



Northeast Site Solutions  
Denise Sabo  
4 Angela's Way, Burlington CT 06013  
203-435-3640  
denise@northeastsitesolutions.com

February 11, 2022

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

RE: Exempt Modification Application  
15 Pent Road, Deep River, CT 06417  
Latitude: 41.37222  
Longitude: -72.43500  
Site #: 823666\_Crown\_VZW

Dear Ms. Bachman:

Verizon Wireless is requesting to file an exempt modification for an existing tower located at 15 Pent Road, Deep River, CT 06417. Verizon Wireless currently maintains twelve (12) antennas at the 170-foot level of the existing 180-foot tower. The property is owned by Beks Holdings LLC and the tower is owned by Crown Castle. Verizon now intends to replace nine (9) antennas. The new antennas would be installed at the 170-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed as per the attached Maser mount analysis dated December 1, 2021.

**Verizon Planned Modifications:**

**Remove:** None

**Remove and Replace:**

- (3) BXA-70063-6CF Antennas (REMOVE) – (3) Samsung MT6407-77A Antennas (REPLACE)
- (6) HBXX-6517DS-A2M Antennas (REMOVE) – (6) JMA MX06FR0660-03 Antennas (REPLACE)
- (3) Nokia B4 RRH (REMOVE) - (3) Samsung RF44439d-25A RRH (REPLACE)
- (3) Nokia B13 RRH (REMOVE) - (3) Samsung RF4440d-13A RRH (REPLACE)

**Install New:**

- (1) Raycap RVZDC-6627-PF-48
- (1) Hybrid Line 1-5/8"

**Existing to Remain:**

- (3) ANDREW Antennas
- (12) 1-5/8" Coax
- (1) Raycap OVP

The facility was approved by the Town of Deep River, Building Permit No. 00-1-182 on August 18, 2000. Please see attached.



**NSS** **NORTHEAST**  
SITE SOLUTIONS

*Turnkey Wireless Development*

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 Angus L. McDonald, Jr., First Selectman and Mike D'Amato, Zoning Enforcement Officer for the Town of Deep River. A copy is also being sent to the tower owner and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Verizon Wireless respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Denise Sabo  
Mobile: 203-435-3640  
Fax: 413-521-0558  
Office: 4 Angela's Way, Burlington CT 06013  
E-mail: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

Attachments

Cc: Angus L. McDonald, Jr., First Selectman  
Deep River Town Hall  
174 Main Street  
Deep River, CT 06417

Mike D'Amato, Zoning Enforcement Officer  
Deep River Town Hall  
174 Main Street  
Deep River, CT 06417

Beks Holdings LLC, Property Owners  
14 Timberlane Dr  
Westbrook, CT 06498

Crown Castle, Tower Owner

# Exhibit A

## **Original Facility Approval**



CT-11-237C

# BUILDING PERMIT

JOB WEATHER CARD

DATE AUGUST 12, 2009 PERMIT NO. 03-L-152  
APPLICANT VOICE STREAM WIRELESS ADDRESS 100 FILLEY, BLOOMFIELD, CT. 06002  
(NO.) (STREET) (CONTR'S LICENSE)

PERMIT TO CONSTANT ANTENNA TOWER STORY \_\_\_\_\_ NUMBER OF DWELLING UNITS 0  
(TYPE OF IMPROVEMENT) NO. (PROPOSED USE)

AT (LOCATION) 19 TENT ROAD, DEEP RIVER ZONING DISTRICT \_\_\_\_\_  
(NO.) (STREET)  
BETWEEN \_\_\_\_\_ AND \_\_\_\_\_  
(CROSS STREET) (CROSS STREET)

SUBDIVISION \_\_\_\_\_ LOT \_\_\_\_\_ BLOCK \_\_\_\_\_ LOT SIZE \_\_\_\_\_

BUILDING IS TO BE \_\_\_\_\_ FT. WIDE BY \_\_\_\_\_ FT. LONG BY \_\_\_\_\_ FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTION TO TYPE \_\_\_\_\_ USE GROUP \_\_\_\_\_ BASEMENT WALLS OR FOUNDATION \_\_\_\_\_ (TYPE)

REMARKS: PERMIT ISSUED FOR THE CONSTRUCTION OF TOWER PER SUBMITTED APPLICATION AND DRAWINGS. ALL APPLICABLE CODES MUST BE MET AND INSPECTIONS REQUESTED. FIRST INSPECTION REQUIRED PRIOR TO POURING ANY CONCRETE.

AREA OR VOLUME \_\_\_\_\_ ESTIMATED COST \$ 75,000.00 PERMIT FEE \$ 750.00  
(CUBIC/SQUARE FEET)

OWNER ROBERT STALEBERG BUILDING DEPT. \_\_\_\_\_  
ADDRESS 19 TENT ROAD, DEEP RIVER BY \_\_\_\_\_

THIS PERMIT CONVEYS NO RIGHT TO OCCUPY ANY STREET, ALLEY OR SIDEWALK OR ANY PART THEREOF, EITHER TEMPORARILY OR PERMANENTLY. ENCROACHMENTS ON PUBLIC PROPERTY, NOT SPECIFICALLY PERMITTED UNDER THE BUILDING CODE, MUST BE APPROVED BY THE JURISDICTION. STREET OR ALLEY GRADES AS WELL AS DEPTH AND LOCATION OF PUBLIC SEWERS MAY BE OBTAINED FROM THE DEPARTMENT OF PUBLIC WORKS. THE ISSUANCE OF THIS PERMIT DOES NOT RELEASE THE APPLICANT FROM THE CONDITIONS OF APPLICABLE SUBDIVISION RESTRICTIONS.

MINIMUM OF THREE CALLED INSPECTIONS REQUIRED FOR ALL CONSTRUCTION WORK:  
1. FOUNDATIONS OR FOOTINGS.  
2. PRIOR TO COVERING STRUCTURAL MEMBERS (READY FOR LATH OR FINISH COVERING).  
3. FINAL INSPECTION BEFORE OCCUPANCY.

APPROVED PLANS MUST BE RETAINED ON JOB AND THIS CARD KEPT POSTED UNTIL FINAL INSPECTION HAS BEEN MADE. WHERE A CERTIFICATE OF OCCUPANCY IS REQUIRED, SUCH BUILDING SHALL NOT BE OCCUPIED UNTIL FINAL INSPECTION HAS BEEN MADE.

WHERE APPLICABLE SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

## POST THIS CARD SO IT IS VISIBLE FROM STREET

BUILDING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS
1	1	1
2	2	2
3	HEATING INSPECTING APPROVALS	REFRIGERATION INSPECTION APPROVALS
	1	1
OTHER	2	2

WORK SHALL NOT PROCEED UNTIL THE INSPECTOR HAS APPROVED THE VARIOUS STAGES OF CONSTRUCTION.

PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION WORK IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE.

INSPECTIONS INDICATED ON THIS CARD CAN BE ARRANGED FOR BY TELEPHONE OR WRITTEN NOTIFICATION.

FORM NO. BOCA 1 BP 1994

# Exhibit B

## Property Card

CURRENT OWNER		TOPO.	UTILITIES	STRT./ROAD	LOCATION	CURRENT ASSESSMENT			
ADVANTAGE PROPERTIES LLC C/O CROWN ATLANTIC CO PMB 353 4017 WASHINGTON RD MCMURRAY, PA 15317 Additional Owners:		2 Above Street		1 Paved		Description	Code	Appraised Value	Assessed Value
						Comm Land	2-1	121,900	85,330
						Comm Bldg	2-2	80,600	56,420
						Comm OB	2-5	663,000	464,100
SUPPLEMENTAL DATA						<b>6079</b> <b>MARLBOROUGH, CT</b>  <b>VISION</b>			
Other ID: 2014T		EXEMPT CO							
Census Dev. Lot Dev. Map		Lake Area Photo Retake CB Letter							
GIS ID: 6/26/65T		ASSOC PID#				Total 865,500 605,850			

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)								
ADVANTAGE PROPERTIES LLC		252/ 911	05/06/2019	U	I		29	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
VILLAGE PROPERTIES LLC		127/ 9	02/03/1999	U	I		29	2015	2-1	85,330	2014	2-1	90,300	2014	2-1	90,300
								2015	2-2	56,420	2014	2-2	25,270	2014	2-2	25,270
								2015	2-5	578,620	2014	2-5	463,260	2014	2-5	463,260
Total:										720,370	Total:		578,830	Total:		578,830

EXEMPTIONS				OTHER ASSESSMENTS			
Year	Type	Description	Amount	Code	Description	Number	Amount
Total:							

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD				
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

APPRAISED VALUE SUMMARY	
Appraised Bldg. Value (Card)	80,600
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	663,000
Appraised Land Value (Bldg)	121,900
Special Land Value	0
Total Appraised Parcel Value	865,500
Valuation Method:	C
Adjustment:	0
<b>Net Total Appraised Parcel Value</b>	<b>865,500</b>

NOTES	
CELL TOWER LOCATED BEHIND MARLBORO BARN	CELL TOWER VALUE = \$2083/MONTH-5% VAC-
CELLULAR TOWER; GATED	15% EXPENSES = \$20,184 CAPPED AT 10% =
500 FT LF FALL DOWN ZONE = 5.74 AC	\$201,880 PER SITE X 5 SITES = \$1,009,400
1.84 COMMERCIAL SITE	2017 UPDATE-TERMINATION/EXPIRATION OF ONE
3.9 COMMERCIAL EXCESS	CARRIER/SPRINT/NEXTEL

BUILDING PERMIT RECORD								VISIT/ CHANGE HISTORY						
Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	Date	Type	IS	ID	Cd.	Purpose/Result
18-318	10/16/2018	BP		20,000		0		REMOVE AND REPLACE	07/27/2015			LM	99	Vacant Land
17-035	03/09/2017	BP		7,500		0		REPLACE 3 RRUS TO E						
15-101	05/12/2015	CM	Commercial	0	07/27/2015	100		ANTENNA UPGRADE						
1128	12/27/2012	CM	Commercial	0	07/27/2015	100		GROUND MOUNTED C						
500	12/13/2011	CM	Commercial	0	07/27/2015	100		CHANGE SEVEN (7) AN						

LAND LINE VALUATION SECTION																			
B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value
1	200	Commercial	R	A	181		1.84	76,000.00	0.6150	C	1.0000	1.00	D	1.10			1.00		94,600
1	200	Commercial	R	A			3.90	7,000.00	1.0000	0	1.0000	1.00		0.00			1.00		27,300

CONSTRUCTION DETAIL				CONSTRUCTION DETAIL (CONTINUED)			
Element	Cd.	Ch.	Description	Element	Cd.	Ch.	Description
Style	91		Support Shed				
Model	94		Commercial				
Grade	03		Average				
Stories	1						
Occupancy	1						
Exterior Wall A	24		Reinforc Concr				
Exterior Wall B							
Roof Structure	01		Flat				
Roof Cover	04		T&G/Rubber				
Interior Wall A	01		Minimum				
Interior Wall B							
Interior Floor A	03		Concrete				
Interior Floor B							
Heating Fuel	01		Coal or Wood				
Heating Type	01		None				
AC Type	03		Central				
Bldg Use	200		Commercial				
Heat/AC	02		HEAT/AC SPLIT				
Frame Type	04		Reinforced Cnc				
Baths/Plumbing	00		None				
Ceiling/Walls	00		None				
Rooms/Prtns	01		Light				
Wall Height	8						
% Comn Wall							

BAS	20	42
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OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)												
Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
SHD1	Shed	FR	Frame	L	360	20.00	1999			5	60	4,300
FN4	Fence 8'			L	322	20.00	2000			5	60	3,900
PAT1	Patio	CR	Concrete	L	192	3.50	2000				60	400
CELL	Cell Tower			L	4	163,600.00	2011		0		100	654,400

**BUILDING SUB-AREA SUMMARY SECTION**

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	840	840	840		92,669
<b>Ttl. Gross Liv/Lease Area:</b>		<b>840</b>	<b>840</b>	<b>840</b>		<b>92,669</b>



65T  
5.74 AC



1286.75

BLK 26

TEN MIL  
6/2

41.628708,-72.4

# Exhibit C

## **Construction Drawings**





**VERIZON SITE NUMBER:** 467700  
**VERIZON SITE NAME:** DEEP RIVER CT  
**SITE TYPE:** MONOPOLE  
**TOWER HEIGHT:** 178'-0"

**BUSINESS UNIT #:** 823666  
**SITE ADDRESS:** 15 PENT RD.  
 DEEP RIVER, CT 06417  
**COUNTY:** MIDDLESEX  
**JURISDICTION:** CONNECTICUT  
**SITING COUNCIL**

**VERIZON FUZE PROJECT #: 16271929**

**verizon**  
 180 WASHINGTON VALLEY ROAD  
 BEDMINSTER, NJ 07921

**CROWN CASTLE**  
 3 CORPORATE PARK DRIVE, SUITE 101  
 CLIFTON PARK, NY 12065

**INFINIGY**  
 FROM ZERO TO INFINIGY  
 the solutions are endless  
 BELLEVUE, WA 98004

**VERIZON SITE NUMBER:**  
 467700  
**BU #:** 823666  
**DEEP RIVER/RT 9**  
 15 PENT RD.  
 DEEP RIVER, CT 06417  
 EXISTING 178'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES/QA
0	12/13/2021	RCD	FINAL CDs	---

**SITE INFORMATION**

CROWN CASTLE USA INC. DEEP RIVER/RT 9  
 SITE NAME:  
 SITE ADDRESS: 15 PENT RD.  
 DEEP RIVER, CT 06417  
 COUNTY: MIDDLESEX  
 MAP/PARCEL #: TBD  
 AREA OF CONSTRUCTION: EXISTING  
 LATITUDE: 41° 22' 22.17" N (41.372222°)  
 LONGITUDE: 72° 26' 3.97" W (-72.435°)  
 LAT/LONG TYPE: NAD83  
 GROUND ELEVATION: 610'  
 CURRENT ZONING: N/A  
 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: TBD  
 TOWER OWNER: CCAIT LLC  
 2000 CORPORATE DRIVE  
 CANONSBURG, PA 15317  
 CARRIER/APPLICANT: VERIZON WIRELESS  
 180 WASHINGTON VALLEY ROAD  
 BEDMINSTER, NJ 07921  
 ELECTRIC PROVIDER: TBD  
 TELCO PROVIDER: AT&T  
 855-637-9527

**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	FIBER NAMING & EQUIPMENT DETAILS
C-6	COLOR CODE
C-7	PLUMBING DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. 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**

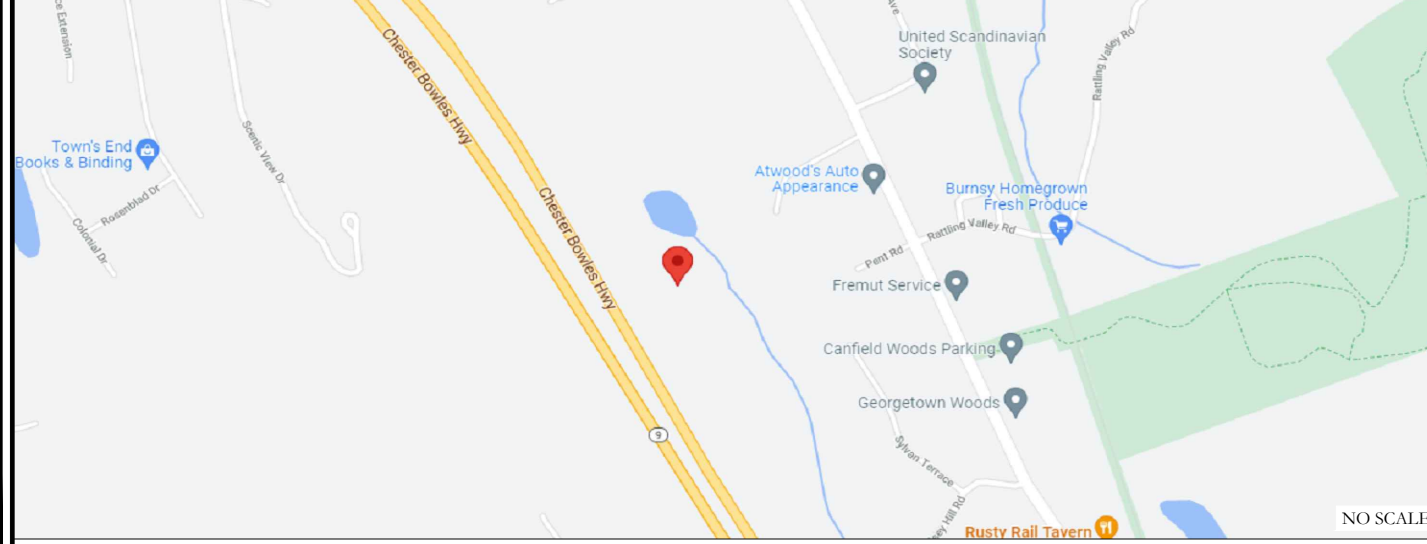
PMI ACCESSED AT <https://pmi.vxwsmart.com>  
 SMART TOOL VENDOR  
 PROJECT NUMBER 6039-Z0001-C  
 VzW LOCATION CODE (PSLC) 467700  
 \*\*\* PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT ANALYSIS REPORT

**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 (180 WASHINGTON VALLEY ROAD BEDMINSTER, NJ 07921) DEPART AND HEAD TOWARD US-206 N / US-202 N / US HIGHWAY 202 206, TURN RIGHT ONTO SCHLEY MOUNTAIN RD, PASS DAYS INN BY WYNDHAM NANUET / SPRING VALLEY ON THE RIGHT IN 12.2 KM, KEEP STRAIGHT TO GET ONTO I-287 E, AT EXIT 69, HEAD RIGHT ON THE RAMP FOR CT-9 NORTH TOWARD ESSEX / HARTFORD, AT EXIT 4, HEAD RIGHT ON THE RAMP FOR CT-154 TOWARD DEEP RIVER, TURN LEFT ONTO CT-154 / MAIN ST TOWARD DEEP RIVER, TURN LEFT, ARRIVE AT 15 PENT RD., DEEP RIVER, CT 06417.

**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 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

**REFERENCE DOCUMENTS:**  
 STRUCTURAL ANALYSIS: B+T GROUP  
 DATED: 08/25/2021  
 MOUNT ANALYSIS: MASER CONSULTING CONNECTICUT  
 DATED: 12/01/2021  
 RFDS REVISION: 0  
 DATED: 10/12/2021  
 ORDER ID: 582520  
 REVISION: 0

**PROJECT DESCRIPTION**

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

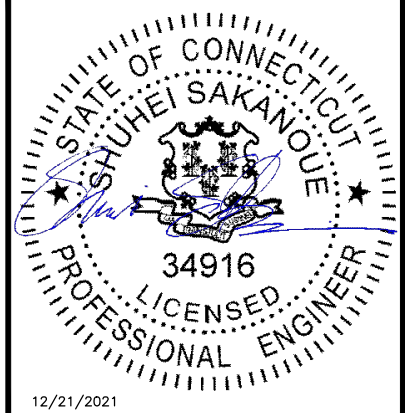
- TOWER SCOPE OF WORK:**
- REMOVE (9) ANTENNAS
  - REMOVE (6) RRHS
  - INSTALL (6) ANTENNAS
  - INSTALL (3) INTEGRATED ANTENNAS
  - INSTALL (6) RRHS
  - INSTALL (1) OVP
  - INSTALL (1) HYBRID CABLE
  - INSTALL ANTENNA MOUNT MODS

**GROUND SCOPE OF WORK:**  
 • N/A

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

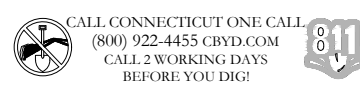
**PROJECT TEAM**

A&E FIRM: CROWN CASTLE USA INC.  
 2000 CORPORATE DRIVE  
 CANONSBURG, PA 15317  
 CROWN.AE.APPROVAL@CROWNCastle.COM  
 CROWN CASTLE USA INC. DISTRICT CONTACTS:  
 WILLIAM GATES - PROJECT MANAGER  
 WILLIAM.GATES@CROWNCastle.COM  
 JASON D'AMICO - CONSTRUCTION MANAGER  
 JASON.D'AMICO@CROWNCastle.COM  
 VERIZON CONTACT: ANDREW LEONE  
 ALEONE@STRUCTURECONSULTING.NET



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:** 0





**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 ANTI-OXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
- BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM. THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

**GENERAL NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION  
CARRIER: 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 (WFF) 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.
  - 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 SNEW 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 (WIREFOLD 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
DC VOLTAGE	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
- RETS REMOTE ELECTRIC TILT
- RFDSD 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

**APWA UNIFORM COLOR CODE:**

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



**VERIZON SITE NUMBER:**  
**467700**

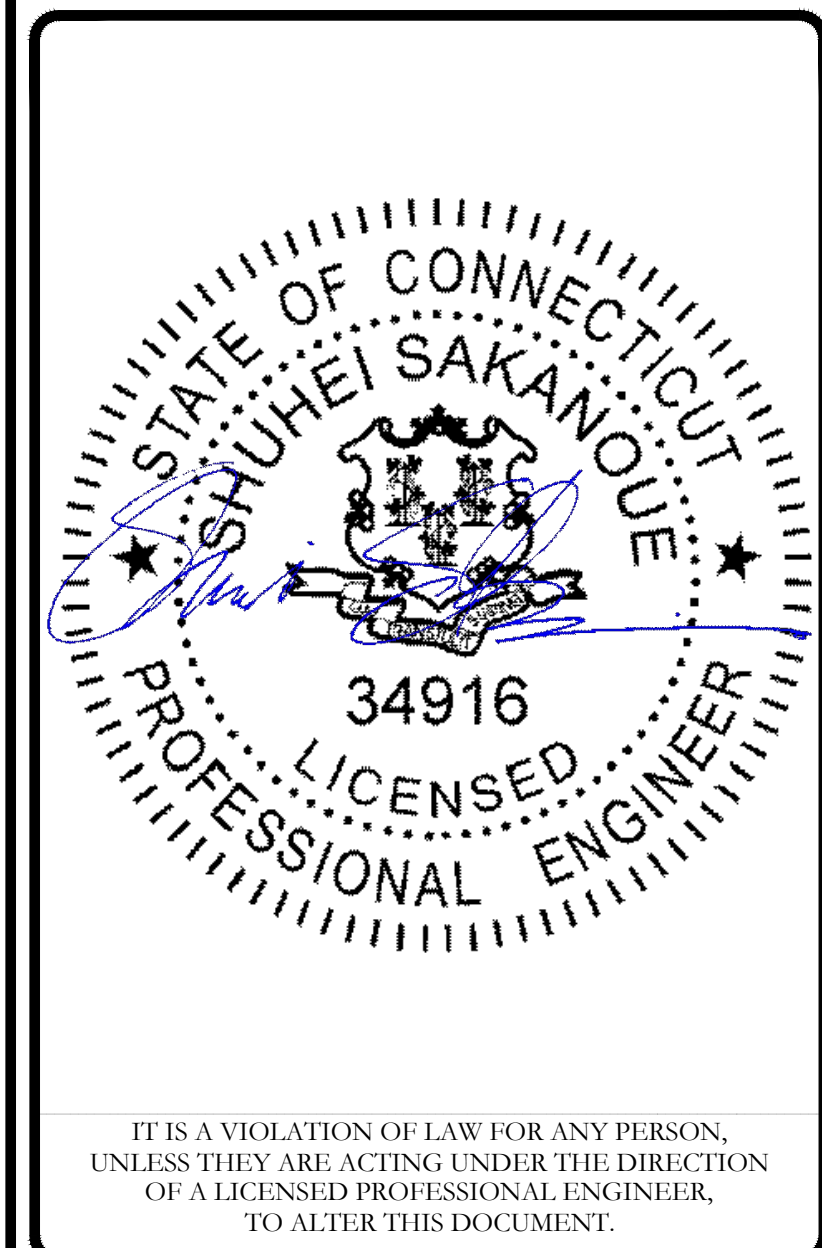
**BU #: 823666**  
**DEEP RIVER/RT 9**

**15 PENT RD.**  
**DEEP RIVER, CT 06417**

**EXISTING 178'-0" MONOPOLE**

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	12/13/2021	RCD	FINAL CDs	----

