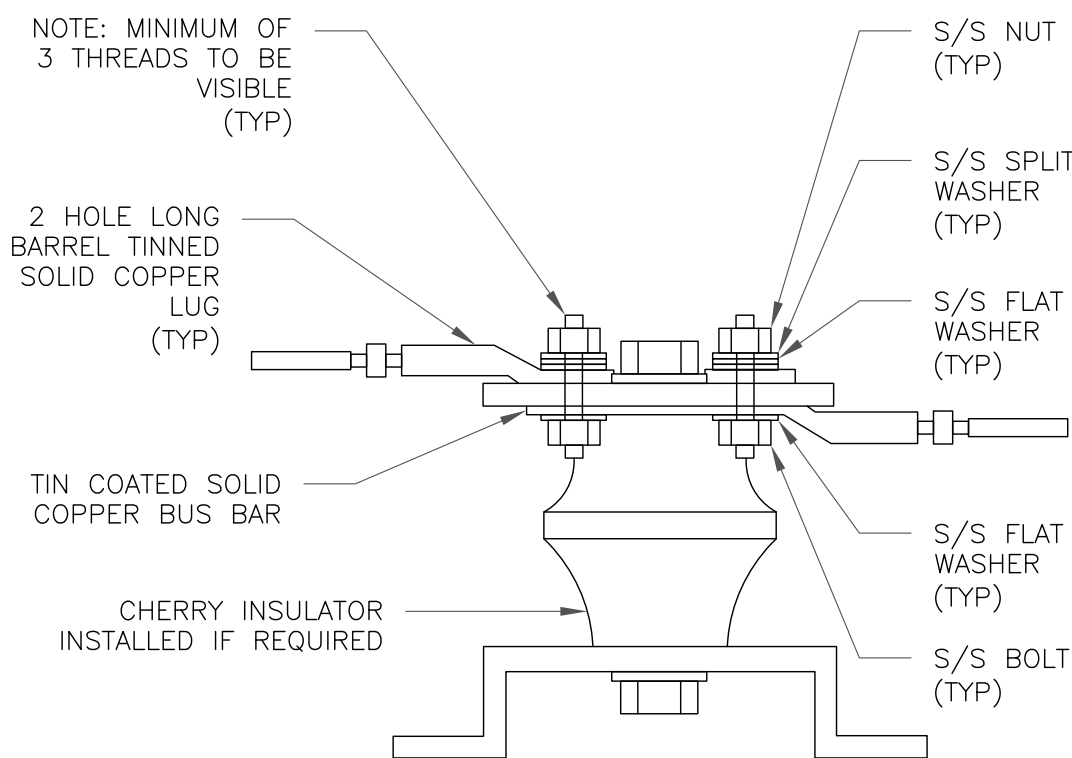
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