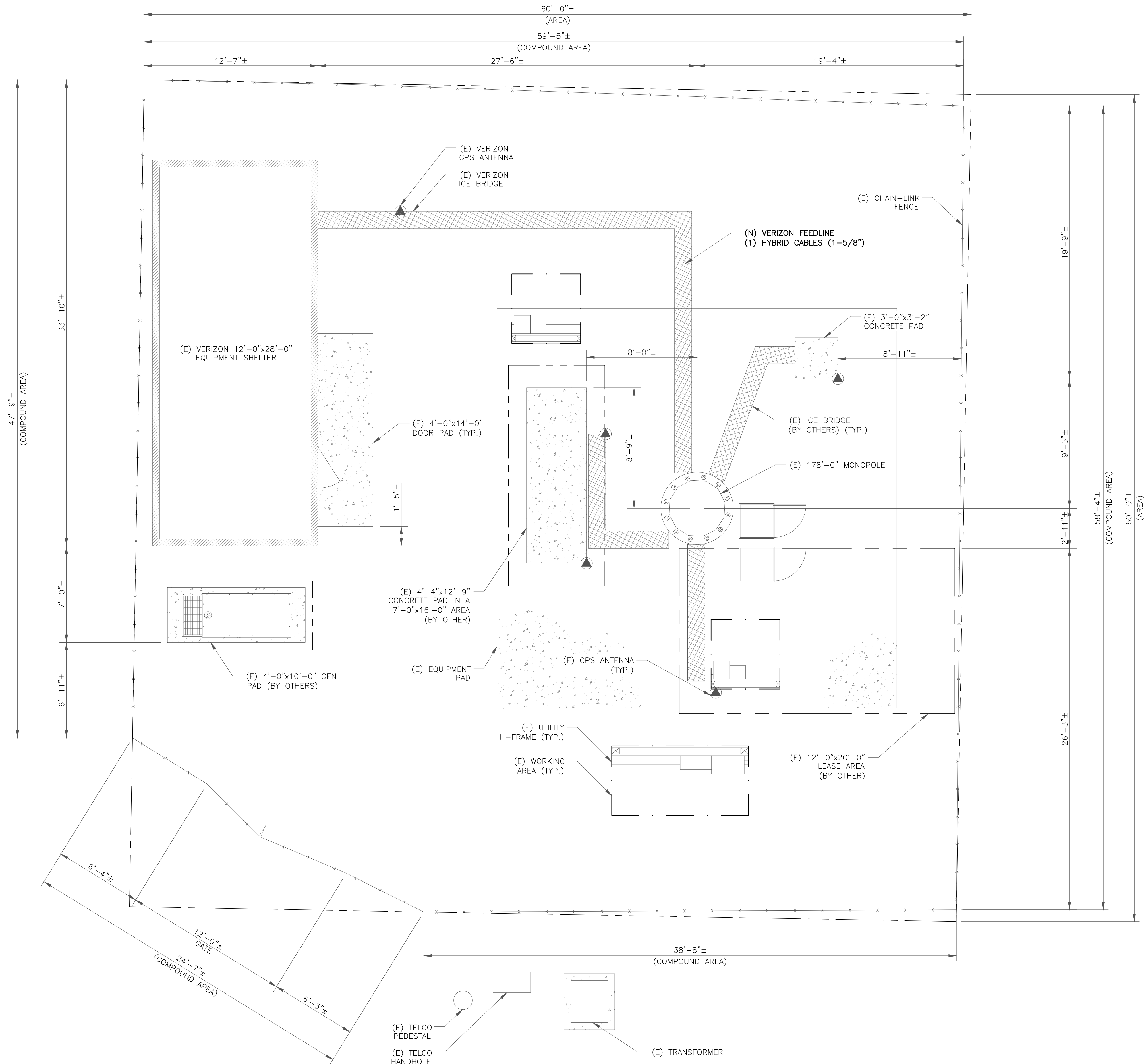


IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

**SHEET NUMBER:**  
**T-2**

**REVISION:**  
**0**





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

**verizon**  
180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

**CROWN CASTLE**  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065

**INFINIGY**  
FROM ZERO TO INFINIGY  
the solutions are endless  
BELLEVUE, WA 98004

VERIZON SITE NUMBER:  
**467700**

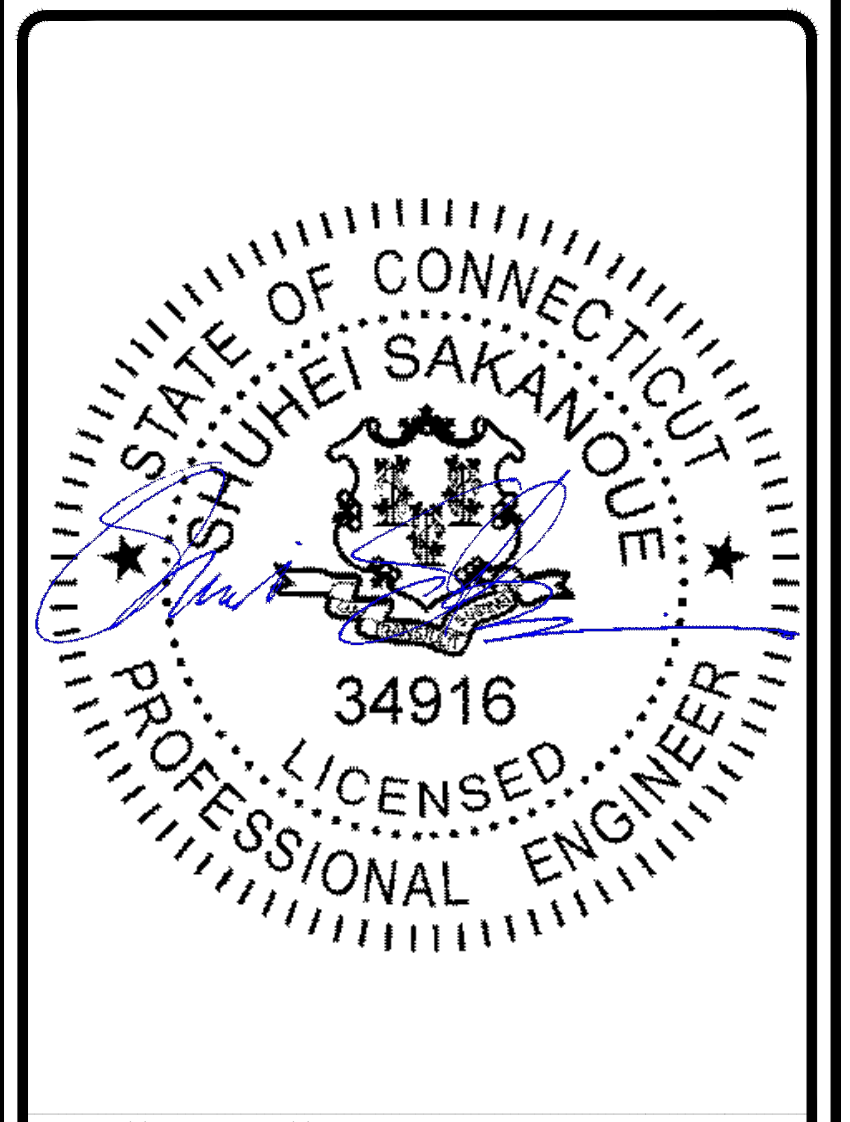
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0	12/13/2021	RCD	FINAL CDs	---



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SHEET NUMBER: **C-1** REVISION: **0**



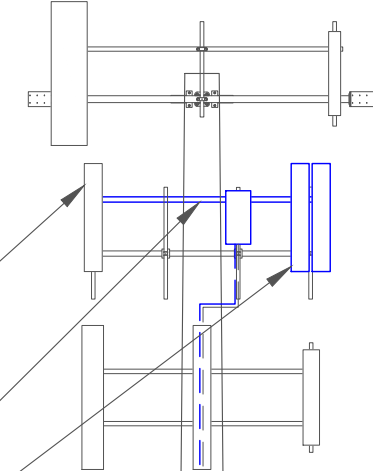
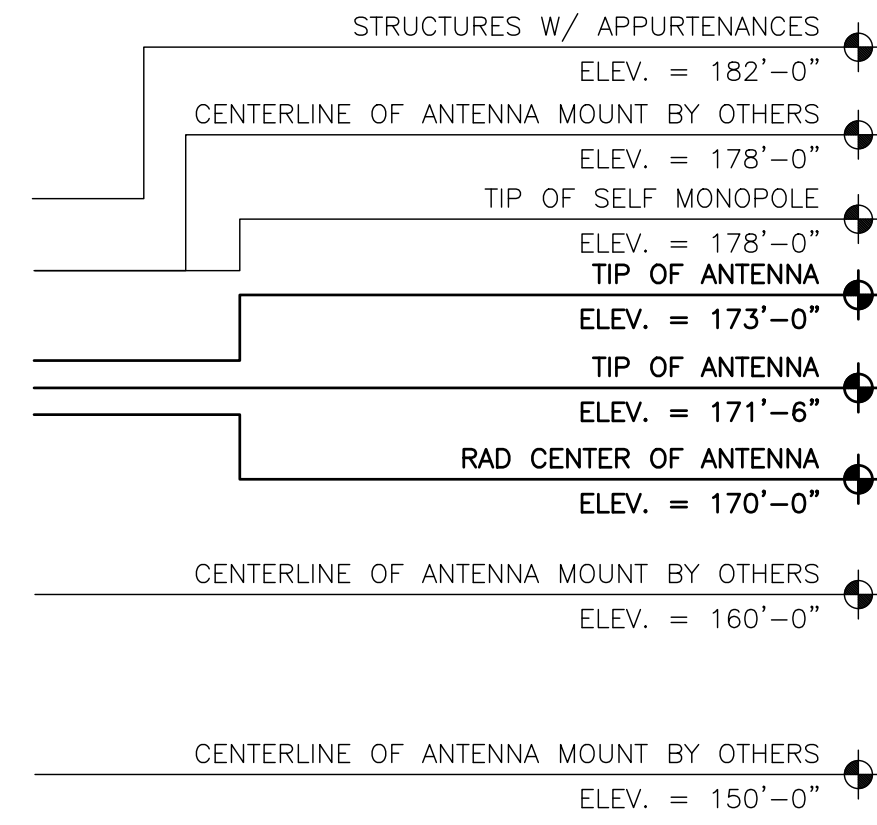
**NOTES:**

- THESE DRAWINGS ARE NOT INTENDED TO BE A VERIFICATION THAT THE STRUCTURE OR MOUNTS ARE ADEQUATE TO SUPPORT THE PROPOSED LOADING. VERIFICATION THAT THE EXISTING STRUCTURE AND MOUNTS CAN SUPPORT THE PROPOSED LOADING SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION.
- CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS AND MOUNT ASSESSMENT AND VERIFY LOADING WITH THE MOST RECENT RFDS PRIOR TO CONSTRUCTION.

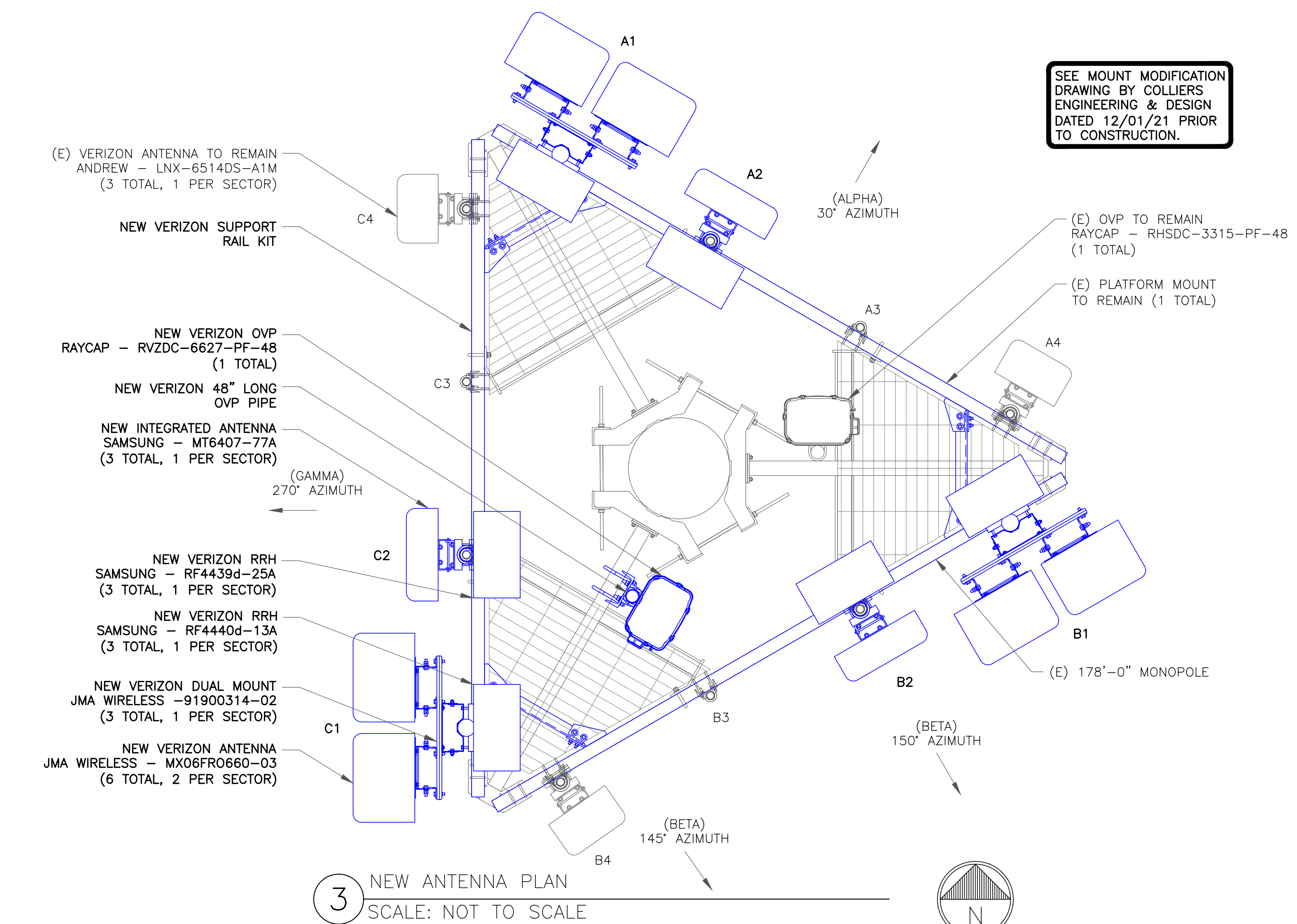
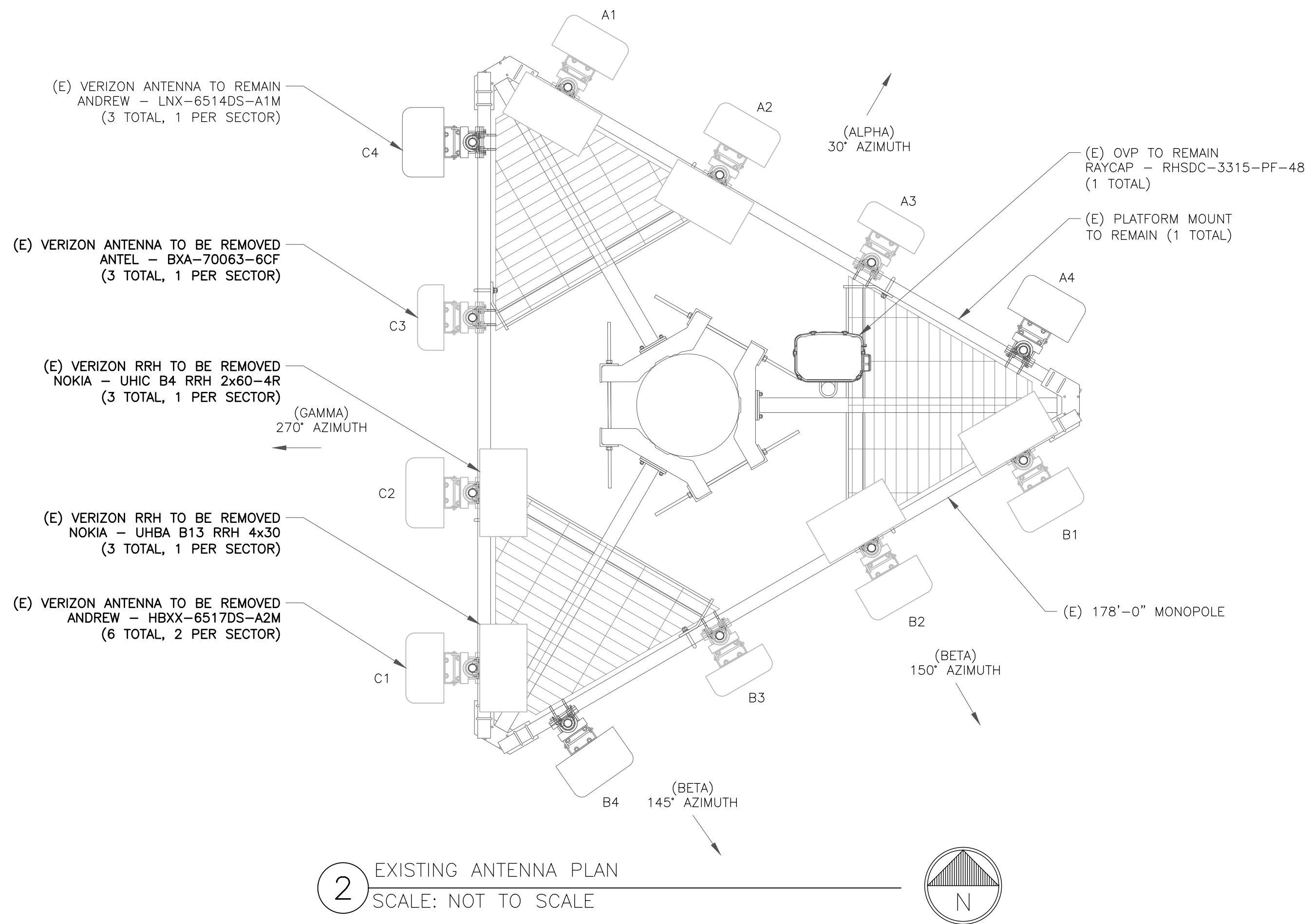
- (E) VERIZON EQUIPMENT TO REMAIN  
 (3) ANDREW - LNX-6514DS-A1M ANTENNAS  
 RAYCAP - RHSDC-3315-PF-48 OVPs  
 INSTALLED ON EXISTING MOUNTS
- NEW VERIZON SUPPORT RAIL KIT
- NEW VERIZON EQUIPMENT  
 (3) SAMSUNG - MT6407-77A ANTENNAS  
 (6) JMA WIRELESS - MX06FRO660-03 ANTENNAS  
 (3) SAMSUNG - RF4439d-25A RRHs  
 (3) SAMSUNG - RF4440d-13A RRHs  
 (1) RAYCAP - RVZDC-6627-PF-48 OVP  
 (3) JMA WIRELESS -91900314-02 DUAL MOUNT  
 INSTALLED ON EXISTING MOUNTS

**VERIZON EQUIPMENT**

ANTENNA CL: 170'-0"  
 MOUNT CL: 168'-0"

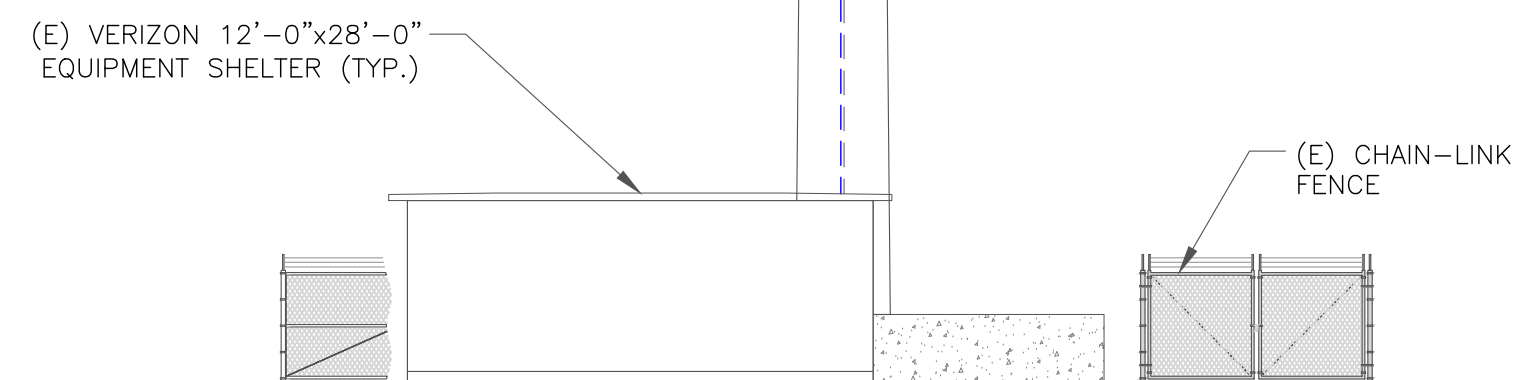


1 TOWER ELEVATION  
 SCALE: NOT TO SCALE



SEE MOUNT MODIFICATION DRAWING BY COLLERS ENGINEERING & DESIGN DATED 12/01/21 PRIOR TO CONSTRUCTION.

- (E) 178'-0" MONOPOLE
- (N) VERIZON FEEDLINE (1) HYBRID CABLE (1-5/8")
- (E) VERIZON FEEDLINE (12) COAX CABLES (1-5/8")



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 BELLEVUE, WA 98004

VERIZON SITE NUMBER:  
 467700

BU #: 823666  
 DEEP RIVER/RT 9

15 PENT RD.  
 DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	12/13/2021	RCD	FINAL CDs	---

STATE OF CONNECTICUT  
 SHUHEI SAKANOU  
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SHEET NUMBER: **C-2** REVISION: **0**



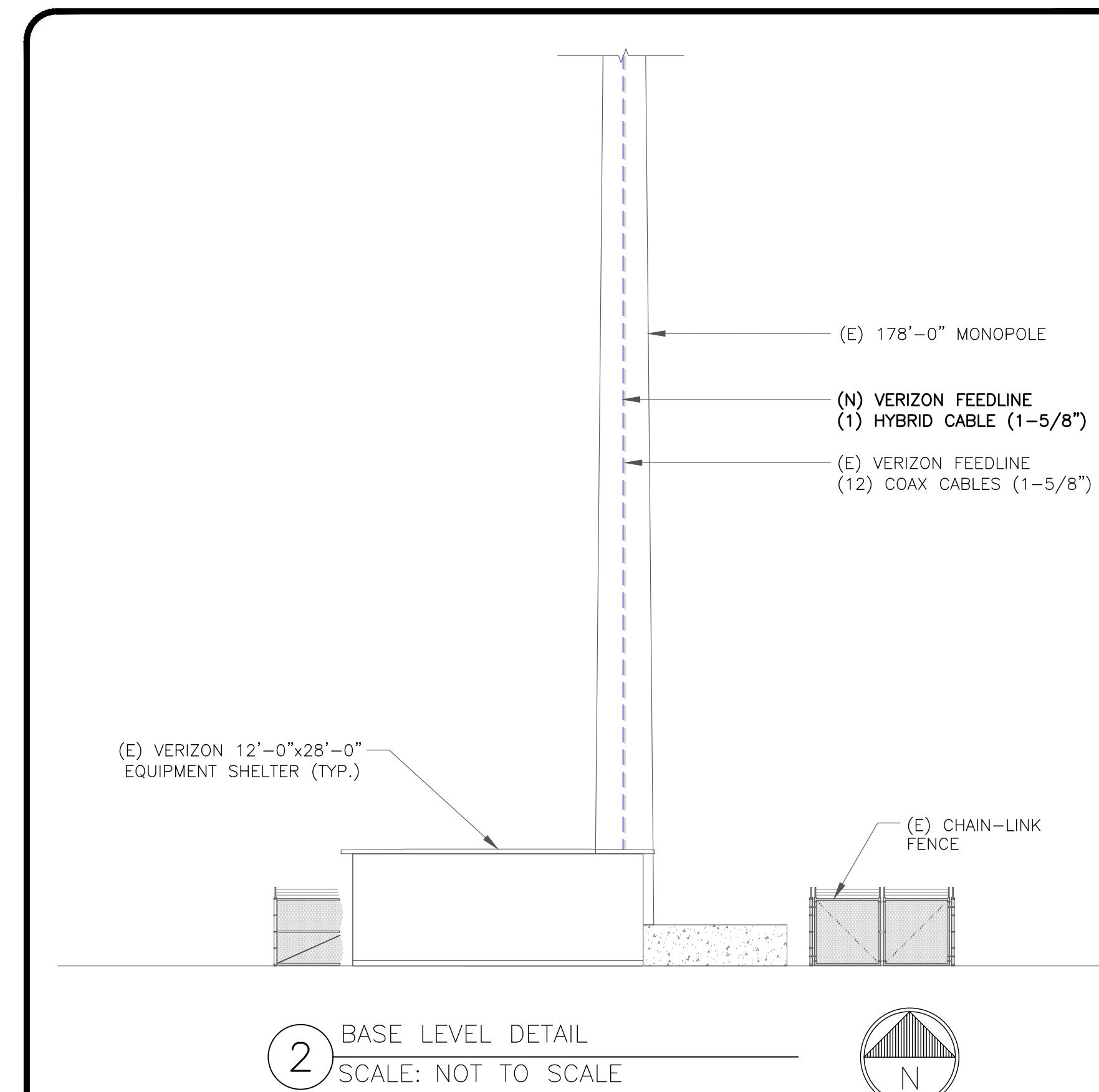
ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	NEW	JMA WIRELESS	MX06FRO660-03	170'-0"	30°	0°	2'/2'/2'/2'	SAMSUNG SAMSUNG JMA WIRELESS	(1) RF4439d-25A (1) RF4440d-13A (1) 91900314-02
	NEW	JMA WIRELESS	MX06FRO660-03						
A2	NEW	SAMSUNG	MT6407-77A	170'-0"	30°	0°	6'	-	-
A3	-	-	-	-	-	-	-	-	-
A4	EXISTING	ANDREW	LNx-6514DS-A1M	170'-0"	30°	0°	2'	RAYCAP	(1) RHSDC-3315-PF-48
B1	NEW	JMA WIRELESS	MX06FRO660-03	170'-0"	150°	0°	2'/2'/2'/2'	SAMSUNG SAMSUNG JMA WIRELESS	(1) RF4439d-25A (1) RF4440d-13A (1) 91900314-02
	NEW	JMA WIRELESS	MX06FRO660-03						
B2	NEW	SAMSUNG	MT6407-77A	170'-0"	150°	0°	6'	-	-
B3	-	-	-	-	-	-	-	-	-
B4	EXISTING	ANDREW	LNx-6514DS-A1M	170'-0"	145°	0°	2'	RAYCAP	(1) RVZDC-6627-PF-48
C1	NEW	JMA WIRELESS	MX06FRO660-03	170'-0"	270°	0°	2'/2'/2'/2'	SAMSUNG SAMSUNG JMA WIRELESS	(1) RF4439d-25A (1) RF4440d-13A (1) 91900314-02
	NEW	JMA WIRELESS	MX06FRO660-03						
C2	NEW	SAMSUNG	MT6407-77A	170'-0"	270°	0°	6'	-	-
C3	-	-	-	-	-	-	-	-	-
C4	EXISTING	ANDREW	LNx-6514DS-A1M	170'-0"	270°	0°	2'	-	-

1 VERIZON TOWER EQUIPMENT SCHEDULE  
SCALE: NOT TO SCALE

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
NEW	HYBRID	1-5/8"	220'-0"±	1
EXISTING	COAX	1-5/8"	220'-0"±	12
TOTAL CABLE QTY:				13



2 BASE LEVEL DETAIL  
SCALE: NOT TO SCALE

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VERIZON SITE NUMBER:  
**467700**

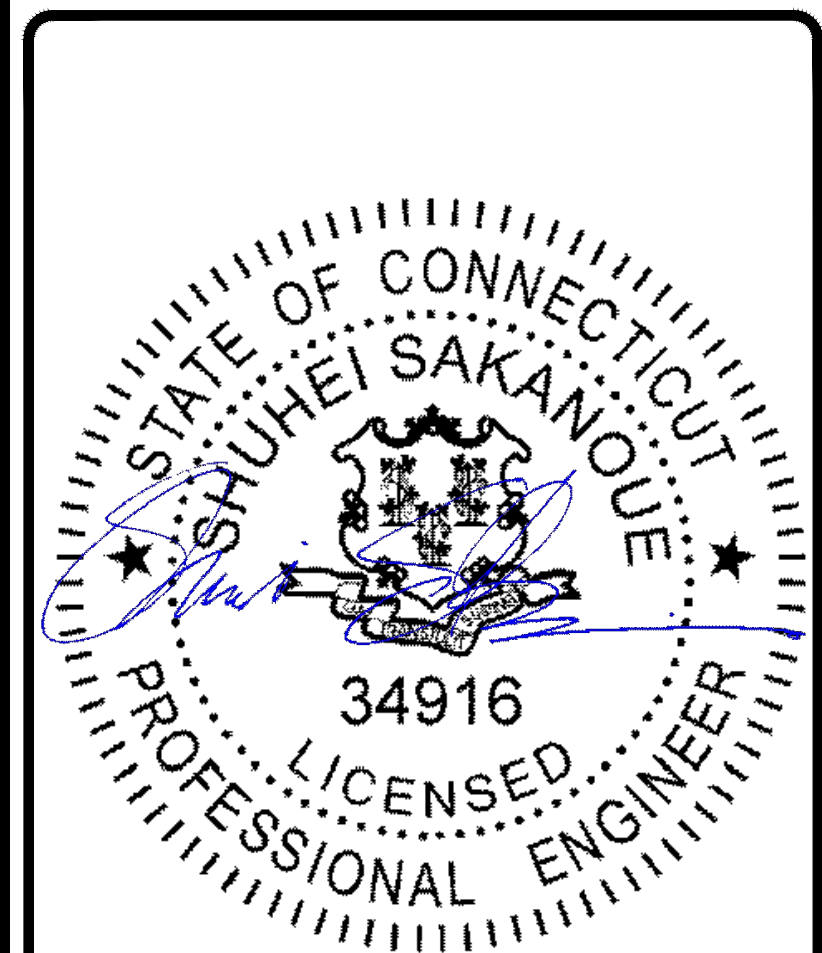
BU #: **823666**  
**DEEP RIVER/RT 9**

15 PENT RD.  
DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

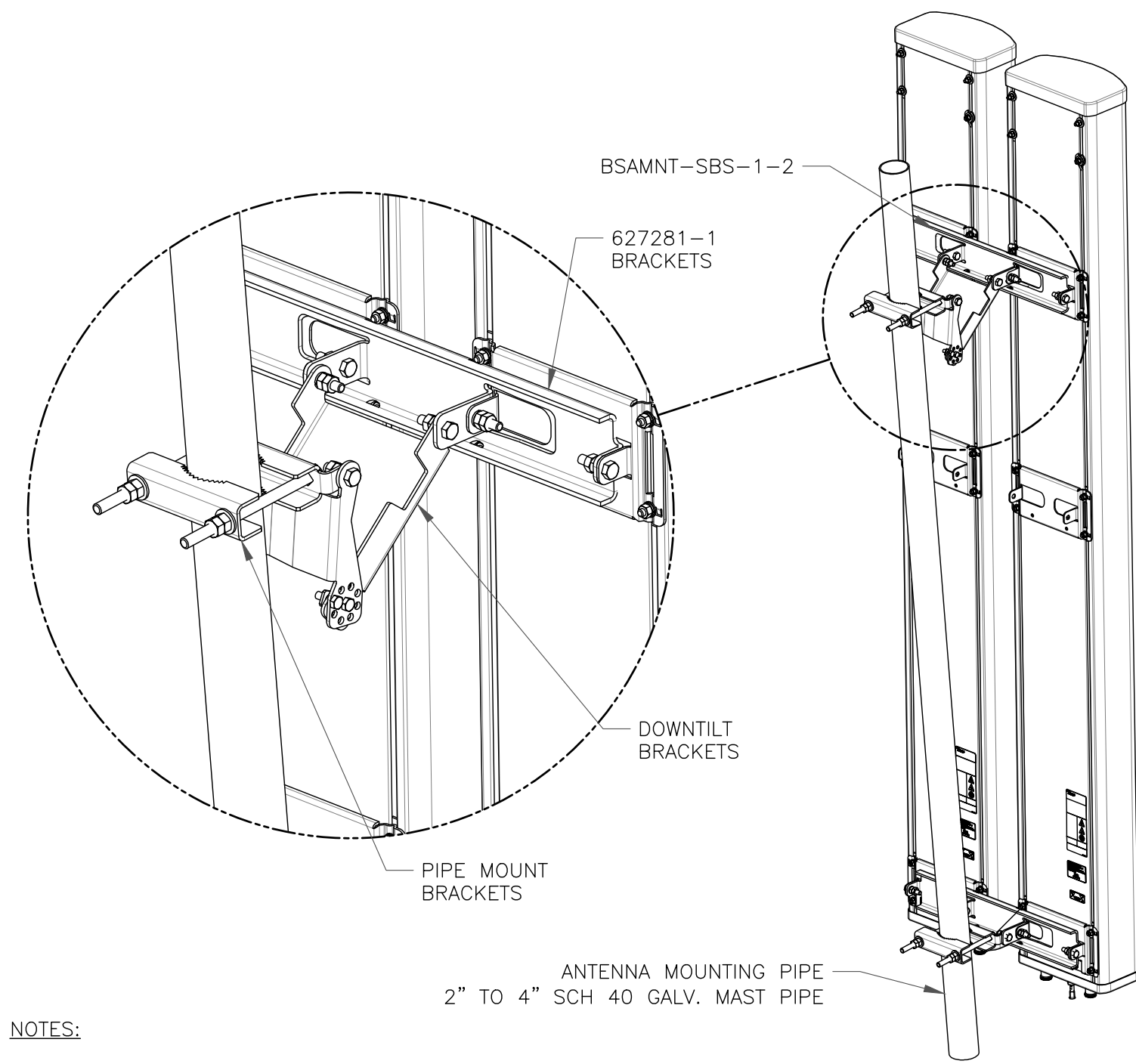
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SHEET NUMBER: **C-3** REVISION: **0**

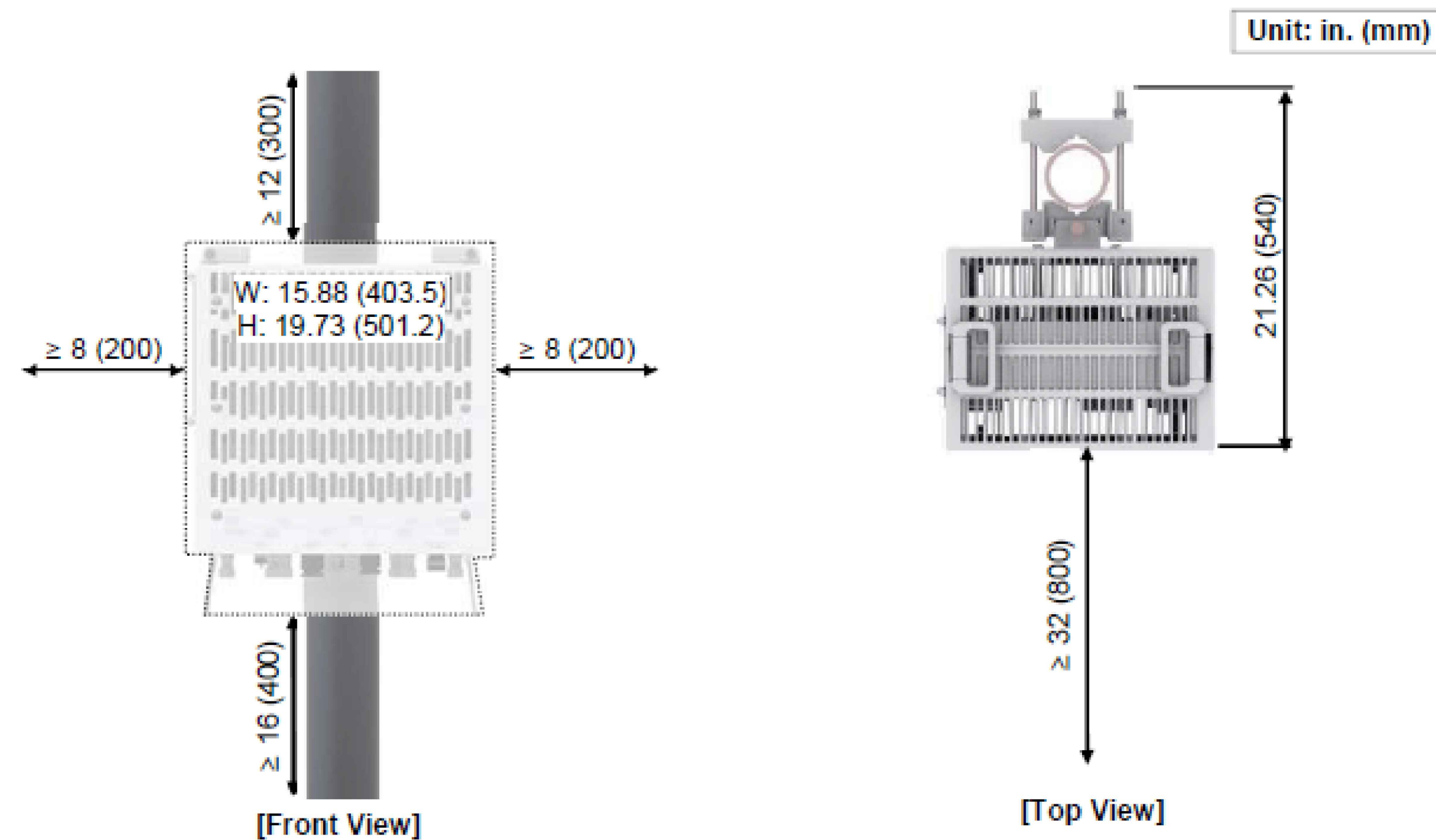


NOTES:

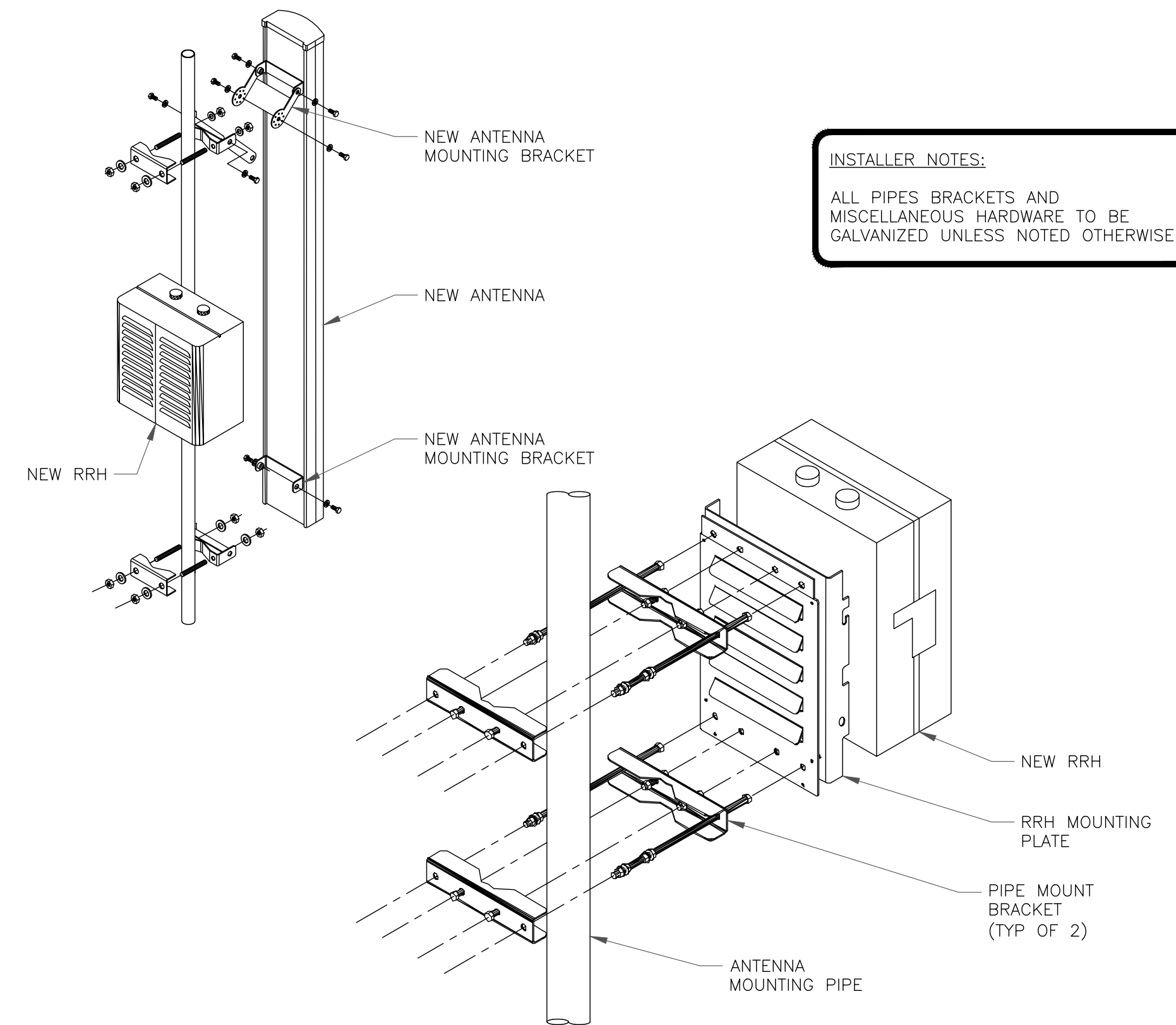
- BSAMNT-SBS-1-2 KIT CONTAINS (2) 627281 MOUNTING BRACKETS.
- TORQUE THE M10 BOLT ASSEMBLY TO 37 N.m. PER MANUFACTURE'S RECOMMENDATIONS.

1 COMMSCOPE - BSAMNT-SBS-1-2  
SCALE: NOT TO SCALE

2 NOT USED  
SCALE: NOT TO SCALE



3 SAMSUNG - FPKA BRACKET MOUNTING DETAIL  
SCALE: NOT TO SCALE



INSTALLER NOTES:  
ALL PIPES BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

4 ANTENNA & RRH MOUNTING DETAIL  
SCALE: NOT TO SCALE

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**467700**

BU #: **823666**  
**DEEP RIVER/RT 9**

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DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	12/13/2021	RCD	FINAL CDs	---

STATE OF CONNECTICUT  
SHUHEI SAKANOU  
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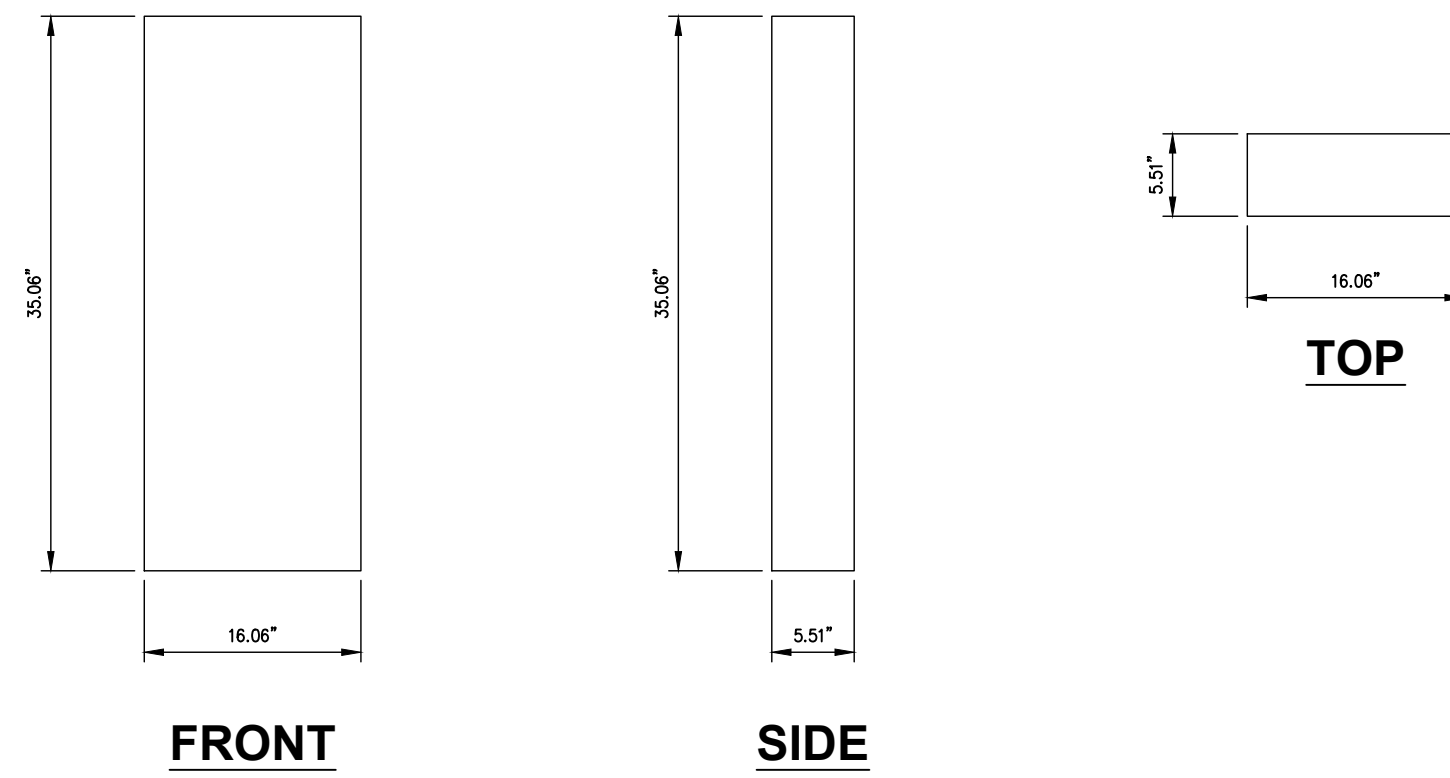
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SHEET NUMBER: **C-4** REVISION: **0**



**SAMSUNG PANEL ANTENNA (MT6407-77A)**

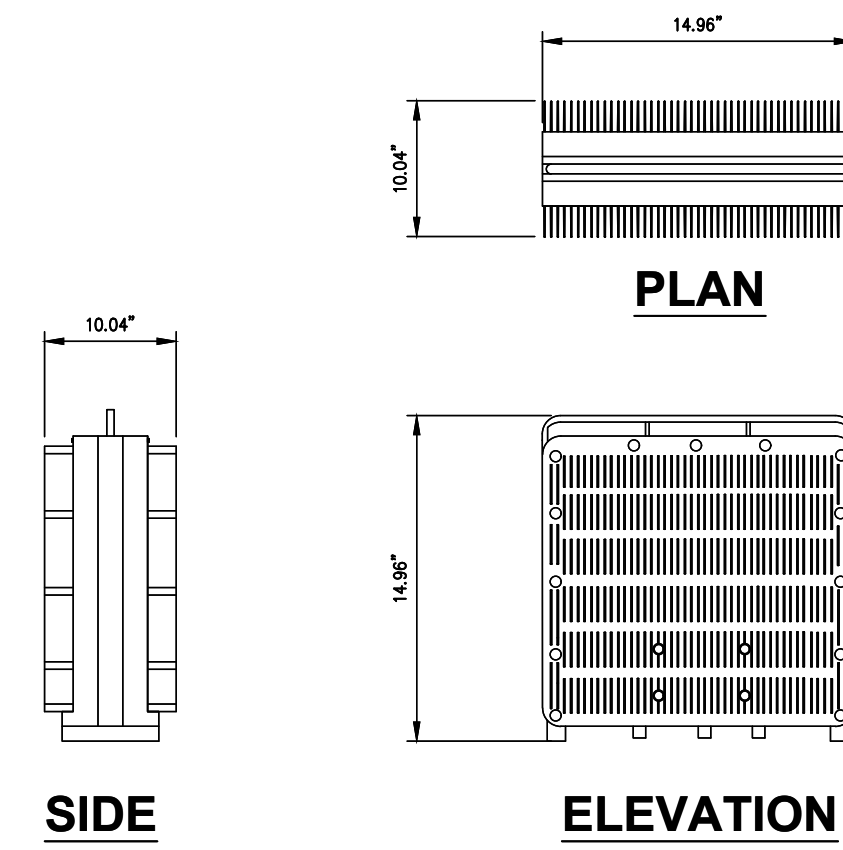
DIMENSIONS, HxWxD: 35.06"x16.06"x5.51"  
 WEIGHT, W/O BRACKETS: 81.57 lbs