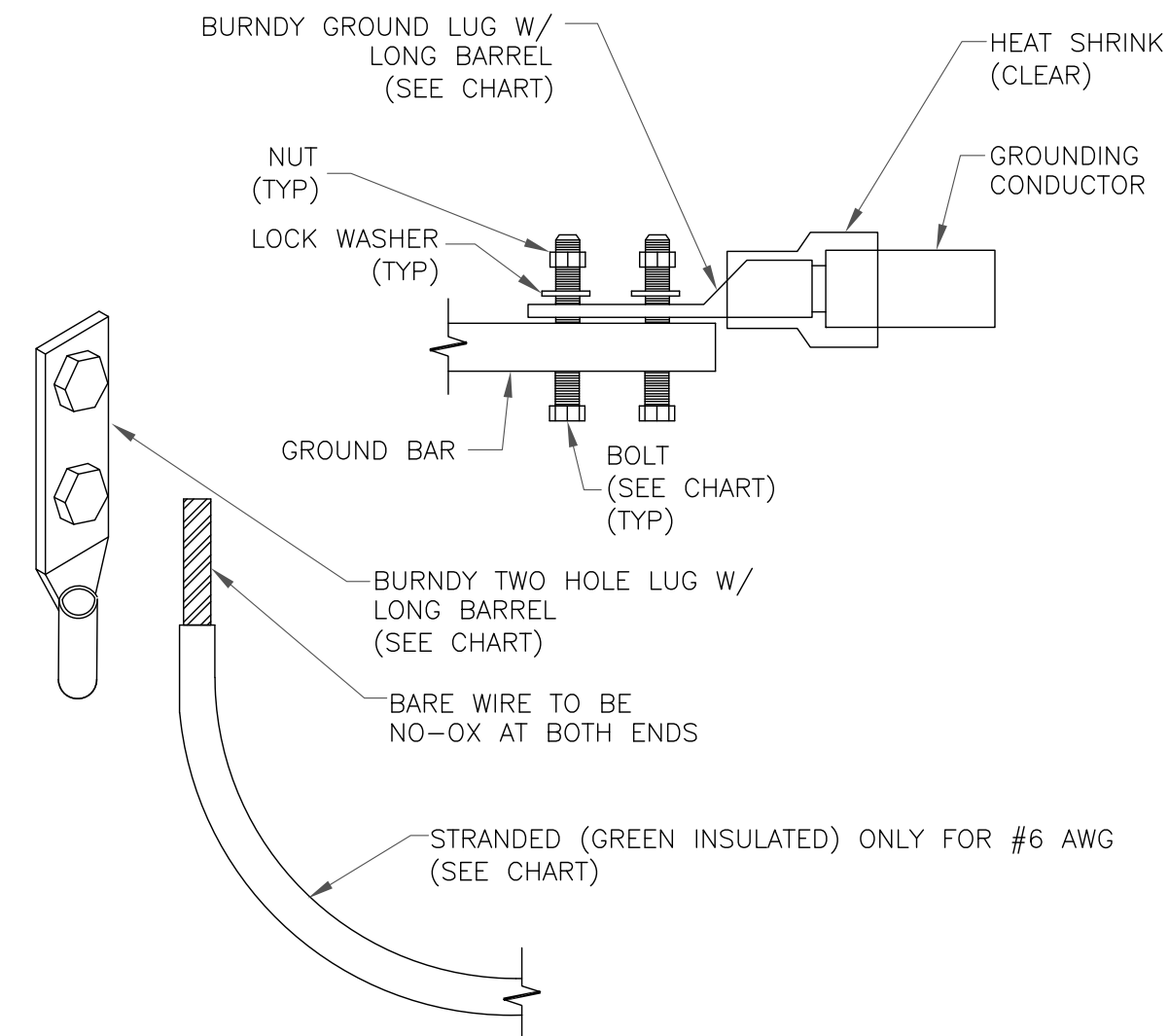
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STG-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