1 SAMSUNG MT6407-77A ANTENNA DETAIL  
 SCALE: NOT TO SCALE

**SAMSUNG RF4439D-25A**

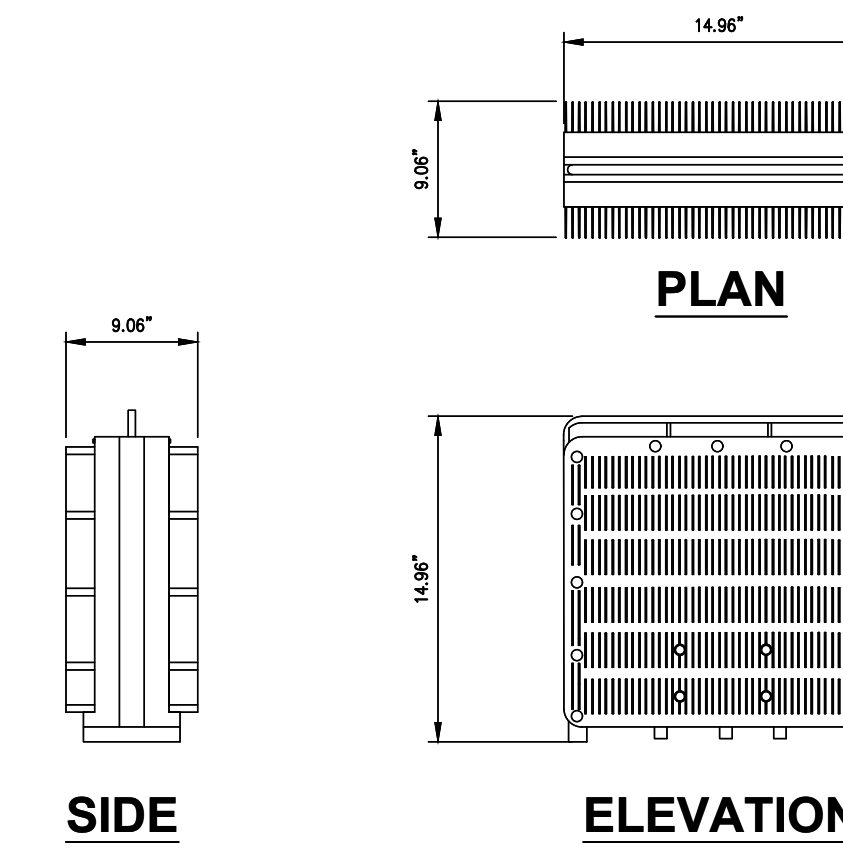
DIMENSIONS, WxDxH: 14.96" X 14.96" X 10.04"  
 TOTAL WEIGHT: 74.70 lbs  
 TEMPERATURE: -40° TO 55° C



2 SAMSUNG RF4439D-25A DETAIL  
 SCALE: NOT TO SCALE

**SAMSUNG RF4440D-13A**

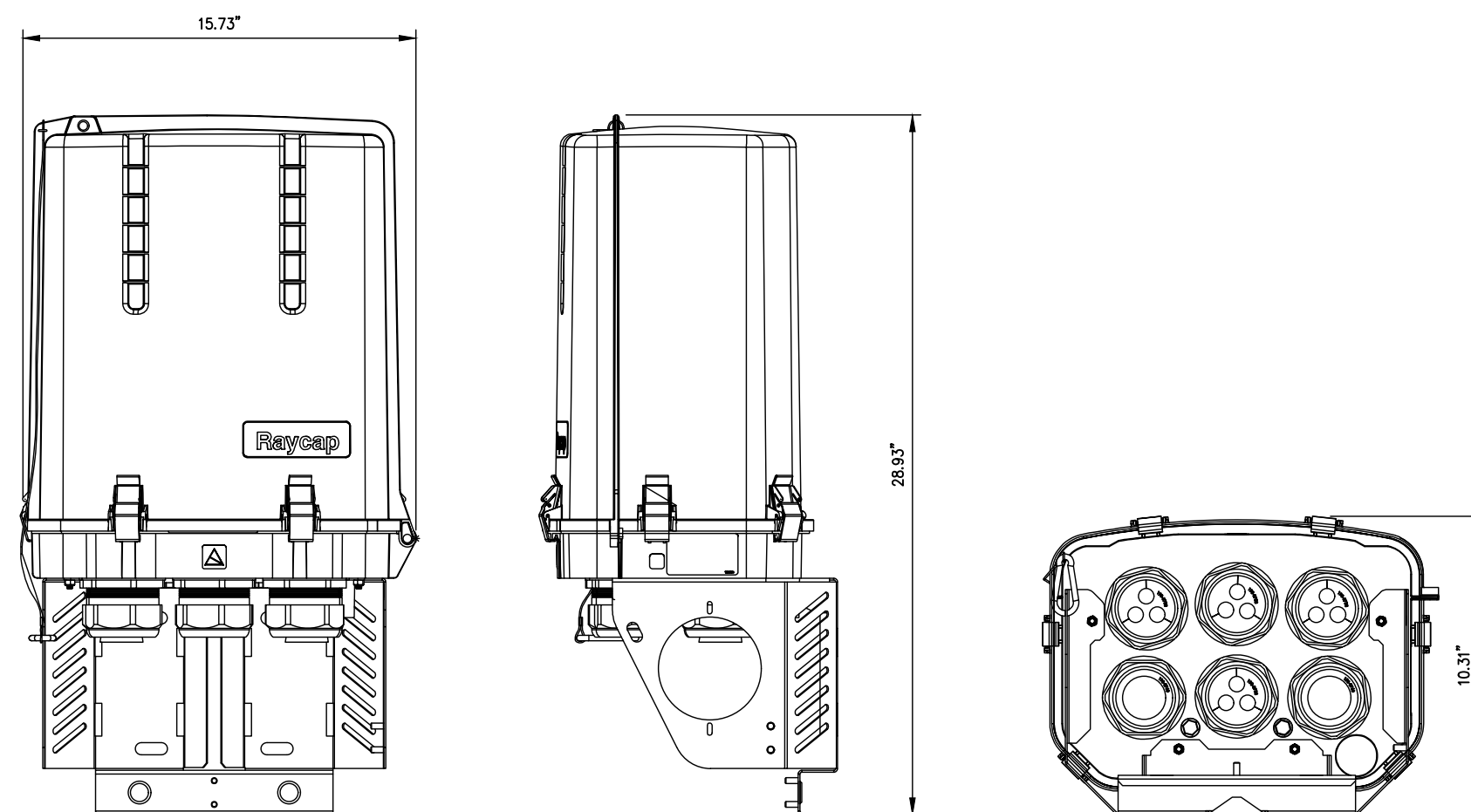
DIMENSIONS, WxDxH: 14.96" X 14.96" X 9.06"  
 TOTAL WEIGHT: 72.50 lbs  
 TEMPERATURE: -40° TO 55° C



3 SAMSUNG RF4440d-13A DETAIL  
 SCALE: NOT TO SCALE

**RAYCAP RVZDC-6627-PF-48**

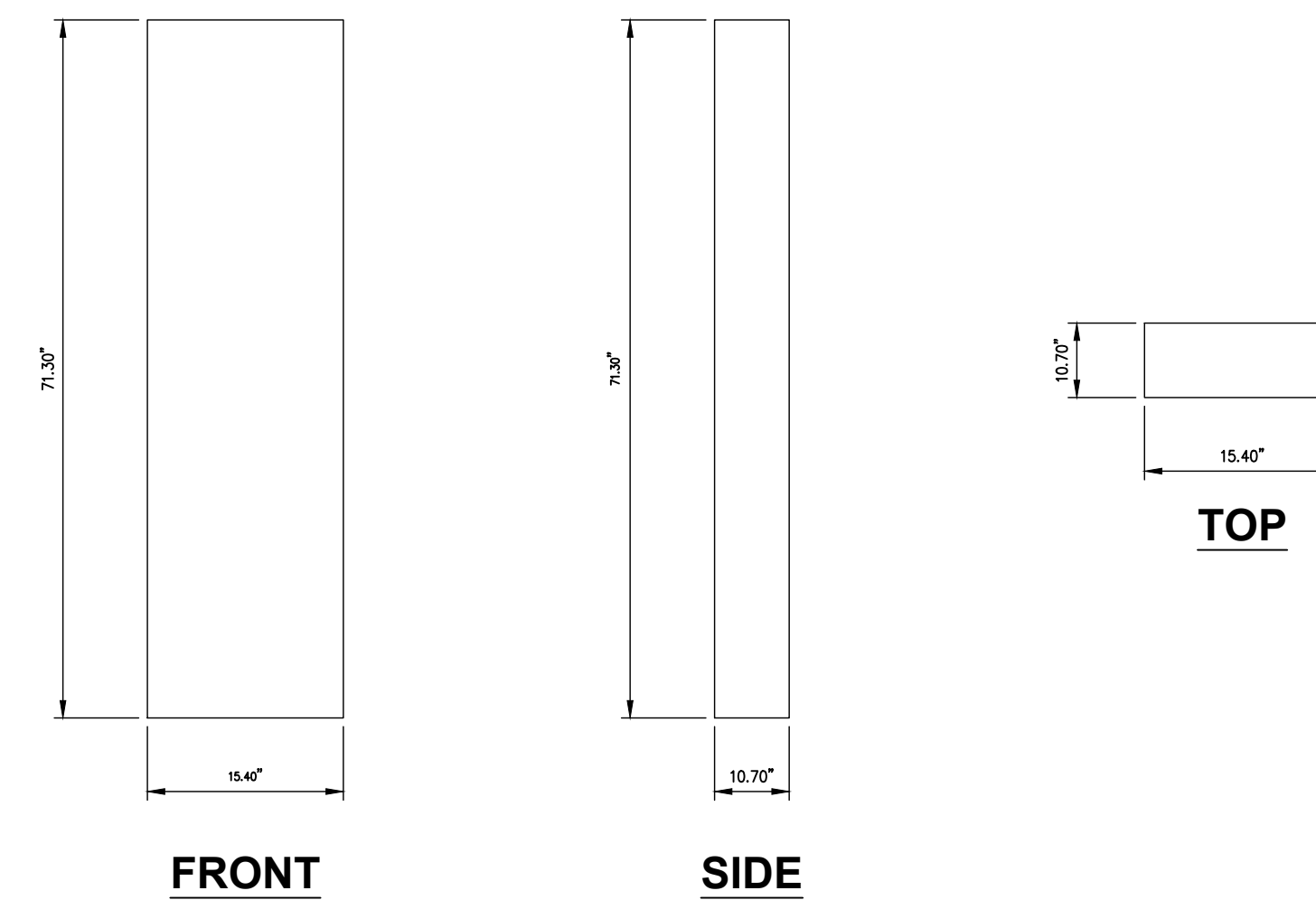
DIMENSIONS, LxWxH: 28.93"x15.73"x10.31"  
 WEIGHT, W/O BRACKETS: 32.0 lbs



4 RAYCAP RVZDC-6627-PF-48 OVP DETAIL  
 SCALE: NOT TO SCALE

**JMA WIRELESS PANEL ANTENNA (MX06FRO660-03)**

DIMENSIONS, HxWxD: 71.30"x15.40"x10.70"  
 WEIGHT, W/O BRACKETS: 78.0 lbs



5 JMA WIRELESS MX06FRO660-03 ANTENNA DETAIL  
 SCALE: NOT TO SCALE

**FIBER NAMING CONVENTION**

Technology	(Equipment-Sector-OPTI #)
<b>DUPLEX FIBER RUN</b>	
5GmmW L0	5GmmW-A-0
<b>SIMPLEX FIBER RUN</b>	
CBRS L0	CBRS-A-0
CBRS L1	CBRS-A-1
LAA L0	LAA-A-0
High Band Dual Band L0	HB-A-0
High Band Dual Band L1	HB-A-1
Low Band Dual Band L0	LB-A-0
FDMIMO AWS L0	FDM-AWS-A-0
FDMIMO AWS L1	FDM-AWS-A-1
FDMIMO PCS L0	FDM-PCS-A-0
FDMIMO PCS L1	FDM-PCS-A-1

Rev. 2/23/2021

6 FIBER NAMING CONVENTION  
 SCALE: NOT TO SCALE

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VERIZON SITE NUMBER:  
 467700

BU #: 823666  
 DEEP RIVER/RT 9

15 PENT RD.  
 DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

ISSUED FOR:

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SHEET NUMBER: **C-5** REVISION: **0**



<b>Alpha AWS</b>				<b>Beta AWS</b>				<b>Gamma AWS</b>			
Port 1	WHITE	Yellow		Port 1	Blue	Yellow		Port 1	Green	Yellow	
Port 2	WHITE	Yellow		Port 2	Blue	Yellow		Port 2	Green	Yellow	
Port 3	WHITE	Yellow		Port 3	Blue	Yellow		Port 3	Green	Yellow	
Port 4	WHITE	Yellow		Port 4	Blue	Yellow		Port 4	Green	Yellow	
<b>Alpha PCS</b>				<b>Beta PCS</b>				<b>Gamma PCS</b>			
Port 1	WHITE	Cyan		Port 1	Blue	Cyan		Port 1	Green	Cyan	
Port 2	WHITE	Cyan		Port 2	Blue	Cyan		Port 2	Green	Cyan	
Port 3	WHITE	Cyan		Port 3	Blue	Cyan		Port 3	Green	Cyan	
Port 4	WHITE	Cyan		Port 4	Blue	Cyan		Port 4	Green	Cyan	
<b>Alpha LTE 700</b>				<b>Beta LTE 700</b>				<b>Gamma LTE 700</b>			
Port 1	WHITE	Red		Port 1	Blue	Red		Port 1	Green	Red	
Port 2	WHITE	Red		Port 2	Blue	Red		Port 2	Green	Red	
Port 3	WHITE	Red		Port 3	Blue	Red		Port 3	Green	Red	
Port 4	WHITE	Red		Port 4	Blue	Red		Port 4	Green	Red	
<b>Alpha 850 LTE</b>				<b>Beta 850 LTE</b>				<b>Gamma 850 LTE</b>			
Port 1	WHITE	Pink		Port 1	Blue	Pink		Port 1	Green	Pink	
Port 2	WHITE	Pink		Port 2	Blue	Pink		Port 2	Green	Pink	
Port 3	WHITE	Pink		Port 3	Blue	Pink		Port 3	Green	Pink	
Port 4	WHITE	Pink		Port 4	Blue	Pink		Port 4	Green	Pink	
<b>Alpha 850 CDMA</b>				<b>Beta 850 CDMA</b>				<b>Gamma 850 CDMA</b>			
Port 1	WHITE	Grey		Port 1	Blue	Grey		Port 1	Green	Grey	
Port 2	WHITE	Grey		Port 2	Blue	Grey		Port 2	Green	Grey	
<b>Alpha EVDO</b>				<b>Beta EVDO</b>				<b>Gamma EVDO</b>			
Port 1	WHITE	Purple		Port 1	Blue	Purple		Port 1	Green	Purple	
Port 2	WHITE	Purple		Port 2	Blue	Purple		Port 2	Green	Purple	

GPS 1	Brown		
GPS 2	Brown		
GPS 3	Brown		
GPS 4	Brown		

<b>Alpha 850 LTE + 700 LTE</b>				<b>Beta 850 LTE + 700 LTE</b>				<b>Gamma 850 LTE + 700 LTE</b>			
Port 1	WHITE	Pink	Red	Port 1	Blue	Pink	Red	Port 1	Green	Pink	Red
Port 2	WHITE	Pink	Red	Port 2	Blue	Pink	Red	Port 2	Green	Pink	Red
Port 3	WHITE	Pink	Red	Port 3	Blue	Pink	Red	Port 3	Green	Pink	Red
Port 4	WHITE	Pink	Red	Port 4	Blue	Pink	Red	Port 4	Green	Pink	Red
<b>Beta 850 LTE + 700 LTE</b>				<b>Gamma 850 LTE + 700 LTE</b>							
Port 1	Blue	Pink	Red	Port 1	Green	Pink	Red				
Port 2	Blue	Pink	Red	Port 2	Green	Pink	Red				
Port 3	Blue	Pink	Red	Port 3	Green	Pink	Red				
Port 4	Blue	Pink	Red	Port 4	Green	Pink	Red				
<b>Gamma 850 LTE + 700 LTE</b>											
Port 1	Green	Pink	Red								
Port 2	Green	Pink	Red								
Port 3	Green	Pink	Red								
Port 4	Green	Pink	Red								

Alpha 850 NR Fiber	White	Pink	Pink	Ptouch - Alpha 850 NR
Beta 850 NR Fiber	Blue	Pink	Pink	Ptouch - Beta 850 NR
Gamma 850 NR Fiber	Green	Pink	Pink	Ptouch - Gamma 850 NR

1 COLOR CODE  
SCALE: NOT TO SCALE

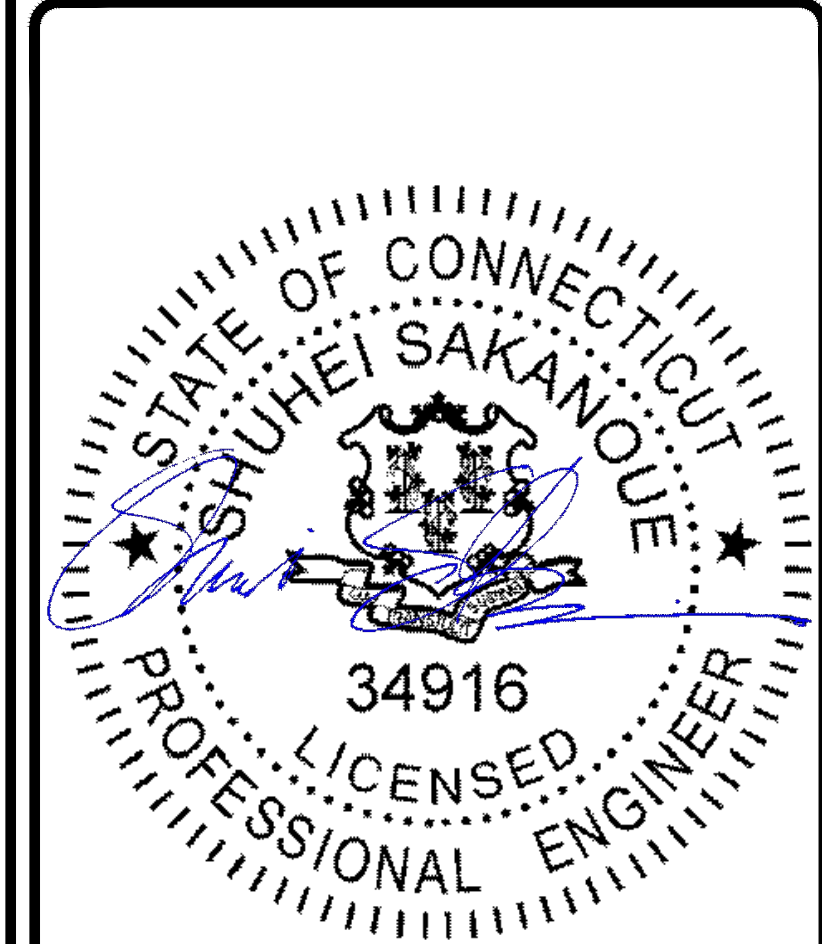
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DEEP RIVER/RT 9  
15 PENT RD.  
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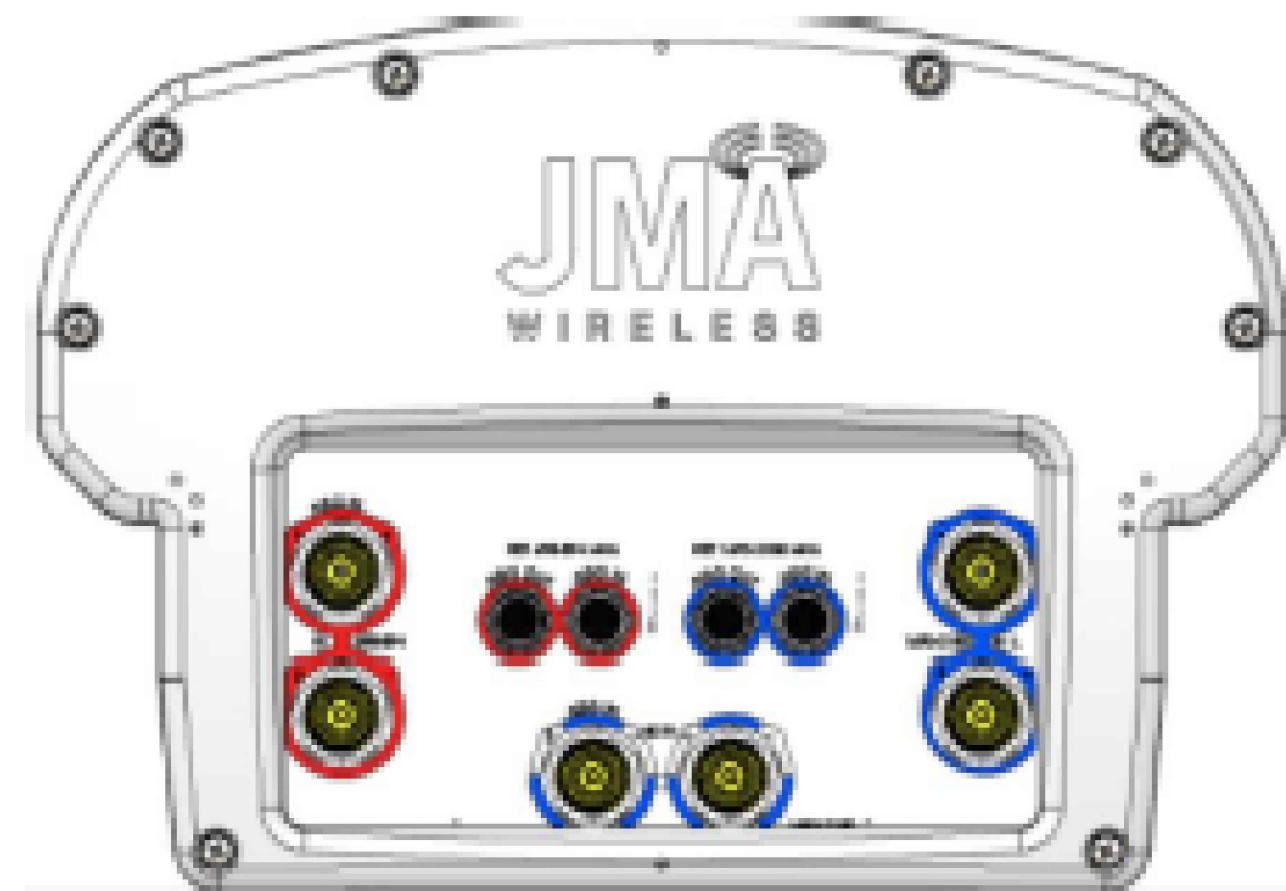
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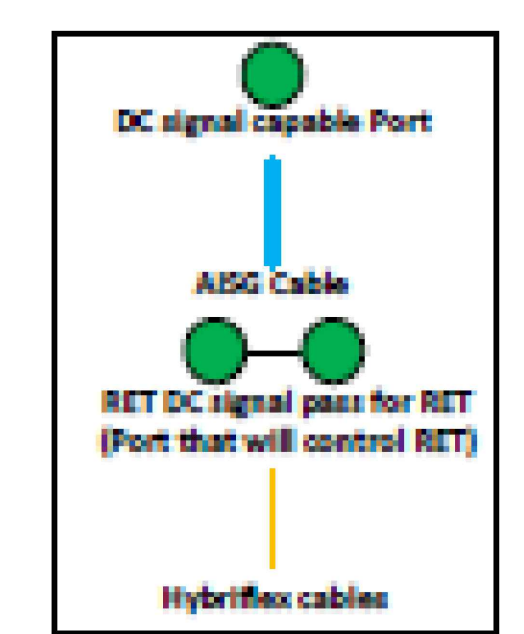
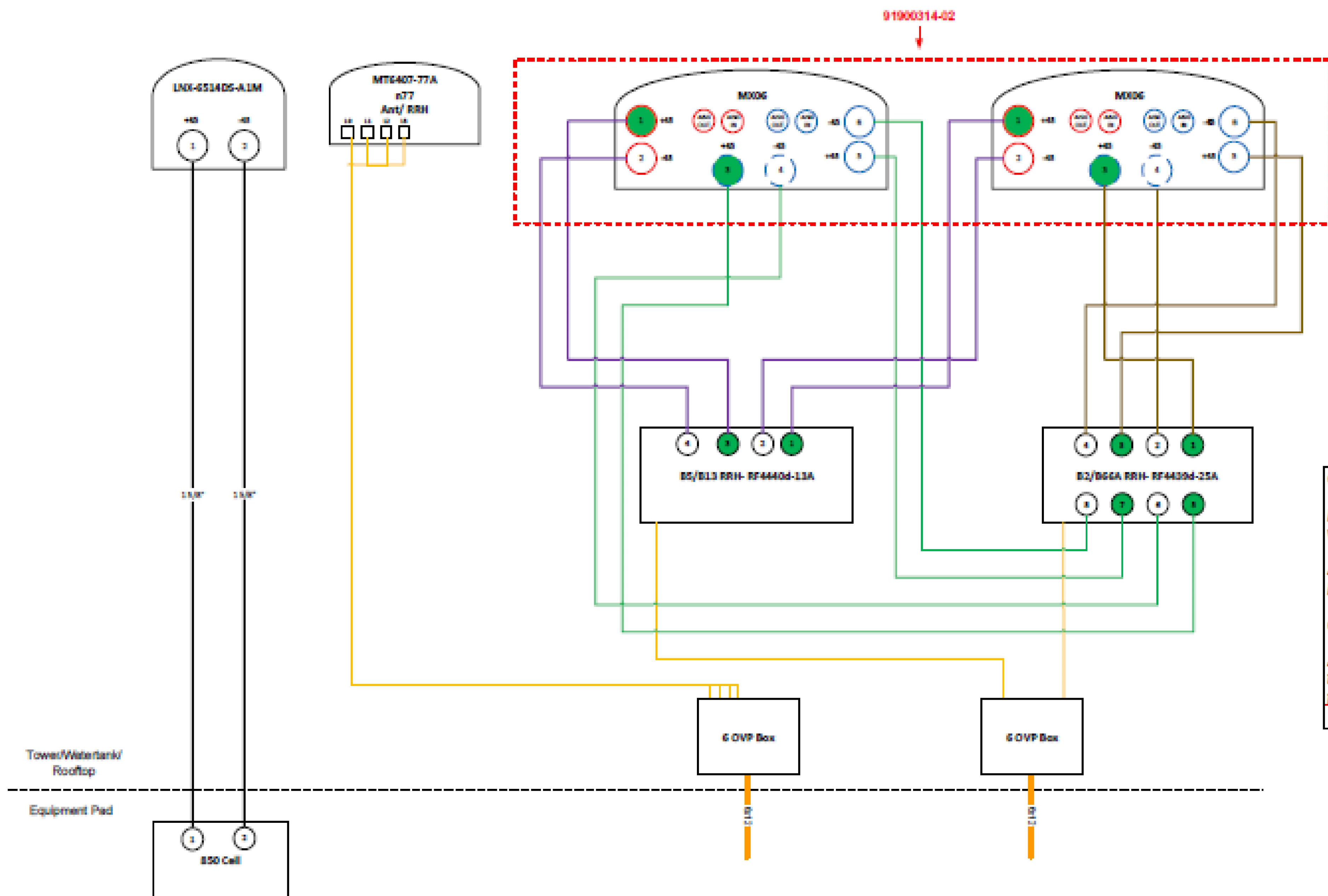
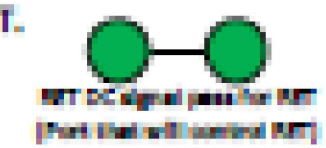
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SHEET NUMBER: **C-6** REVISION: **0**