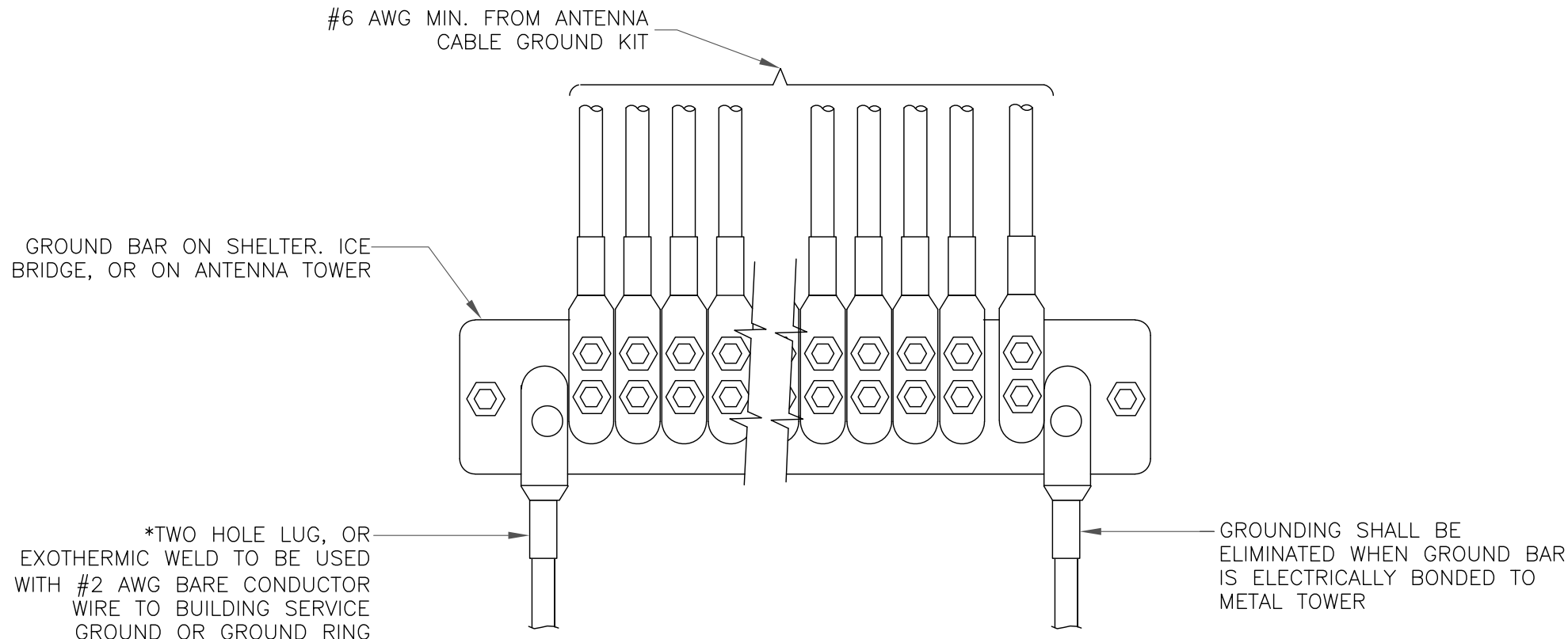
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



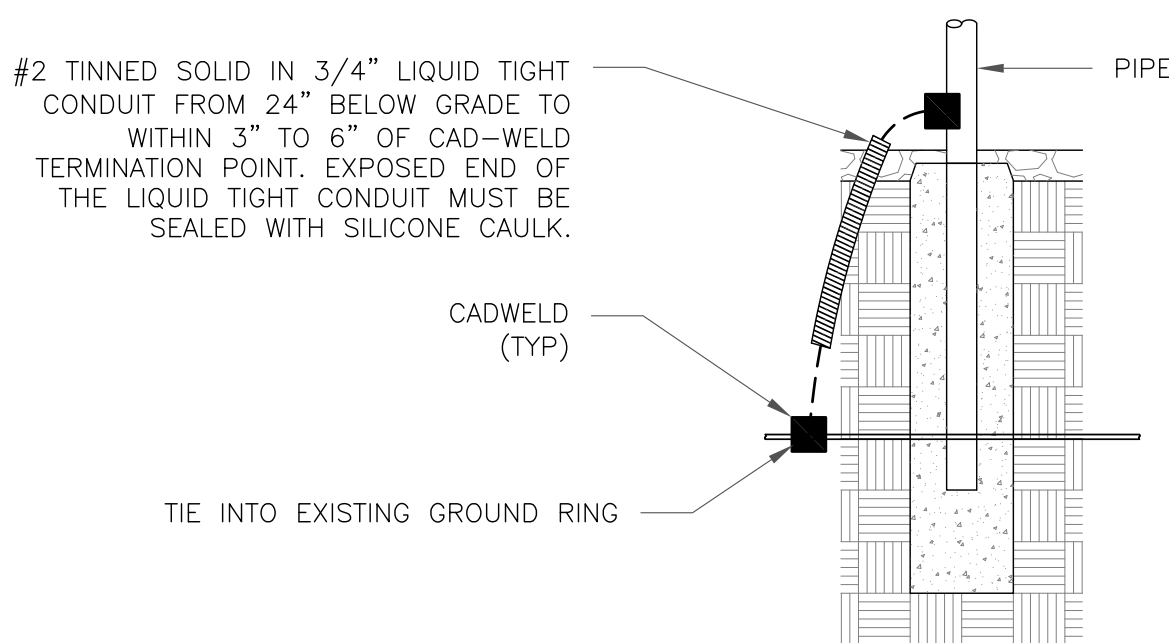
NOTES:

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.

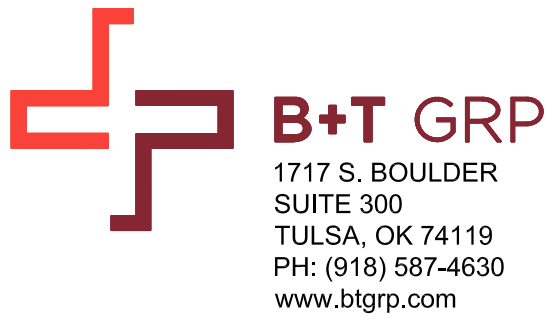
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
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ROGERS PROPERTY

700 GRASSY HILL ROAD
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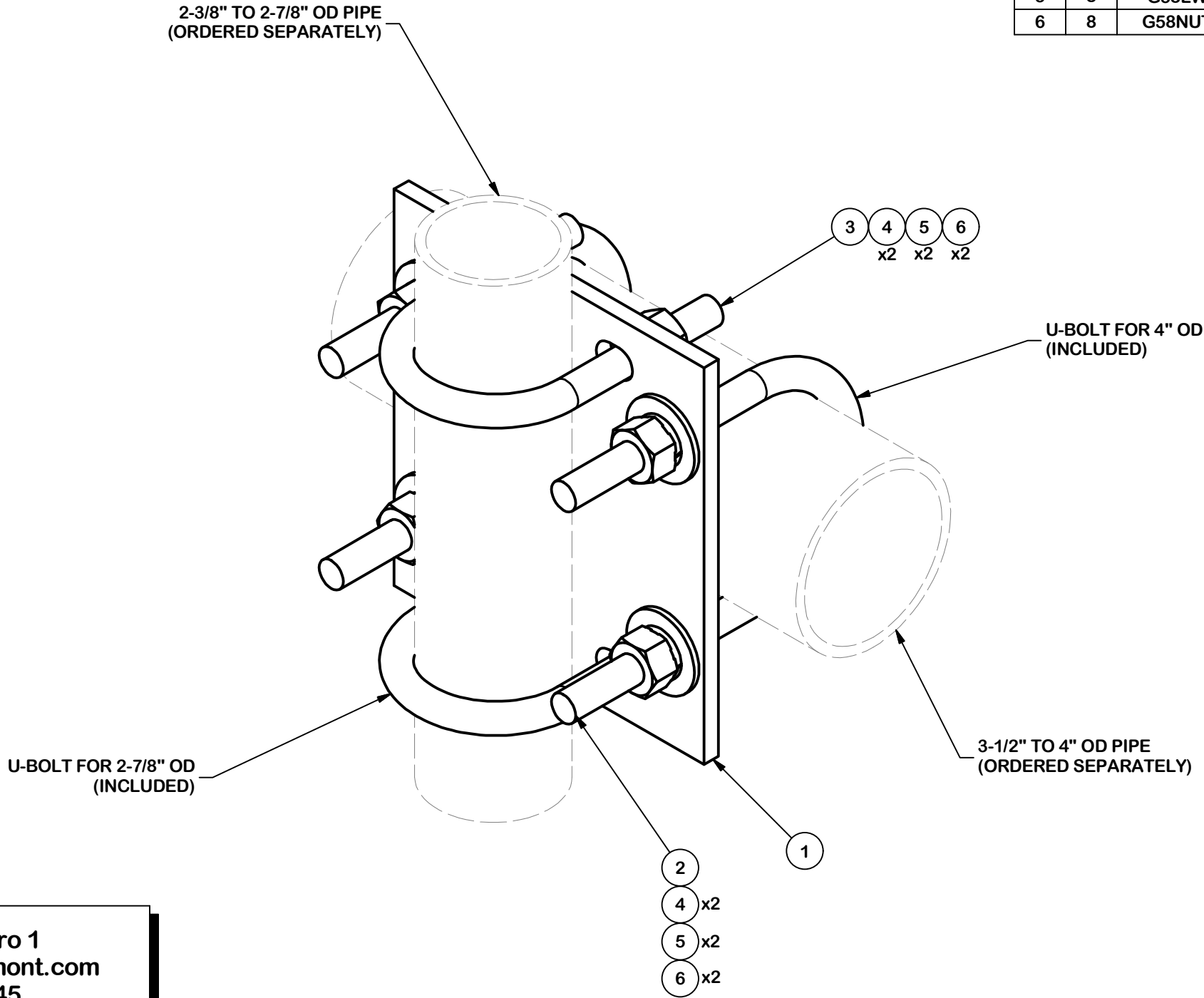
SHEET NUMBER:

G-2

REVISION:

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PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	PL375-88758	CROSSOVER PLATE	8 7/8 in	7.98	7.98
2	2	X-UB5418	5/8" X 4-1/8" X 7" X 3" U-BOLT (HDG.)		1.51	3.02
3	2	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	2.30
4	8	G58FW	5/8" HDG USS FLATWASHER		0.07	0.56
5	8	G58LW	5/8" HDG LOCKWASHER		0.03	0.21
6	8	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.04
					TOTAL WT. #	14.65



Valmont Site Pro 1
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www.sitepro1.com

TOLERANCE NOTES

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

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION

CROSSOVER PLATE

CPD NO.		DRAWN BY		ENG. APPROVAL	
		JFS 3/23/2020		5/10/2020	
CLASS	SUB	DRAWING USAGE		CHECKED BY	
87	02	SHOP		BMC 5/10/2020	

SITE PRO 1
A valmont COMPANY

Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

PART NO.		1 OF 1 PAGE
VZWSMART-MSK2		
DWG. NO.		
VZWSMART-MSK2		

Exhibit D

Structural Analysis Report

Date: **July 01, 2022**



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

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Site Name: orange 3

Crown Castle Designation: **BU Number:** 881541
Site Name: Rogers Property
JDE Job Number: 722453
Work Order Number: 2133037
Order Number: 623008 Rev. 1

Engineering Firm Designation: **Morrison Hershfield Project Number:** CN9-494R4 / 2200039

Site Data: **700 Grassy Hill Road, Orange, New Haven County, CT 06477**
Latitude 41° 17' 7.75", Longitude -73° 2' 33.27"
139.5 Foot – EEI 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 – 92.5%

This analysis utilizes an ultimate 3-second gust wind speed of 119 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: 2022.07.05
08:18:53-07'00'

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 139.5 ft Monopole tower designed by Engineered Endeavors, Inc.

The tower was modified per reinforcement drawing prepared by B+T Group, in October of 2013. Reinforcement consists of addition of base plate stiffeners. Per the post modification report completed by SGS, Inc., in February of 2014, these modifications were properly installed on the tower and has been considered in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	C
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)
119.0	119.0	6	decibel	DB846F65ZAXY w/ Mount Pipe	13	1-5/8
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
		1	raycap	RVZDC-6627-PF-48_CCIV2		
		1	-	T-Arm Mount [TA 602-3]		