- 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 & Hybridflex cable. (For the coax colors follow Coax Colors guide above)

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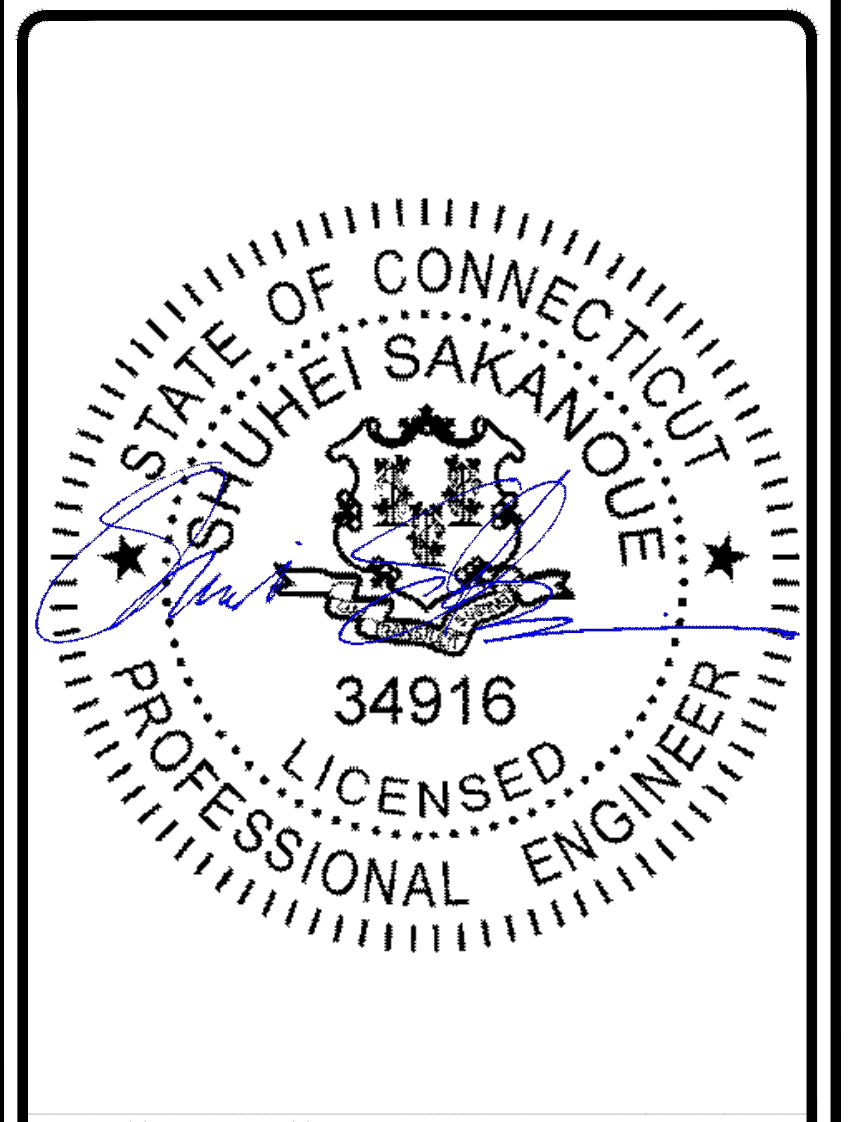
BU #: 823666  
 DEEP RIVER/RT 9

15 PENT RD.  
 DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

ISSUED FOR:

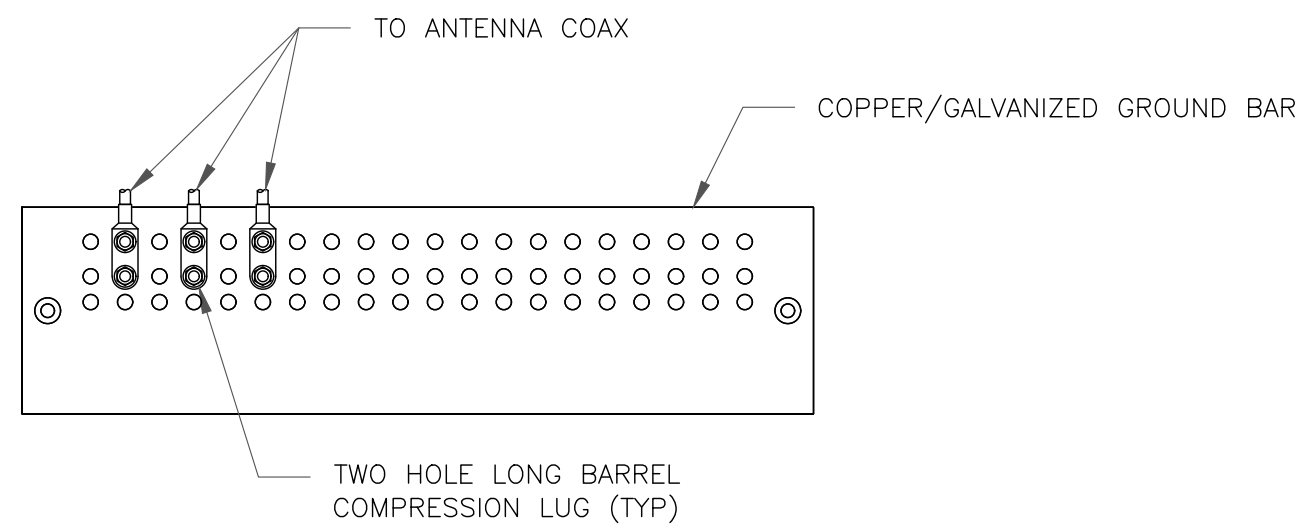
REV	DATE	DRWN	DESCRIPTION	DES./QA
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SHEET NUMBER: **C-7** REVISION: **0**





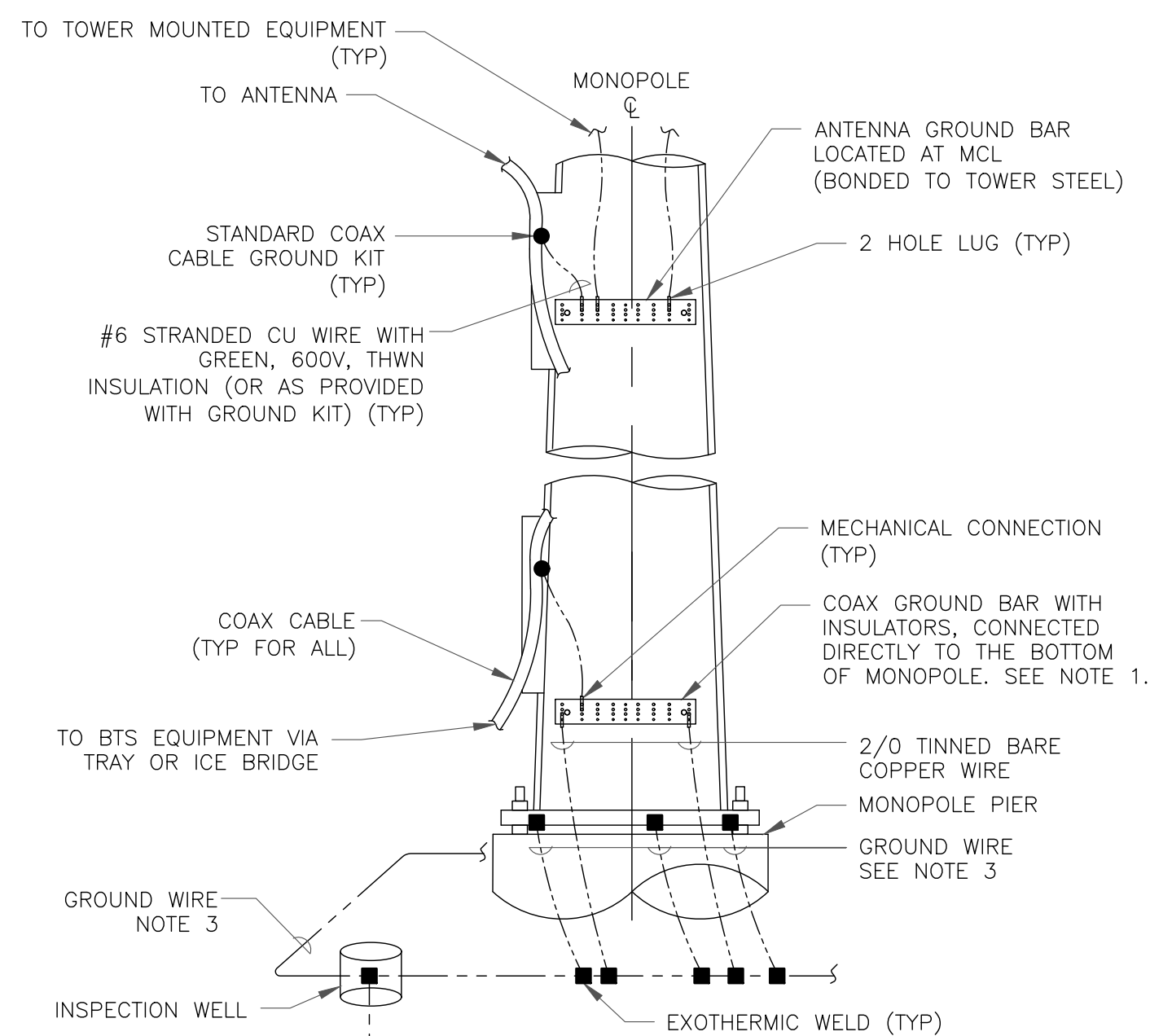
NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE

2 NOT USED  
SCALE: NOT TO SCALE

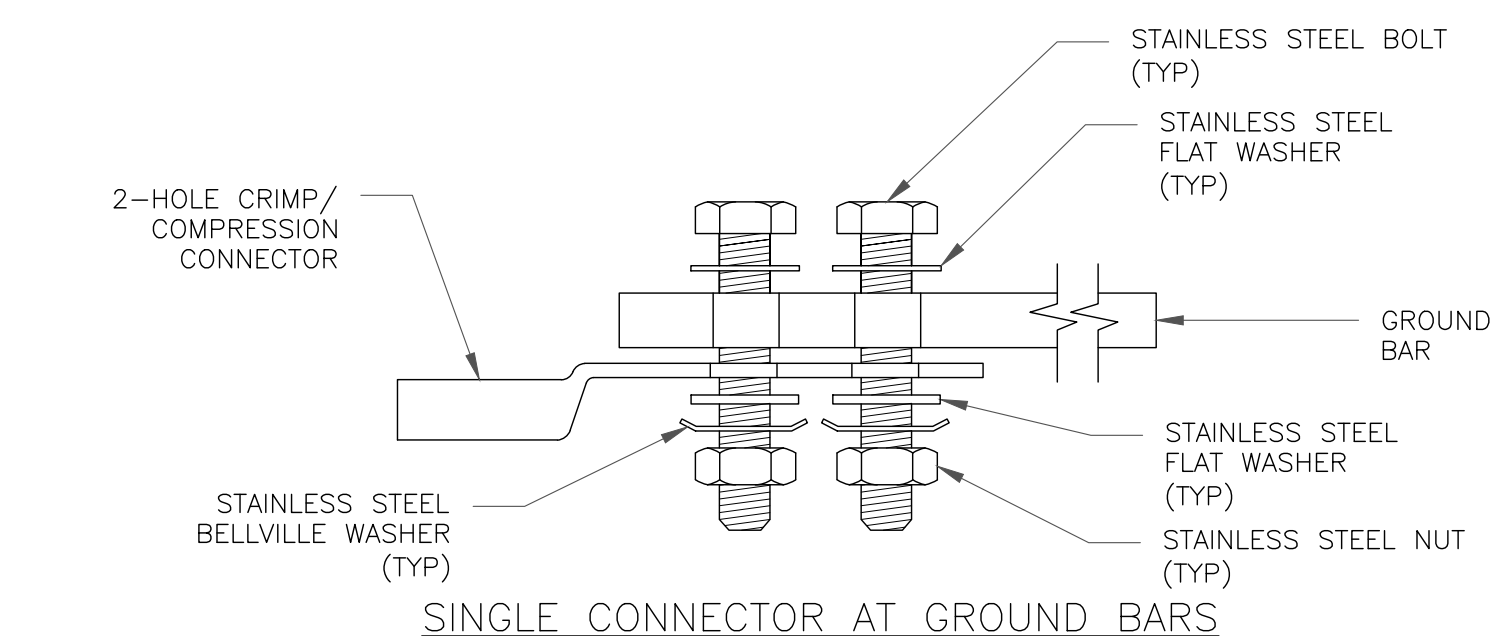
3 NOT USED  
SCALE: NOT TO SCALE



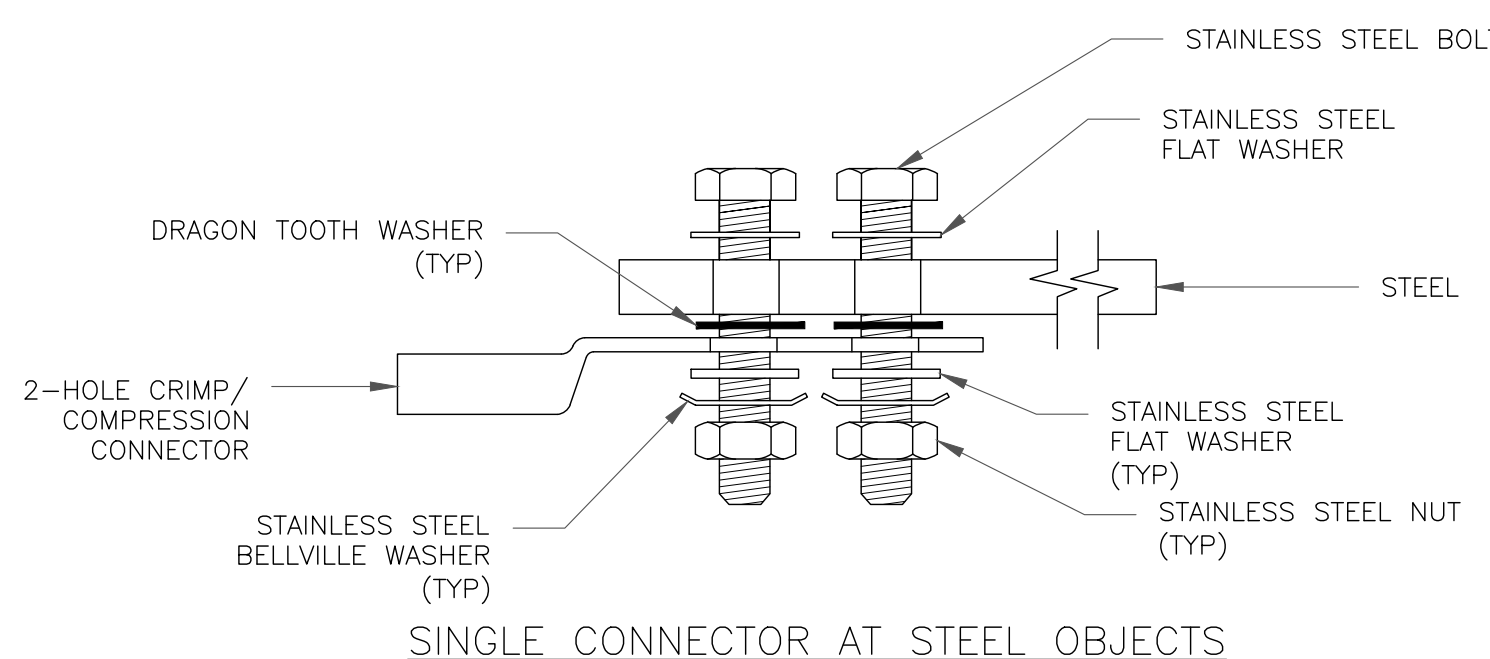
NOTES:

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

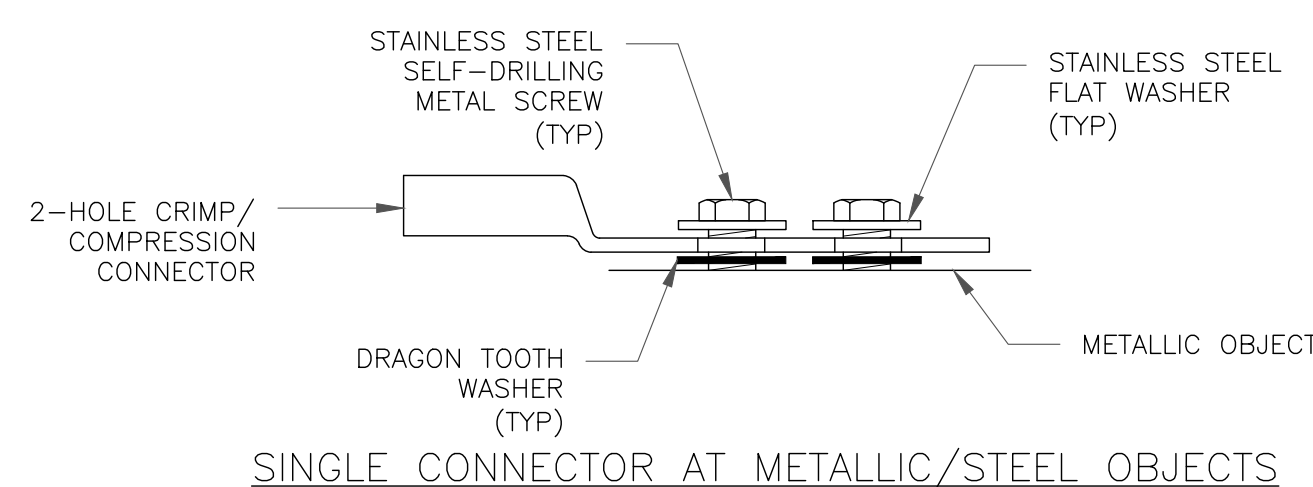
4 TYPICAL ANTENNA CABLE GROUNDING  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE

6 NOT USED  
SCALE: NOT TO SCALE

**verizon**  
180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

**CROWN CASTLE**  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065

**INFINIGY**  
FROM ZERO TO INFINIGY  
the solutions are endless  
BELLEVUE, WA 98004

VERIZON SITE NUMBER:  
467700

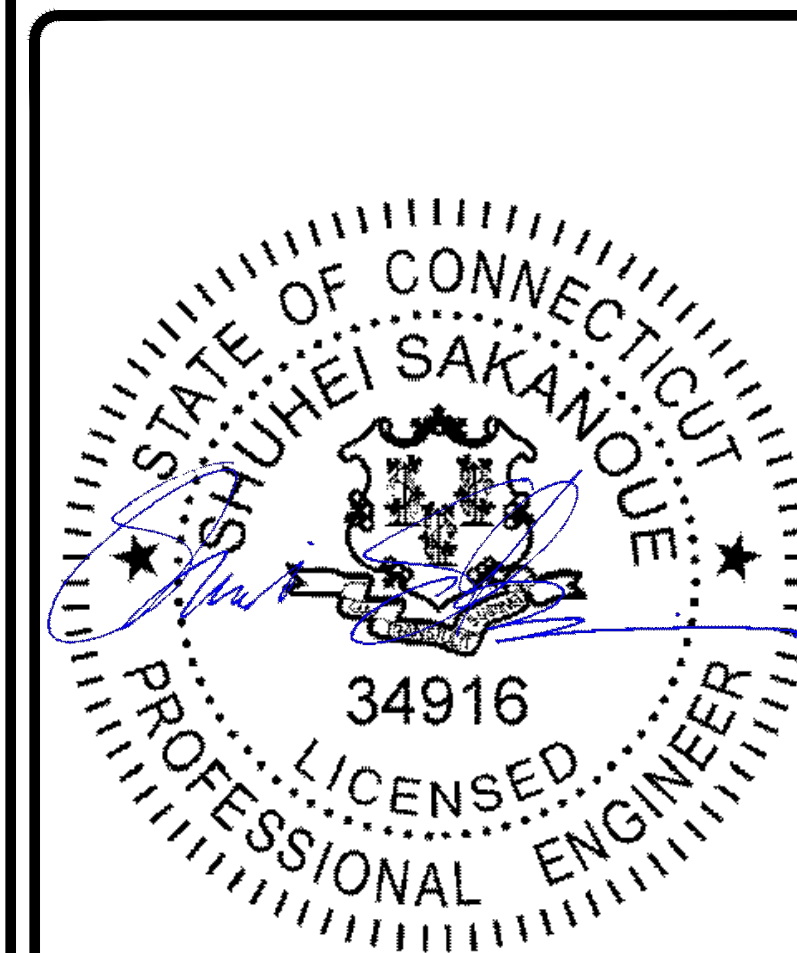
BU #: 823666  
DEEP RIVER/RT 9

15 PENT RD.  
DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

ISSUED FOR:

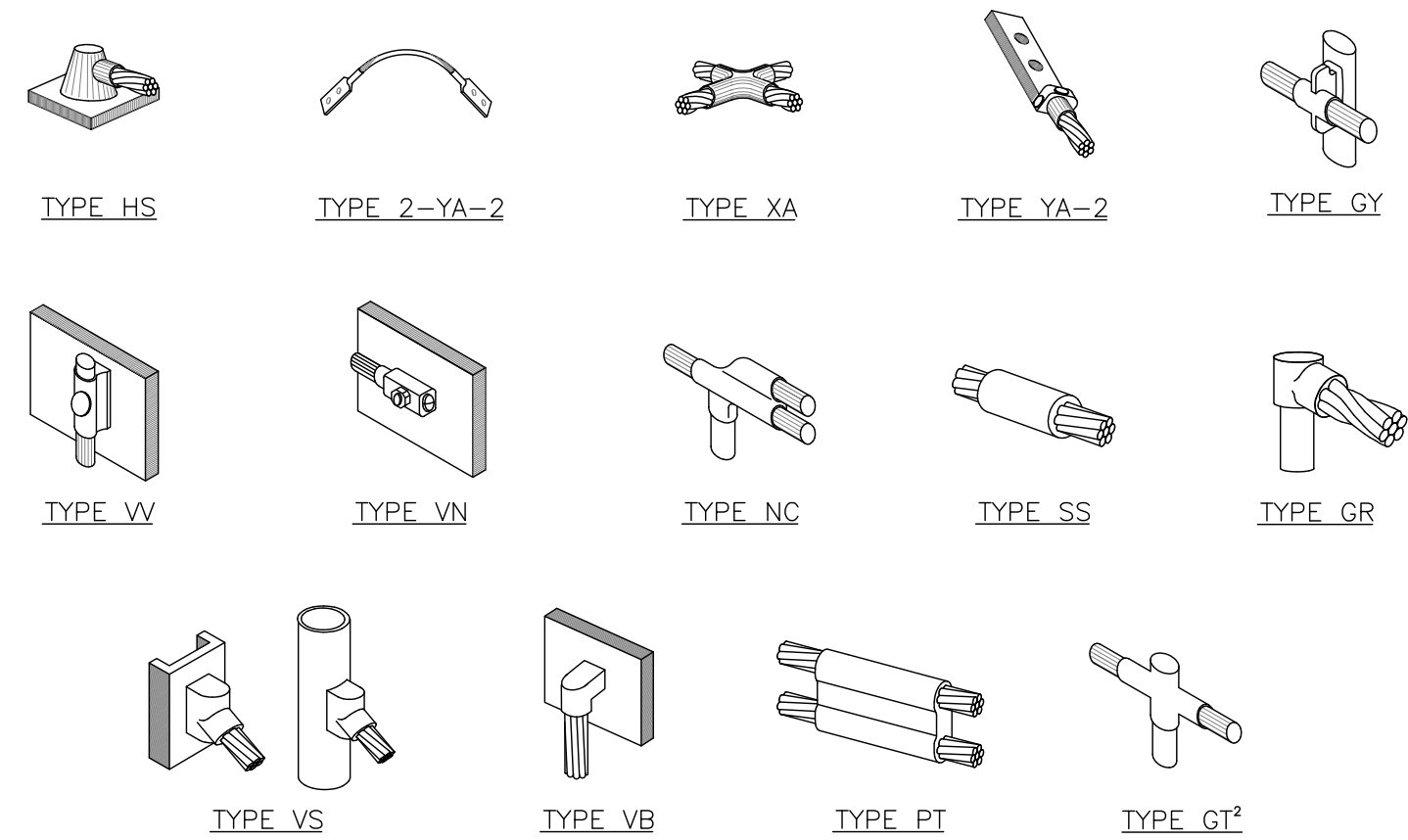
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	12/13/2021	RCD	FINAL CDs	---



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SHEET NUMBER: **G-1** REVISION: **0**

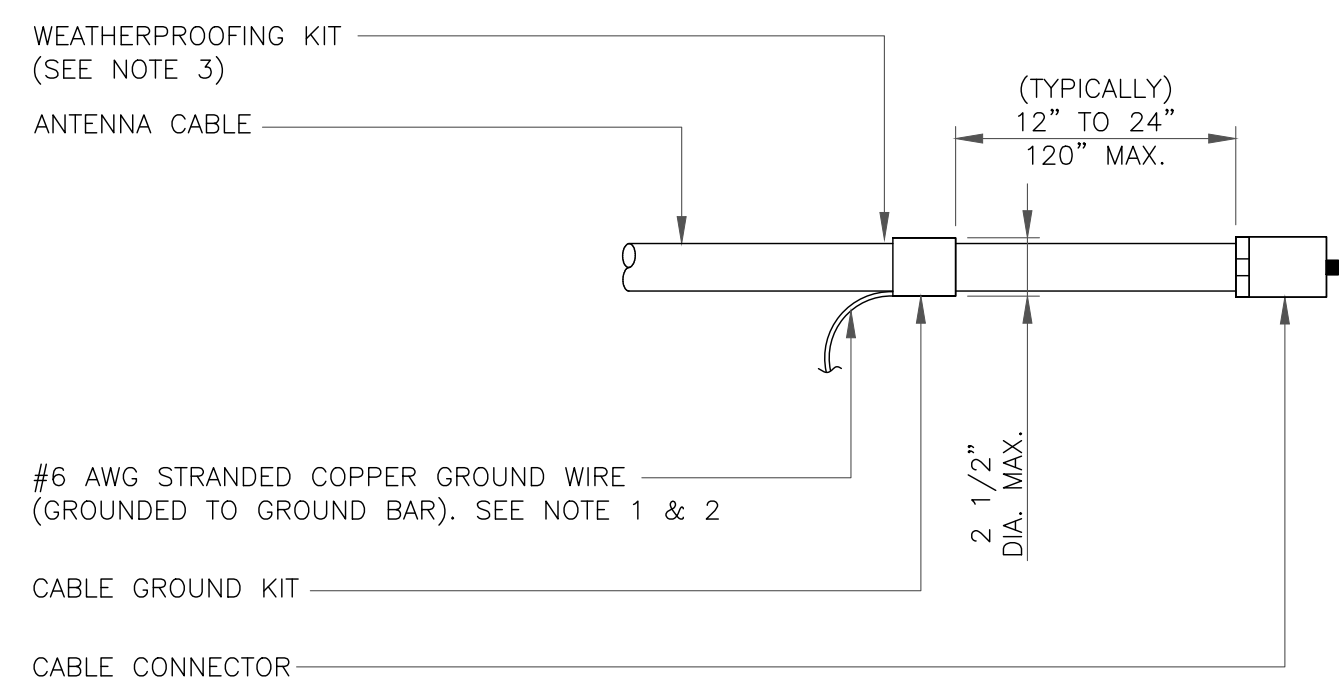




**NOTE:**

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

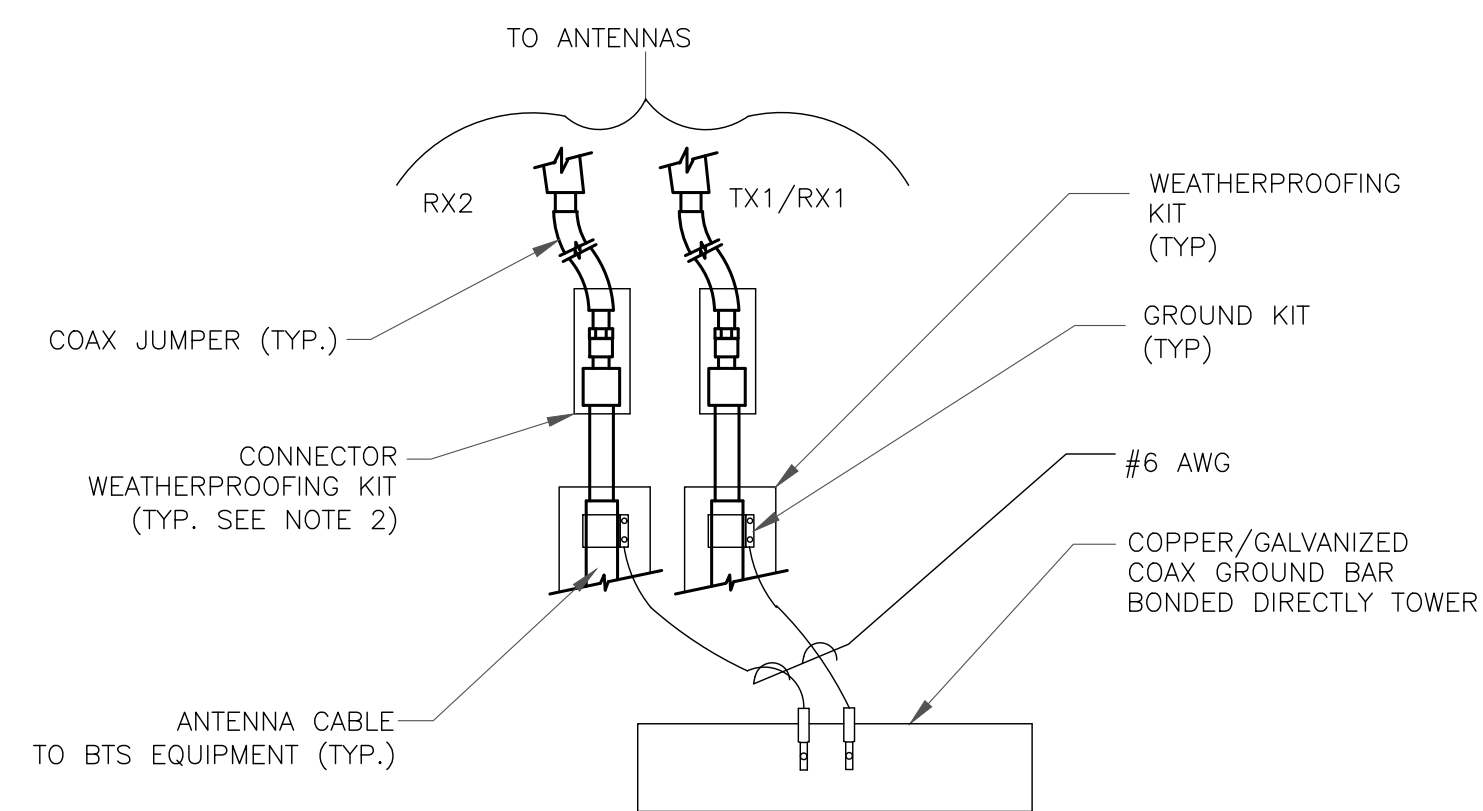
**1 CADWELD GROUNDING CONNECTIONS**  
SCALE: NOT TO SCALE



**NOTES:**

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

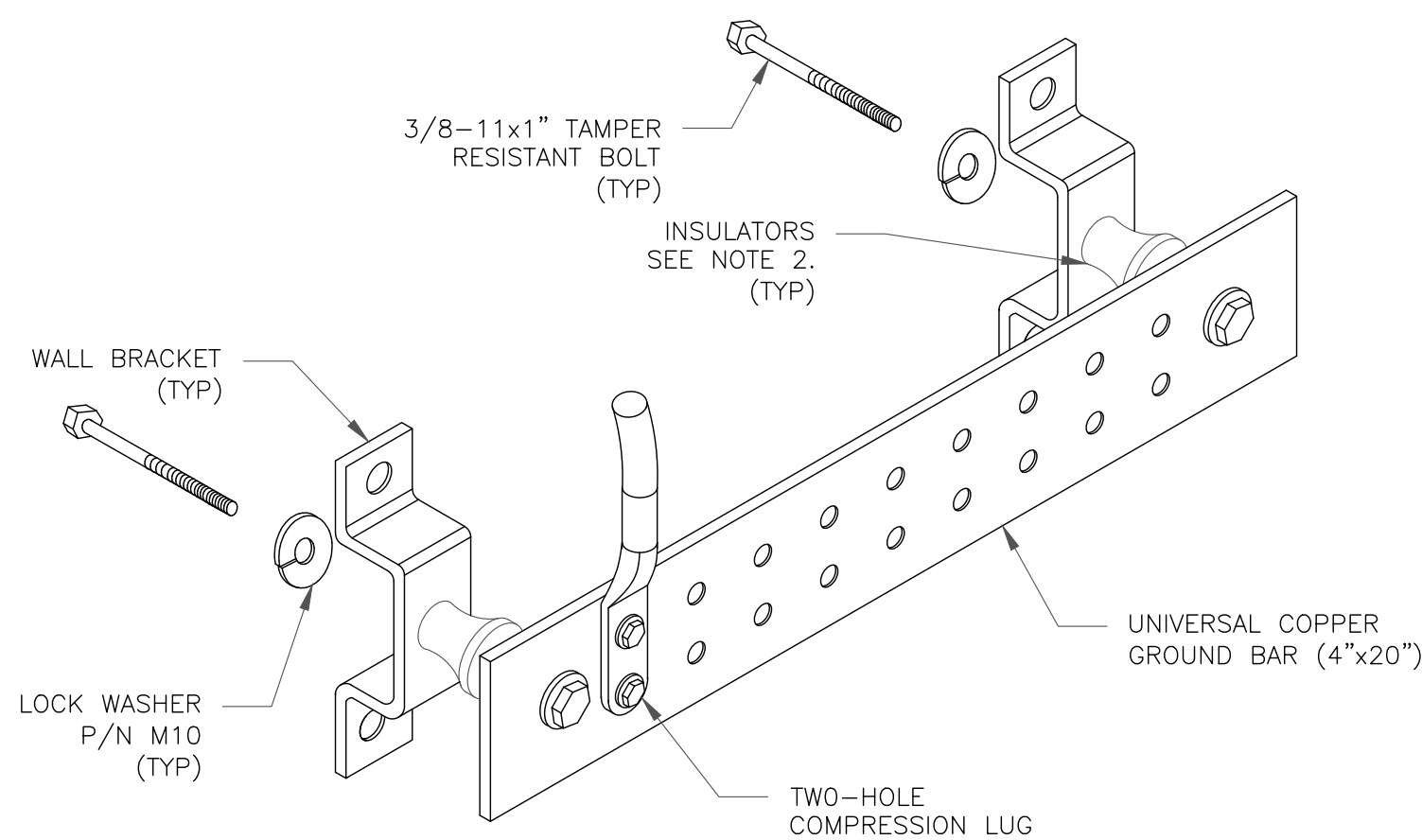
**3 CABLE GROUND KIT CONNECTION**  
SCALE: NOT TO SCALE



**NOTES:**

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

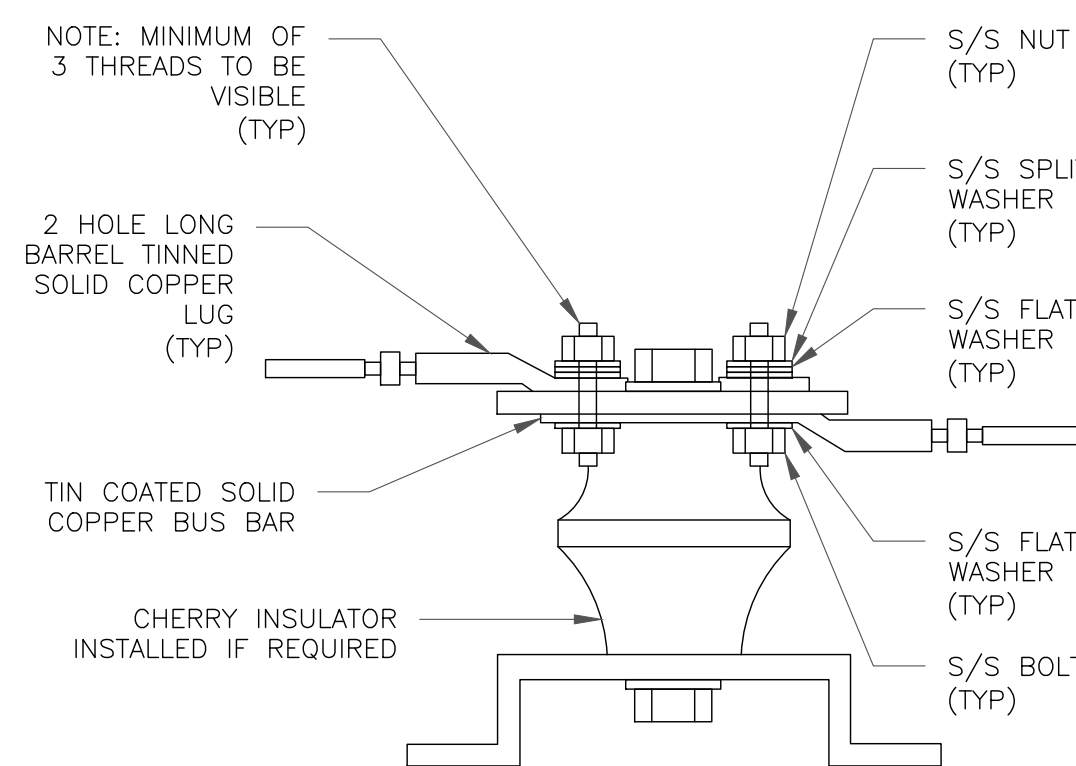
**4 GROUND CABLE CONNECTION**  
SCALE: NOT TO SCALE



**NOTES:**

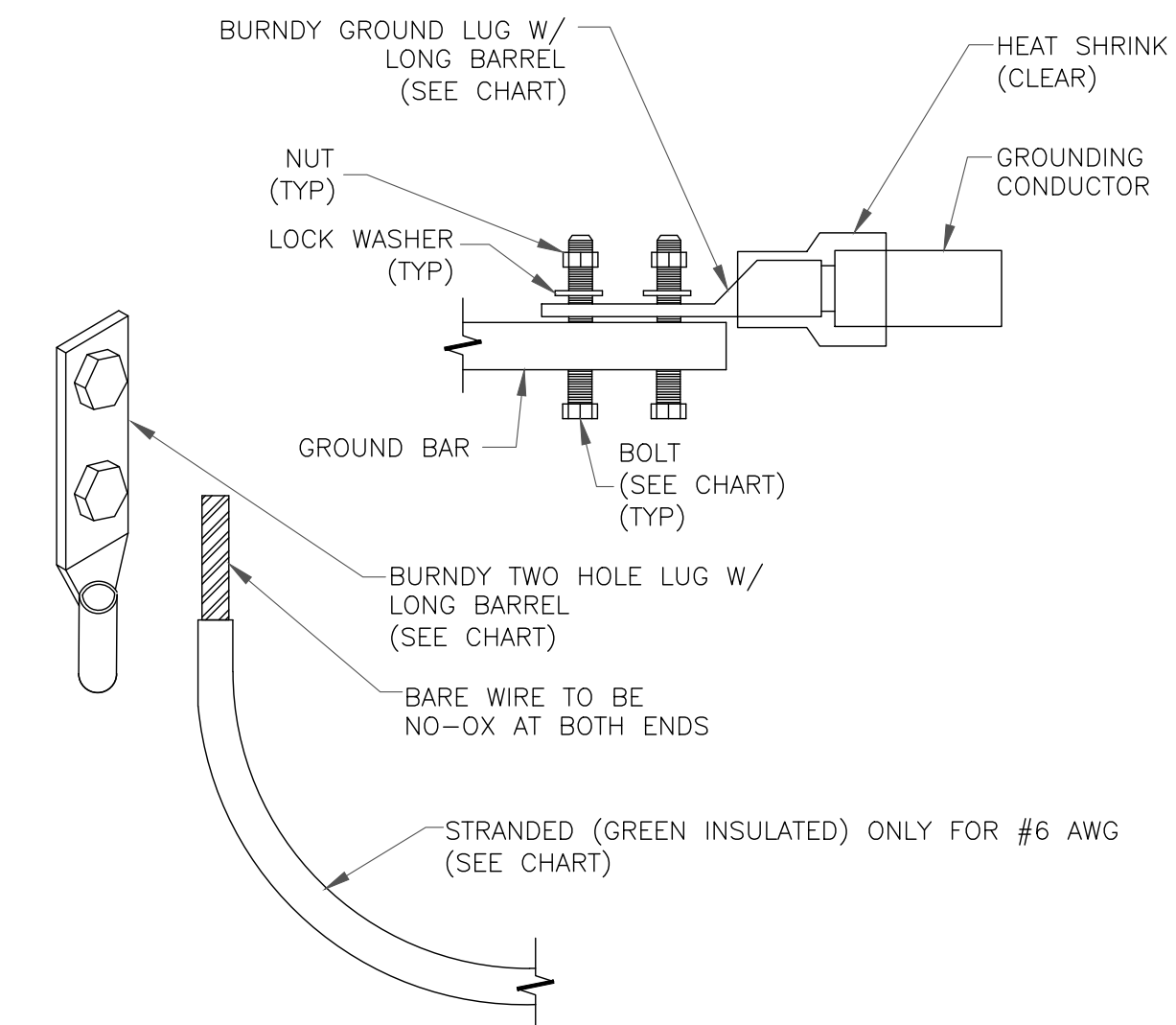
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

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



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

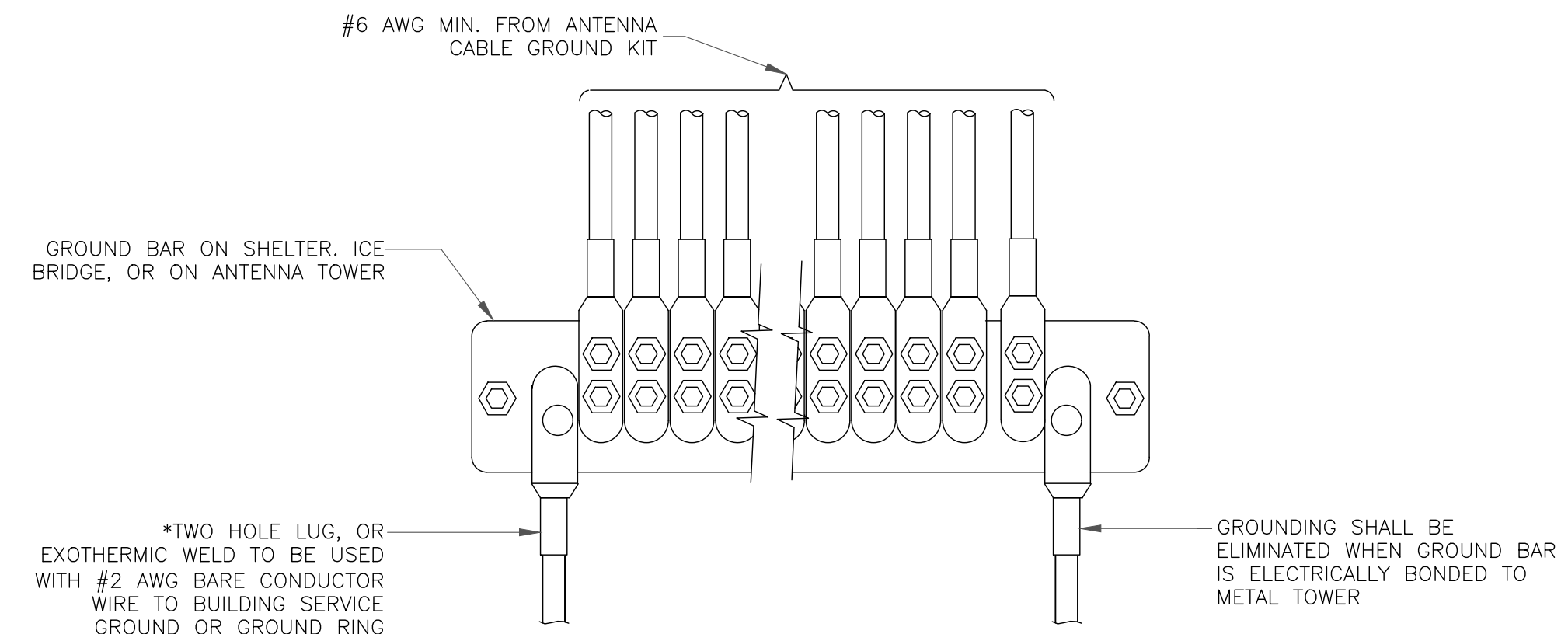
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



**NOTES:**

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

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



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

**8 NOT USED**  
SCALE: NOT TO SCALE

**verizon**  
180 WASHINGTON VALLEY ROAD  
BEDMINSTER, NJ 07921

**CROWN CASTLE**  
3 CORPORATE PARK DRIVE, SUITE 101  
CLIFTON PARK, NY 12065

**INFINIGY**  
FROM ZERO TO INFINIGY  
the solutions are endless  
BELLEVUE, WA 98004

VERIZON SITE NUMBER:  
**467700**  
BU #: **823666**  
**DEEP RIVER/RT 9**  
15 PENT RD.  
DEEP RIVER, CT 06417

EXISTING 178'-0" MONOPOLE

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	12/13/2021	RCD	FINAL CDs	---

STATE OF CONNECTICUT  
SHUHEI SAKANOU  
34916  
LICENSED PROFESSIONAL ENGINEER  
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SHEET NUMBER: **G-2** REVISION: **0**

# Exhibit D

## **Structural Analysis Report**



Date: **August 25, 2021**

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

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **Verizon Wireless Co-Locate**  
**Site Number:** 467700  
**Site Name:** DEEP RIVER CT

**Crown Castle Designation:** **BU Number:** 823666  
**Site Name:** Deep River/Rt 9  
**JDE Job Number:** 682497  
**Work Order Number:** 2006809  
**Order Number:** 582520 Rev. 0

**Engineering Firm Designation:** **B+T Group Project Number:** 135998.003.01

**Site Data:** **15 Pent Rd., Deep River, Middlesex County, CT**  
**Latitude 41° 22' 22.17", Longitude -72° 26' 3.97"**  
**178 Foot - Monopole Tower**

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

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

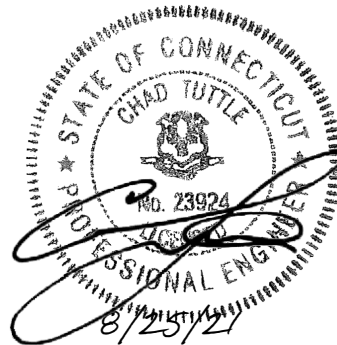
LC7: Proposed Equipment Configuration

**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Massood Sattari, EIT

Respectfully submitted by: B+T Engineering, Inc.  
COA: PEC.0001564; Expires: 02/10/2022



Chad E. Tuttle, P.E.

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tnxTower Output

### 6) APPENDIX B

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### 7) APPENDIX C

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## 1) INTRODUCTION

This tower is a 178 ft. Monopole tower designed by Pirod Manufactures Inc.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	130 mph
<b>Exposure Category:</b>	B
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1.5 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	170.0	3	Andrew	LNX-6514DS-A1M	13	1-5/8
		6	JMA Wireless	MX06FRO660-03		
		1	Raycap	RVZDC-6627-PF-48		
		3	Samsung Telecom.	MT6407-77A		
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
	168.0	1	JMA Wireless	91900314 Dual Bracket Kit		
		1	--	Platform Mount [LP 303-1]		

**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
178.0	178.0	3	Ems Wireless	RR90-17-02DP	13	1-5/8
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	KRY 112 489/2		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		1	--	Platform Mount [LP 405-1_HR-1]		
160.0	160.0	3	Cci Antennas	TPA-65R-LCUUUU-H8	12 4 2	1-5/8 7/16 3/8
		1	Commscope	SBNH-1D6565C		
		3	Ericsson	RRUS 11 B12		
		1	Ericsson	RRUS 32		
		2	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B30		
		3	Kaelus	DBC0061F1V51-2		
		2	KMW	AM-X-CD-17-65-00T-RET		
		6	Powerwave Tech.	7020.00		
		6	Powerwave Tech.	LGP21401		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	Powerwave Tech.	RA21.7770.00		
		1	Raycap	DC6-48-60-18-8C-EV		
		1	Raycap	DC6-48-60-18-8F		
		1	--	Platform Mount [LP 303-1_HR-1]		
148.0	148.0	3	Fujitsu	TA08025-B604	1	1-1/2
		3	Fujitsu	TA08025-B605		
		3	Jma Wireless	MX08FRO665-20		
		1	Raycap	RDIDC-9181-PF-48		
		1	--	Commscope MC-PK8-DSH		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Reference	Source
Tower Manufacturer Drawing	3585272	CCI Sites
Foundation Drawing	3845247	CCI Sites
Geotech Report	3585271	CCI Sites
Crown CAD Package	Date: 07/30/2021	CCI Sites

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

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

#### 4) ANALYSIS RESULTS

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

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	178 - 164.25	Pole	TP26x12.75x0.25	1	-7.398	1118.082	9.6	Pass
L2	164.25 - 129.667	Pole	TP34.063x22.689x0.313	2	-19.199	1985.424	36.6	Pass
L3	129.667 - 96	Pole	TP41.75x32.275x0.375	3	-27.540	2938.761	44.7	Pass
L4	96 - 63.1667	Pole	TP49.063x39.821x0.375	4	-37.385	3460.495	54.8	Pass
L5	63.1667 - 31.1667	Pole	TP56.125x46.957x0.375	5	-48.546	3964.233	62.3	Pass
L6	31.1667 - 0	Pole	TP62.938x53.847x0.375	6	-63.528	4574.010	69.5	Pass
							Summary	
						Pole (L6)	69.5	Pass
						Rating =	69.5	Pass

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

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	67.2	Pass
1,2	Base Plate	Base	90.9	Pass
1,2	Base Foundation (Structure)	Base	38.0	Pass
1,2	Base Foundation (Soil Interaction)	Base	62.0	Pass

<b>Structure Rating (max from all components) =</b>	<b>90.9%</b>
---	--------------

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

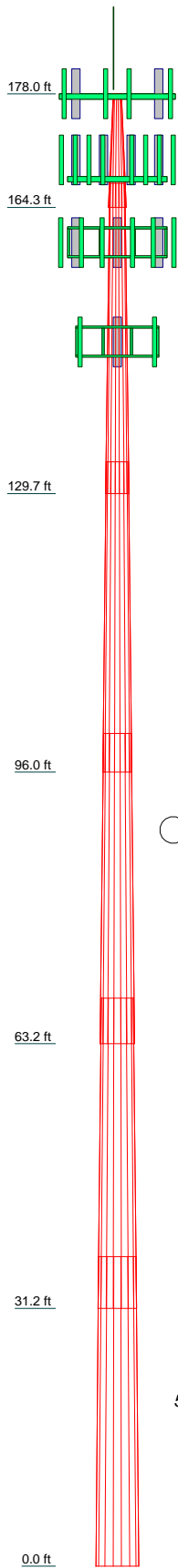
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

**APPENDIX A**

**TNXTOWER OUTPUT**



Section	1	2	3	4	5	6
Length (ft)	13.750	37.500	37.500	37.500	37.500	37.417
Number of Sides	18	18	18	18	18	18
Thickness (in)	0.250	0.313	0.375	0.375	0.375	0.375
Socket Length (ft)	2.917	3.833	4.667	5.500	6.250	53.847
Top Dia (in)	12.750	22.689	32.275	39.821	46.957	62.938
Bot Dia (in)	26.000	34.063	41.750	49.063	56.125	62.938
Grade	A572-65					
Weight (K)	0.7	3.6	5.6	6.7	7.8	8.8



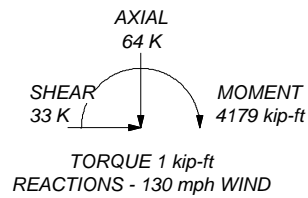
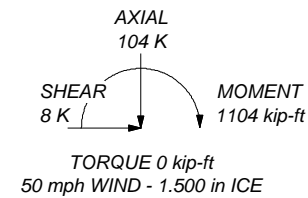
### MATERIAL STRENGTH


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 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex-S
9. TOWER RATING: 69.5%

ALL REACTIONS  
ARE FACTORED



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

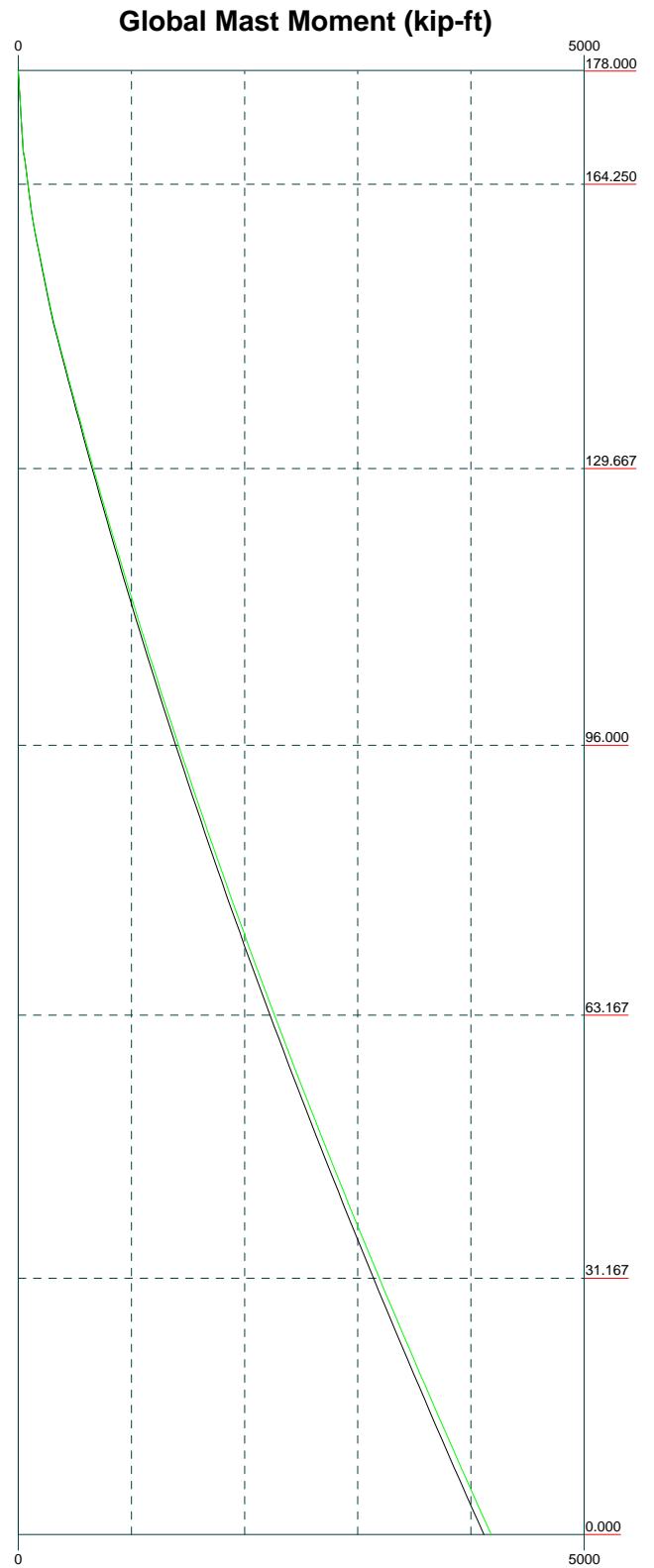
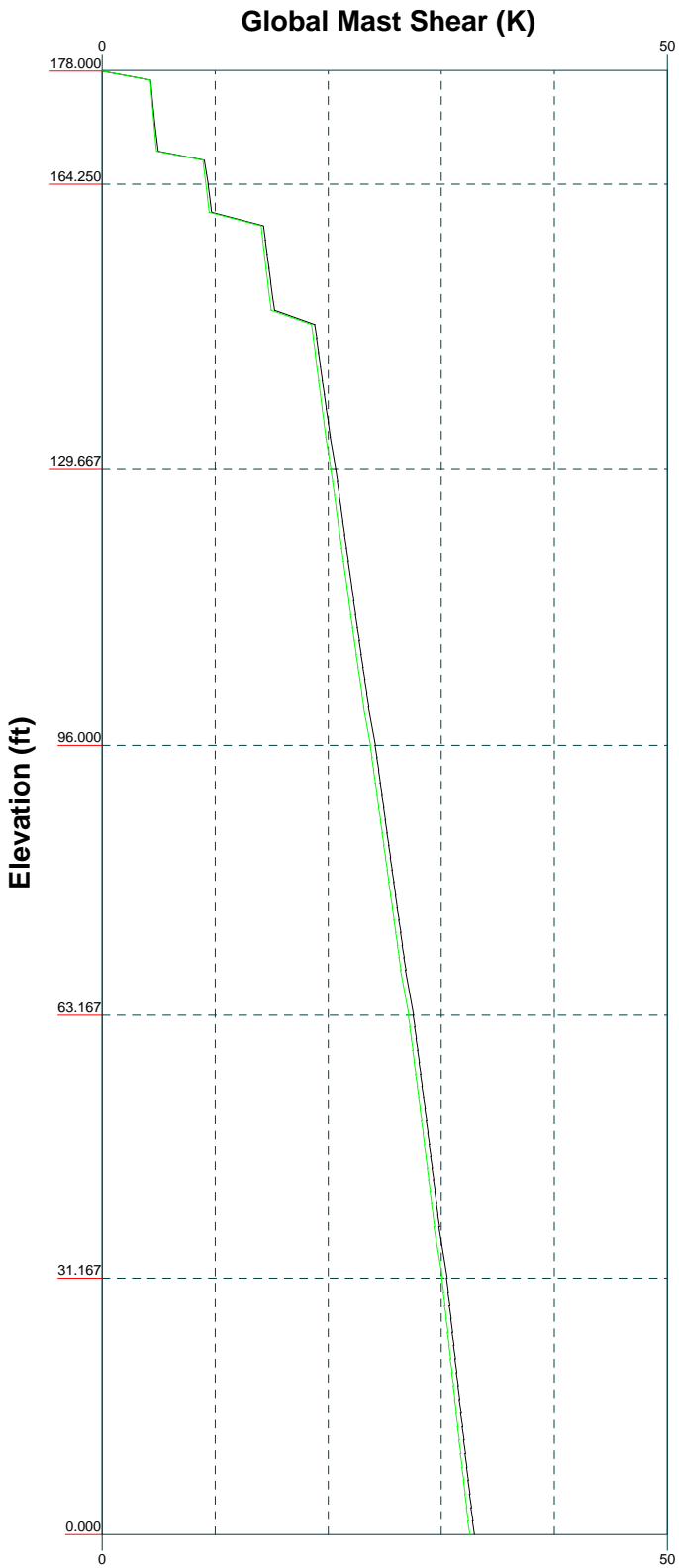
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Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 08/25/21	Scale: NTS
Path:	Dwg No. E-1	

Vx

Vz

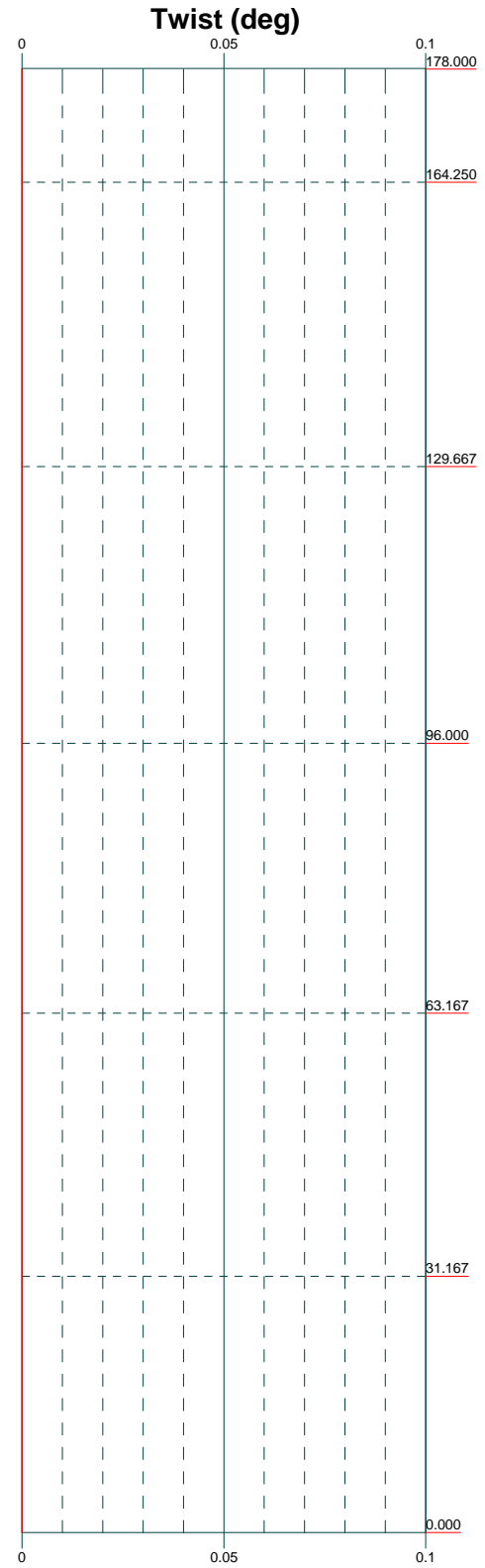
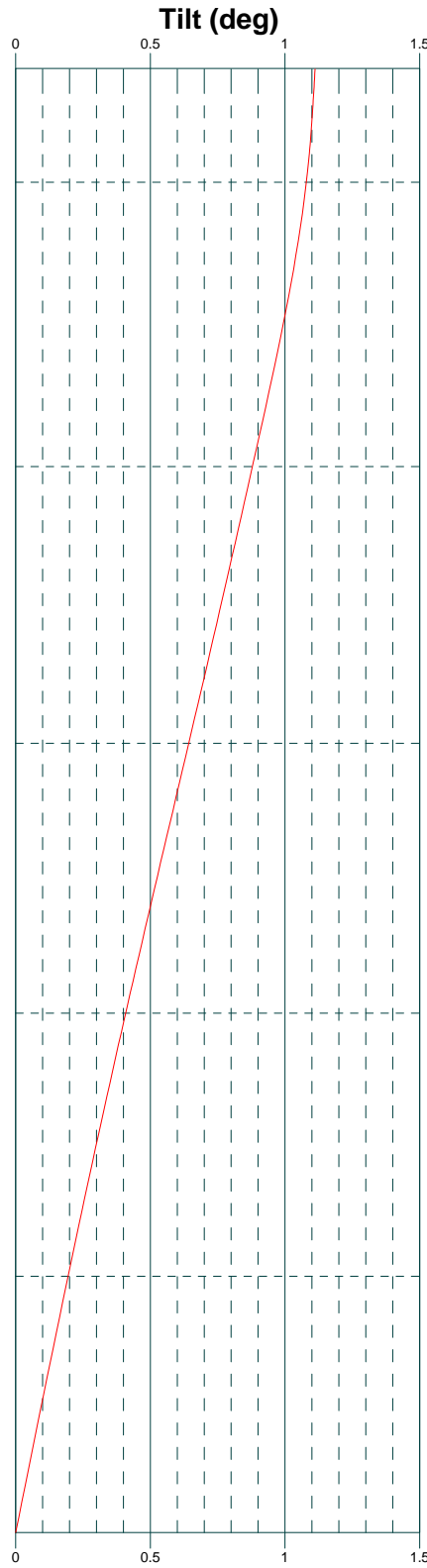
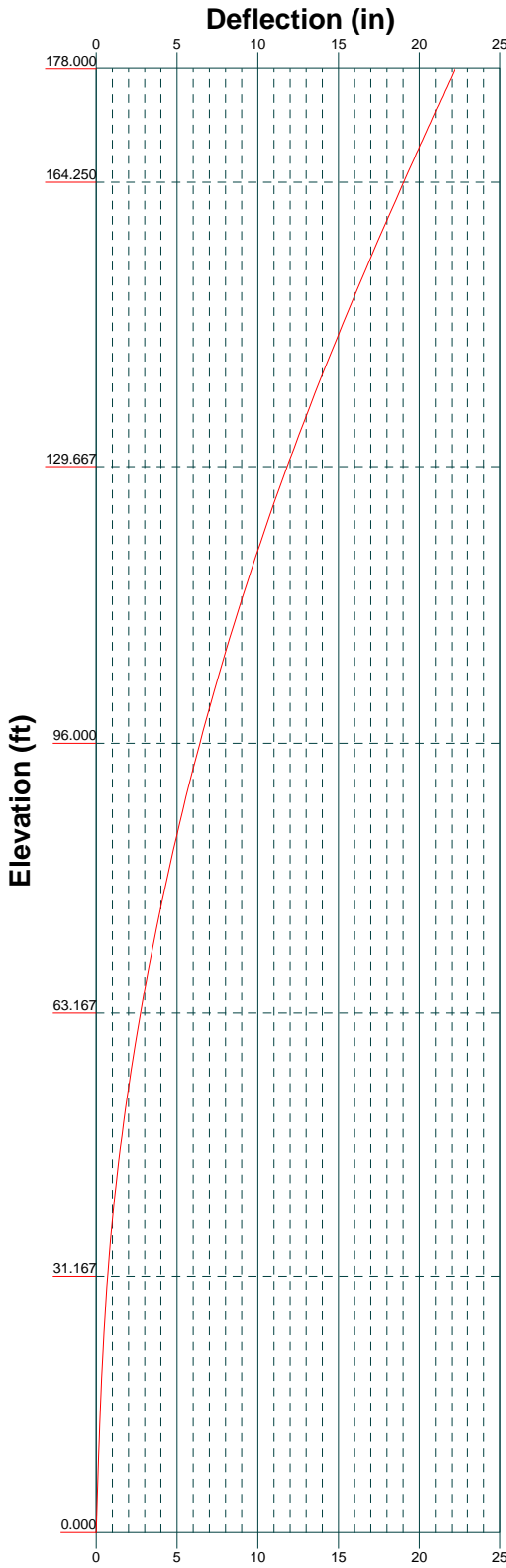
Mx

Mz



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

Job: <b>135998.003.01 - Deep River Rt9, CT (BU# 82366)</b>		
Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 08/25/21	Scale: NTS
Path:	Dwg No. E-4	



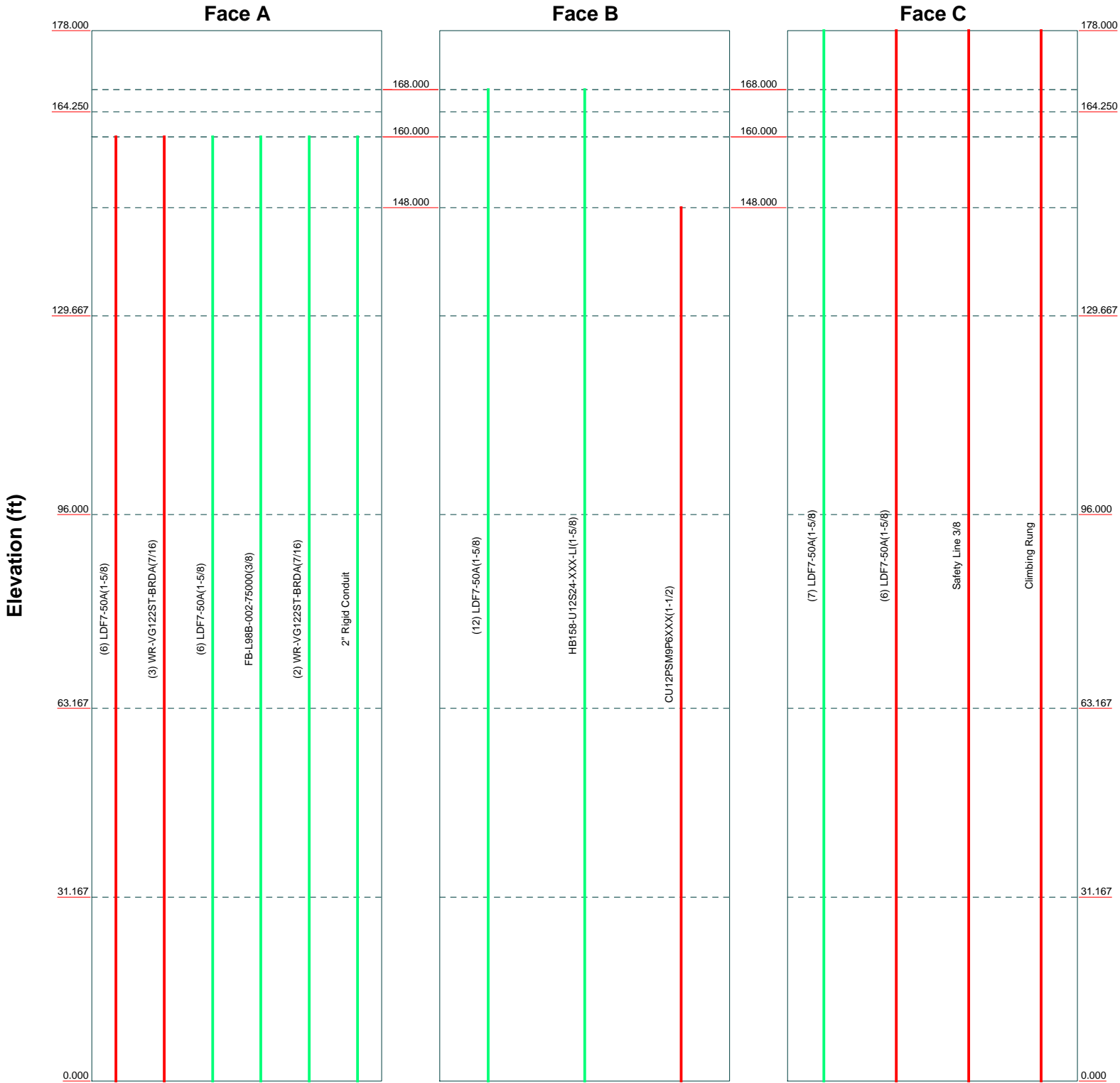
**B+T Group**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 Phone: (918) 587-4630  
 FAX: (918) 295-0265


Job: <b>135998.003.01 - Deep River Rt9, CT (BU# 82366)</b>		
Project:		
Client: Crown Castle	Drawn by: Rakshak	App'd:
Code: TIA-222-H	Date: 08/25/21	Scale: NTS
Path:	Dwg No. E-5	

# Feed Line Distribution Chart

## 0' - 178'

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



 <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job: <b>135998.003.01 - Deep River Rt9, CT (BU# 82366)</b>		
	Project:		
	Client: Crown Castle	Drawn by: Rakshak	App'd:
	Code: TIA-222-H	Date: 08/25/21	Scale: NTS
	Path:	Dwg No. E-7	

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 135998.003.01 - Deep River Rt9, CT (BU# 823666)	<b>Page</b> 1 of 21
	<b>Project</b>	<b>Date</b> 20:08:04 08/25/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Rakshak

## 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: 95.000 ft.

Basic wind speed of 130 mph.