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)
136.0	142.0	3	ericsson	AIR 6419 B77G w/ Mount Pipe	6 3 2 2 1	1-5/8 7/8 13/16 3/8 2C
	140.0	3	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		3	cci antennas	TPA65R-BU6D_CCIV2 w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS 8843 B2/B66A_CCIV2		
		1	raycap	DC6-48-60-18-8F		
		1	raycap	DC9-48-60-24-8C-EV_CCIV2		
	138.0	3	ericsson	AIR 6449 B77D w/ Mount Pipe		
	136.0	1	-	Better Metal Platform [#BPM]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
132.0	132.0	1	-	Side Arm Mount [SO 102-3]	-	-
	128.0	3	alcatel lucent	1900MHZ RRH (65MHZ)		
		3	alcatel lucent	800MHZ RRH		
130.0	132.0	3	argus technologies	LLPX310R w/ Mount Pipe	3	1-5/8
	130.0	3	commscope	VV-65B-R1_TMO w/ Mount Pipe		
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		1		12.5 ft Platform Mount [#RMQP-396]		
		1		Hand Rail Kit [#HRK12]		
110.0	110.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	10	1-5/8
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	rfs/celwave	APXVAALL24_43-U-NA20 w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B71/B85A		
		1	-	T-Arm Mount [TA 602-3_KCKR]		
		1	Site Pro 1	Stabilizer Kit [PRF-SFS]		
100.0	100.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	-	Commscope MC-PK8-DSH		
75.0	77.0	1	lucent	KS24019-L112A	1	1/2
	75.0	1	-	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2245154	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	2208511	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2207700	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4024239	CCISITES
4-POST-MODIFICATION INSPECTION	4432995	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 Hersfield 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	139.5 - 93.04	Pole	TP26.99x15.5x0.25	1	-20.03	1256.07	86.5	Pass
L2	93.04 - 46.38	Pole	TP37.91x25.5205x0.375	2	-31.77	2650.21	82.6	Pass
L3	46.38 - 0	Pole	TP48.5x35.874x0.375	3	-48.16	3518.48	92.5	Pass
							Summary	
						Pole (L3)	92.5	Pass
						Rating =	92.5	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	74.6	Pass
1	Base Plate		80.6	Pass
1	Base Foundation (Structure)	0	89.2	Pass
1	Base Foundation (Soil Interaction)		10.4	Pass

Structure Rating (max from all components) =	92.5%*
---	---------------

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.

Exhibit E

Mount Analysis



Maser Consulting
1055 Washington Boulevard
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peter.albano@colliersengineering.com

Antenna Mount Analysis Report with Hardware Upgrades and PMI Requirements

Mount Analysis

SMART Tool Project #: 10141840
Maser Consulting Connecticut Project #: 22777021A

May 24, 2022

Site Information

Site ID: 468476-VZW / ORANGE 3 CT
Site Name: ORANGE 3 CT
Carrier Name: Verizon Wireless
Address: 700 Grassy Hill Road
Orange, Connecticut 06477
New Haven County
Latitude: 41.285486°
Longitude: -73.042575°

Structure Information

Tower Type: 140-Ft Monopole
Mount Type: 13.50-Ft T-Arm

FUZE ID # 16092570

Analysis Results

T-Arm: 99.7% **Pass w/ Hardware Upgrades***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

***Contractor PMI Requirements:

Included at the end of this MA report

Available & Submitted via portal at <https://pmi.vzwsmart.com>

For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Breanna Smith



Executive Summary:

The objective of this report is to determine the capacity of the antenna support mount at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
<i>Radio Frequency Data Sheet (RFDS)</i>	<i>Verizon RFDS, Site ID: 675001, dated May 17, 2022</i>
<i>Mount Mapping</i>	<i>Onsight Services LLC, Site ID: 468476, dated April 8, 2022</i>

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT} : 119 mph Ice Wind Speed (3-sec. Gust): 50 mph Design Ice Thickness: 1.00 in Risk Category: II Exposure Category: B Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, K_e : 0.997
Seismic Parameters:	S_s : 0.202 g S_1 : 0.054 g
Maintenance Parameters:	Wind Speed (3-sec. Gust): 30 mph Maintenance Live Load, L_v : 250 lbs. Maintenance Live Load, L_m : 500 lbs.
Analysis Software:	RISA-3D (V17)

Final Loading Configuration:

The following equipment has been considered for the analysis of the mounts:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
119.50	120.00	6	JMA Wireless	MX06FRO660-03	Added
		3	Samsung	MT6407-77A	
		1	Raycap	RVZDC-6627-PF-48	
		3	Samsung	RF4439d-25A	
		3	Samsung	RF4440d-13A	
		6	Andrew	DB846F65ZAXY	Retained

The recent mount mapping reported existing OVP units. It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Maser Consulting Connecticut and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Maser Consulting Connecticut to verify deviation will not adversely impact the analysis.
2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.
4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting Connecticut is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.
7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
 - Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
 - HSS (Rectangular) ASTM 500 (Gr. B-46)
 - Pipe ASTM A53 (Gr. B-35)
 - Threaded Rod F1554 (Gr. 36)
 - Bolts ASTM A325

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Maser Consulting Connecticut.

Analysis Results:

Component	Utilization %	Pass/Fail
Mount Pipe	21.3%	Pass
Dual Mount Pipe	33.7%	Pass
Standoff Horizontal	61.3%	Pass
Face Horizontal	53.5%	Pass
Connection Check	99.7%	Pass

Structure Rating – (Controlling Utilization of all Components)	99.7%*
---	---------------

* Results valid after hardware upgrades noted in the PMI Requirements are installed.

The mount has been found structurally adequate for all steel and external connection capacities. Serviceability in accordance with TIA-222-H Section 4.9.11.3 has not been considered.

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	8.1	3.3	17.3	12.5
0.5	10.7	4.5	23.6	17.5
1	13.2	5.7	29.8	22.3

Notes:

- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 1 sector(s).
- Ka factors included in (EPA)a calculations

Requirements:

The existing mounts are **SUFFICIENT** for the final loading configuration shown in attachment 2 and do not require modifications. Additional requirements are noted below.

Contractor shall replace existing position 3 mount pipe with new 72" long P2 ½ STD pipe in all sectors. Install 58" from position 4 pipe. Top of pipe shall be 40" above top face horizontal. Match existing position 4 pipe location on mount. Attach using VZWSMART MSK2 crossover plates. Refer to placement diagrams.

Contractor shall attach proposed OVP 12" from the top of existing OVP pipe in sector Gamma.

Contractor shall inspect climbing facilities and safety climb and ensure they are in good condition. Contractor shall install safety climb wire rope guides in locations where wire rope is rubbing against the mount or mount-to-tower connection steel. Wire brush clean any observed corrosion and protect with two (2) coats of cold galvanization (Zinga or Zinc Kote). Contractor shall provide photos of wire rope guide installation as part of PMI documents. Contact EOR if additional guidance is required.

If required, ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other. Separate review fees will apply.

Attachments:

1. **Contractor Required Post Installation Inspection (PMI) Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Photos
4. Mount Mapping Report (for reference only)
5. Analysis Calculations

Exhibit F

Power Density/RF Emissions Report

Site Name: **ORANGE 3 CT**
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	751	4	646	2583	120	0.0064	0.5007	1.29%
VZW CDMA	877.26	2	499	998	120	0.0025	0.5848	0.43%
VZW Cellular	874	4	646	2583	120	0.0064	0.5827	1.11%
VZW PCS	1975	4	1494	5974	120	0.0149	1.0000	1.49%
VZW AWS	2120	4	1698	6793	120	0.0170	1.0000	1.70%
VZW CBAND	3730.08	2	13335	26670	120	0.0666	1.0000	6.66%
Total Percentage of Maximum Permissible Exposure								12.67%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

**Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz

mW/cm^2 = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.