Risk Category II.

Exposure Category B.

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

Topographic Category: 1.

Crest Height: 0.000 ft.

Nominal ice thickness of 1.500 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

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

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

TIA-222-H Annex-S.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 135998.003.01 - Deep River Rt9, CT (BU# 823666)	<b>Page</b> 2 of 21
	<b>Project</b>	<b>Date</b> 20:08:04 08/25/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Rakshak

### 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	178.000-164.250	13.750	2.917	18	12.750	26.000	0.250	1.000	A572-65 (65 ksi)
L2	164.250-129.667	37.500	3.833	18	22.689	34.063	0.313	1.250	A572-65 (65 ksi)
L3	129.667-96.000	37.500	4.667	18	32.275	41.750	0.375	1.500	A572-65 (65 ksi)
L4	96.000-63.167	37.500	5.500	18	39.821	49.063	0.375	1.500	A572-65 (65 ksi)
L5	63.167-31.167	37.500	6.250	18	46.957	56.125	0.375	1.500	A572-65 (65 ksi)
L6	31.167-0.000	37.417		18	53.847	62.938	0.375	1.500	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L1	12.908	9.919	195.801	4.438	6.477	30.230	391.859	4.960	1.804	7.216
	26.363	20.433	1711.654	9.141	13.208	129.592	3425.561	10.218	4.136	16.544
L2	23.889	22.195	1404.080	7.944	11.526	121.816	2810.008	11.100	3.443	11.019
	34.540	33.476	4817.433	11.981	17.304	278.404	9641.206	16.741	5.445	17.424
L3	33.698	37.969	4881.402	11.324	16.396	297.725	9769.226	18.988	5.020	13.388
	42.336	49.247	10650.982	14.688	21.209	502.192	21315.979	24.628	6.688	17.835
L4	41.545	46.950	9229.545	14.003	20.229	456.253	18471.234	23.480	6.348	16.929
	49.762	57.950	17355.138	17.284	24.924	696.329	34733.112	28.981	7.975	21.267
L5	48.989	55.444	15199.585	16.537	23.854	637.187	30419.171	27.727	7.604	20.279
	56.933	66.356	26056.151	19.791	28.511	913.882	52146.587	33.185	9.218	24.581
L6	56.162	63.645	22990.857	18.983	27.354	840.485	46011.967	31.829	8.817	23.512
	63.851	74.465	36822.895	22.210	31.972	1151.714	73694.242	37.240	10.417	27.779

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. A <sub>f</sub>	Adjust. A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 178.000-164.250				1	1	1			
L2 164.250-129.667				1	1	1			
L3 129.667-96.000				1	1	1			
L4 96.000-63.167				1	1	1			
L5 63.167-31.167				1	1	1			
L6 31.167-0.000				1	1	1			

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

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
LDF7-50A(1-5/8)	C	No	Surface Ar (CaAa)	178.000 - 0.000	6	4	-0.150 -0.050	1.980		0.001
*										
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	160.000 - 0.000	6	6	-0.400 -0.200	1.980		0.001
WR-VG122ST-BRDA(7/16)	A	No	Surface Ar (CaAa)	160.000 - 0.000	3	2	-0.190 -0.160	0.460		0.000
*										
CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	148.000 - 0.000	1	1	-0.080 -0.050	1.600		0.002
*										
Safety Line 3/8	C	No	Surface Ar (CaAa)	178.000 - 0.000	1	1	-0.450 -0.440	0.375		0.000
Climbing Rung	C	No	Surface Ar (CaAa)	178.000 - 0.000	1	1	-0.460 -0.400	1.000		0.008
*										

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

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA	Weight	
							ft <sup>2</sup> /ft	klf	
LDF7-50A(1-5/8)	C	No	No	Inside Pole	178.000 - 0.000	7	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
*									
LDF7-50A(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
HB158-U12S24-XX X-LI(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.003 0.003 0.003 0.003
LDF7-50A(1-5/8)	A	No	No	Inside Pole	160.000 - 0.000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
FB-L98B-002-75000 (3/8)	A	No	No	Inside Pole	160.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
WR-VG122ST-BRD A(7/16)	A	No	No	Inside Pole	160.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
2" Rigid Conduit	A	No	No	Inside Pole	160.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.003 0.003 0.003 0.003

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C <sub>AA</sub> ft <sup>2</sup> /ft	Weight klf
*								

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	178.000-164.250	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.049
		C	0.000	0.000	12.781	0.000	0.265
L2	164.250-129.667	A	0.000	0.000	38.827	0.000	0.407
		B	0.000	0.000	2.933	0.000	0.494
		C	0.000	0.000	32.145	0.000	0.667
L3	129.667-96.000	A	0.000	0.000	43.093	0.000	0.451
		B	0.000	0.000	5.387	0.000	0.518
		C	0.000	0.000	31.293	0.000	0.649
L4	96.000-63.167	A	0.000	0.000	42.027	0.000	0.440
		B	0.000	0.000	5.253	0.000	0.505
		C	0.000	0.000	30.519	0.000	0.633
L5	63.167-31.167	A	0.000	0.000	40.960	0.000	0.429
		B	0.000	0.000	5.120	0.000	0.492
		C	0.000	0.000	29.744	0.000	0.617
L6	31.167-0.000	A	0.000	0.000	39.893	0.000	0.418
		B	0.000	0.000	4.987	0.000	0.480
		C	0.000	0.000	28.969	0.000	0.601

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

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	178.000-164.250	A	1.502	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.049
		C		0.000	0.000	28.931	0.000	0.606
L2	164.250-129.667	A	1.479	0.000	0.000	71.320	0.000	1.139
		B		0.000	0.000	8.442	0.000	0.598
		C		0.000	0.000	72.766	0.000	1.525
L3	129.667-96.000	A	1.441	0.000	0.000	78.771	0.000	1.250
		B		0.000	0.000	15.349	0.000	0.706
		C		0.000	0.000	70.335	0.000	1.468
L4	96.000-63.167	A	1.392	0.000	0.000	76.193	0.000	1.196
		B		0.000	0.000	14.717	0.000	0.681
		C		0.000	0.000	67.777	0.000	1.406
L5	63.167-31.167	A	1.321	0.000	0.000	73.470	0.000	1.137
		B		0.000	0.000	14.028	0.000	0.655
		C		0.000	0.000	65.031	0.000	1.338
L6	31.167-0.000	A	1.180	0.000	0.000	70.458	0.000	1.068
		B		0.000	0.000	13.223	0.000	0.627
		C		0.000	0.000	61.909	0.000	1.260



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### Feed Line Center of Pressure

Section	Elevation <i>ft</i>	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
		<i>in</i>	<i>in</i>	<i>Ice</i> <i>in</i>	<i>Ice</i> <i>in</i>
L1	178.000-164.250	1.420	4.657	1.841	4.029
L2	164.250-129.667	-3.090	3.734	-1.690	3.023
L3	129.667-96.000	-3.653	3.830	-2.037	3.100
L4	96.000-63.167	-3.961	4.121	-2.285	3.424
L5	63.167-31.167	-4.207	4.354	-2.504	3.690
L6	31.167-0.000	-4.411	4.546	-2.711	3.913

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 <sub>a</sub> No Ice	K <sub>a</sub> Ice
L1	2	LDF7-50A(1-5/8)	164.25 - 178.00	1.0000	1.0000
L1	19	Safety Line 3/8	164.25 - 178.00	1.0000	1.0000
L1	20	Climbing Rung	164.25 - 178.00	1.0000	1.0000
L2	2	LDF7-50A(1-5/8)	129.67 - 164.25	1.0000	1.0000
L2	9	LDF7-50A(1-5/8)	129.67 - 160.00	1.0000	1.0000
L2	10	WR-VG122ST-BRDA(7/16)	129.67 - 160.00	1.0000	1.0000
L2	17	CU12PSM9P6XXX(1-1/2)	129.67 - 148.00	1.0000	1.0000
L2	19	Safety Line 3/8	129.67 - 164.25	1.0000	1.0000
L2	20	Climbing Rung	129.67 - 164.25	1.0000	1.0000
L3	2	LDF7-50A(1-5/8)	96.00 - 129.67	1.0000	1.0000
L3	9	LDF7-50A(1-5/8)	96.00 - 129.67	1.0000	1.0000
L3	10	WR-VG122ST-BRDA(7/16)	96.00 - 129.67	1.0000	1.0000
L3	17	CU12PSM9P6XXX(1-1/2)	96.00 - 129.67	1.0000	1.0000
L3	19	Safety Line 3/8	96.00 - 129.67	1.0000	1.0000
L3	20	Climbing Rung	96.00 - 129.67	1.0000	1.0000
L4	2	LDF7-50A(1-5/8)	63.17 - 96.00	1.0000	1.0000
L4	9	LDF7-50A(1-5/8)	63.17 - 96.00	1.0000	1.0000
L4	10	WR-VG122ST-BRDA(7/16)	63.17 - 96.00	1.0000	1.0000
L4	17	CU12PSM9P6XXX(1-1/2)	63.17 - 96.00	1.0000	1.0000
L4	19	Safety Line 3/8	63.17 - 96.00	1.0000	1.0000
L4	20	Climbing Rung	63.17 - 96.00	1.0000	1.0000
L5	2	LDF7-50A(1-5/8)	31.17 - 63.17	1.0000	1.0000
L5	9	LDF7-50A(1-5/8)	31.17 - 63.17	1.0000	1.0000
L5	10	WR-VG122ST-BRDA(7/16)	31.17 - 63.17	1.0000	1.0000
L5	17	CU12PSM9P6XXX(1-1/2)	31.17 - 63.17	1.0000	1.0000
L5	19	Safety Line 3/8	31.17 - 63.17	1.0000	1.0000
L5	20	Climbing Rung	31.17 - 63.17	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L6	2	LDF7-50A(1-5/8)	0.00 - 31.17	1.0000	1.0000
L6	9	LDF7-50A(1-5/8)	0.00 - 31.17	1.0000	1.0000
L6	10	WR-VG122ST-BRDA(7/16)	0.00 - 31.17	1.0000	1.0000
L6	17	CU12PSM9P6XXX(1-1/2)	0.00 - 31.17	1.0000	1.0000
L6	19	Safety Line 3/8	0.00 - 31.17	1.0000	1.0000
L6	20	Climbing Rung	0.00 - 31.17	1.0000	1.0000

## Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
Lightning Rod 5/8" x 5' on 6' pole	C	From Leg	0.000	0.000	178.000	No Ice	2.038	2.038	0.055
			0.000			1/2" Ice	2.914	2.914	0.077
			5.500			1" Ice	3.781	3.781	0.105
						2" Ice	5.186	5.186	0.176
* RR90-17-02DP w/ Mount Pipe	A	From Leg	4.000	0.000	178.000	No Ice	4.470	2.920	0.034
			0.000			1/2" Ice	5.080	3.500	0.067
			0.000			1" Ice	5.700	4.100	0.108
						2" Ice	7.010	5.350	0.216
RR90-17-02DP w/ Mount Pipe	B	From Leg	4.000	0.000	178.000	No Ice	4.470	2.920	0.034
			0.000			1/2" Ice	5.080	3.500	0.067
			0.000			1" Ice	5.700	4.100	0.108
						2" Ice	7.010	5.350	0.216
RR90-17-02DP w/ Mount Pipe	C	From Leg	4.000	0.000	178.000	No Ice	4.470	2.920	0.034
			0.000			1/2" Ice	5.080	3.500	0.067
			0.000			1" Ice	5.700	4.100	0.108
						2" Ice	7.010	5.350	0.216
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000	0.000	178.000	No Ice	14.690	6.870	0.186
			0.000			1/2" Ice	15.460	7.550	0.315
			0.000			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000	0.000	178.000	No Ice	14.690	6.870	0.186
			0.000			1/2" Ice	15.460	7.550	0.315
			0.000			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000	0.000	178.000	No Ice	14.690	6.870	0.186
			0.000			1/2" Ice	15.460	7.550	0.315
			0.000			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
KRY 112 489/2	A	From Leg	4.000	0.000	178.000	No Ice	0.559	0.365	0.015
			0.000			1/2" Ice	0.658	0.448	0.020
			0.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
KRY 112 489/2	B	From Leg	4.000	0.000	178.000	No Ice	0.559	0.365	0.015
			0.000			1/2" Ice	0.658	0.448	0.020
			0.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
KRY 112 489/2	C	From Leg	4.000	0.000	178.000	No Ice	0.559	0.365	0.015
			0.000			1/2" Ice	0.658	0.448	0.020

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
			0.000				1" Ice 0.764	0.542	0.027
							2" Ice 0.998	0.752	0.046
KRY 112 144/1	A	From Leg	4.000	0.000	178.000	No Ice 0.350	0.175	0.011	
			0.000			1/2" Ice 0.426	0.234	0.014	
			0.000			1" Ice 0.509	0.301	0.019	
KRY 112 144/1	B	From Leg	4.000	0.000	178.000	2" Ice 0.698	0.456	0.032	
			0.000			No Ice 0.350	0.175	0.011	
			0.000			1/2" Ice 0.426	0.234	0.014	
			0.000			1" Ice 0.509	0.301	0.019	
KRY 112 144/1	C	From Leg	4.000	0.000	178.000	2" Ice 0.698	0.456	0.032	
			0.000			No Ice 0.350	0.175	0.011	
			0.000			1/2" Ice 0.426	0.234	0.014	
			0.000			1" Ice 0.509	0.301	0.019	
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	178.000	2" Ice 0.698	0.456	0.032	
			0.000			No Ice 1.650	1.163	0.074	
			0.000			1/2" Ice 1.810	1.301	0.090	
			0.000			1" Ice 1.978	1.447	0.109	
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	178.000	2" Ice 2.336	1.762	0.155	
			0.000			No Ice 1.650	1.163	0.074	
			0.000			1/2" Ice 1.810	1.301	0.090	
			0.000			1" Ice 1.978	1.447	0.109	
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	178.000	2" Ice 2.336	1.762	0.155	
			0.000			No Ice 1.650	1.163	0.074	
			0.000			1/2" Ice 1.810	1.301	0.090	
			0.000			1" Ice 1.978	1.447	0.109	
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	178.000	2" Ice 2.336	1.762	0.155	
			0.000			No Ice 1.425	1.425	0.022	
			0.000			1/2" Ice 1.925	1.925	0.033	
			0.000			1" Ice 2.294	2.294	0.048	
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	178.000	2" Ice 3.060	3.060	0.090	
			0.000			No Ice 1.425	1.425	0.022	
			0.000			1/2" Ice 1.925	1.925	0.033	
			0.000			1" Ice 2.294	2.294	0.048	
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	178.000	2" Ice 3.060	3.060	0.090	
			0.000			No Ice 1.425	1.425	0.022	
			0.000			1/2" Ice 1.925	1.925	0.033	
			0.000			1" Ice 2.294	2.294	0.048	
3' x 2" Pipe Mount	A	From Leg	4.000	0.000	178.000	2" Ice 3.060	3.060	0.090	
			0.000			No Ice 0.583	0.583	0.011	
			0.000			1/2" Ice 0.770	0.770	0.017	
			0.000			1" Ice 0.967	0.967	0.024	
3' x 2" Pipe Mount	B	From Leg	4.000	0.000	178.000	2" Ice 1.388	1.388	0.047	
			0.000			No Ice 0.583	0.583	0.011	
			0.000			1/2" Ice 0.770	0.770	0.017	
			0.000			1" Ice 0.967	0.967	0.024	
3' x 2" Pipe Mount	C	From Leg	4.000	0.000	178.000	2" Ice 1.388	1.388	0.047	
			0.000			No Ice 0.583	0.583	0.011	
			0.000			1/2" Ice 0.770	0.770	0.017	
			0.000			1" Ice 0.967	0.967	0.024	
Platform Mount [LP 405-1_HR-1]	C	None		0.000	178.000	2" Ice 1.388	1.388	0.047	
						No Ice 25.330	25.330	2.056	
						1/2" Ice 33.790	33.790	2.634	
						1" Ice 42.160	42.160	3.360	
						2" Ice 58.770	58.770	5.254	
* LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.000	0.000	168.000	No Ice 4.090	3.300	0.065	
			0.000			1/2" Ice 4.490	3.680	0.128	

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b>		135998.003.01 - Deep River Rt9, CT (BU# 823666)		<b>Page</b>		8 of 21	
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	<b>Client</b>		Crown Castle		<b>Designed by</b>		Rakshak	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
			2.000				1" Ice 4.890	4.060	0.202
							2" Ice 5.710	4.870	0.383
LNx-6514DS-A1M w/ Mount Pipe	B	From Leg	4.000	0.000	168.000	No Ice	4.090	3.300	0.065
			0.000			1/2" Ice	4.490	3.680	0.128
			2.000			1" Ice	4.890	4.060	0.202
						2" Ice	5.710	4.870	0.383
LNx-6514DS-A1M w/ Mount Pipe	C	From Leg	4.000	0.000	168.000	No Ice	4.090	3.300	0.065
			0.000			1/2" Ice	4.490	3.680	0.128
			2.000			1" Ice	4.890	4.060	0.202
						2" Ice	5.710	4.870	0.383
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	4.000	0.000	168.000	No Ice	6.540	5.550	0.103
			0.000			1/2" Ice	7.060	6.050	0.185
			2.000			1" Ice	7.600	6.570	0.277
						2" Ice	8.700	7.650	0.496
(2) MX06FRO660-03 w/ Mount Pipe	B	From Leg	4.000	0.000	168.000	No Ice	6.540	5.550	0.103
			0.000			1/2" Ice	7.060	6.050	0.185
			2.000			1" Ice	7.600	6.570	0.277
						2" Ice	8.700	7.650	0.496
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	4.000	0.000	168.000	No Ice	6.540	5.550	0.103
			0.000			1/2" Ice	7.060	6.050	0.185
			2.000			1" Ice	7.600	6.570	0.277
						2" Ice	8.700	7.650	0.496
MT6407-77A w/ Mount Pipe	A	From Leg	4.000	0.000	168.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			2.000			1" Ice	5.615	3.624	0.180
						2" Ice	6.362	4.631	0.288
MT6407-77A w/ Mount Pipe	B	From Leg	4.000	0.000	168.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			2.000			1" Ice	5.615	3.624	0.180
						2" Ice	6.362	4.631	0.288
MT6407-77A w/ Mount Pipe	C	From Leg	4.000	0.000	168.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			2.000			1" Ice	5.615	3.624	0.180
						2" Ice	6.362	4.631	0.288
RVZDC-6627-PF-48	A	From Leg	4.000	0.000	168.000	No Ice	3.792	2.514	0.032
			0.000			1/2" Ice	4.044	2.727	0.063
			2.000			1" Ice	4.303	2.947	0.099
						2" Ice	4.844	3.417	0.181
RFV01U-D2A	A	From Leg	4.000	0.000	168.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	B	From Leg	4.000	0.000	168.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	C	From Leg	4.000	0.000	168.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D1A	A	From Leg	4.000	0.000	168.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	B	From Leg	4.000	0.000	168.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b>		135998.003.01 - Deep River Rt9, CT (BU# 823666)		<b>Page</b>		9 of 21	
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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight					
			Horz	Lateral						Vert	°	ft	ft <sup>2</sup>	ft <sup>2</sup>
RFV01U-D1A	C	From Leg	4.000	0.000	0.000	168.000	2" Ice	2.601	1.865	0.175				
											No Ice	1.875	1.250	0.084
											1/2" Ice	2.045	1.393	0.103
											1" Ice	2.223	1.543	0.124
											2" Ice	2.601	1.865	0.175
Platform Mount [LP 303-1]	C	None	4.000	0.000	0.000	168.000	No Ice	14.690	14.690	1.250				
											1/2" Ice	18.010	18.010	1.569
											1" Ice	21.340	21.340	1.942
											2" Ice	28.080	28.080	2.852
											Side Arm Mount [SO 102-3]	C	None	4.000
							1/2" Ice	4.180	4.180	0.105				
							1" Ice	4.750	4.750	0.135				
							2" Ice	5.900	5.900	0.195				
* RA21.7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	160.000	No Ice	4.140	2.460	0.063				
							1/2" Ice	4.570	2.870	0.111				
							1" Ice	5.010	3.290	0.169				
							2" Ice	5.930	4.150	0.314				
							RA21.7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	4.570	2.870	0.111				
							1" Ice	5.010	3.290	0.169				
							2" Ice	5.930	4.150	0.314				
							RA21.7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	4.570	2.870	0.111				
							1" Ice	5.010	3.290	0.169				
							2" Ice	5.930	4.150	0.314				
							AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	6.660	4.860	0.170				
							1" Ice	7.240	5.420	0.261				
							2" Ice	8.430	6.570	0.484				
							AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	6.660	4.860	0.170				
							1" Ice	7.240	5.420	0.261				
							2" Ice	8.430	6.570	0.484				
							TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	12.770	9.880	0.210				
							1" Ice	13.710	10.790	0.319				
							2" Ice	15.640	12.660	0.580				
							TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	12.770	9.880	0.210				
							1" Ice	13.710	10.790	0.319				
							2" Ice	15.640	12.660	0.580				
							TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	12.770	9.880	0.210				
							1" Ice	13.710	10.790	0.319				
							2" Ice	15.640	12.660	0.580				
							SBNH-1D6565C w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	6.070	4.970	0.167				
							1" Ice	6.590	5.470	0.262				
							2" Ice	7.650	6.520	0.495				
							(2) LGP21401	A	From Leg	4.000	0.000	0.000	160.000	No Ice
							1/2" Ice	1.239	0.274	0.021				
							1" Ice	1.381	0.348	0.030				
							2" Ice	1.688	0.521	0.055				
(2) LGP21401	B	From Leg	4.000	0.000	0.000	160.000	No Ice	1.104	0.207	0.014				
							1/2" Ice	1.239	0.274	0.021				
							1" Ice	1.381	0.348	0.030				

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	Crown Castle	Rakshak

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
(2) LGP21401	C	From Leg	4.000	0.000	0.000	160.000	2" Ice	1.688	0.521	0.055
			0.000	No Ice			1.104	0.207	0.014	
			0.000	1/2" Ice			1.239	0.274	0.021	
			0.000	1" Ice			1.381	0.348	0.030	
(2) 7020.00	A	From Leg	4.000	0.000	0.000	160.000	2" Ice	1.688	0.521	0.055
			0.000	No Ice			0.102	0.175	0.002	
			0.000	1/2" Ice			0.147	0.239	0.005	
			0.000	1" Ice			0.199	0.311	0.009	
(2) 7020.00	B	From Leg	4.000	0.000	0.000	160.000	2" Ice	0.326	0.476	0.022
			0.000	No Ice			0.102	0.175	0.002	
			0.000	1/2" Ice			0.147	0.239	0.005	
			0.000	1" Ice			0.199	0.311	0.009	
(2) 7020.00	C	From Leg	4.000	0.000	0.000	160.000	2" Ice	0.326	0.476	0.022
			0.000	No Ice			0.102	0.175	0.002	
			0.000	1/2" Ice			0.147	0.239	0.005	
			0.000	1" Ice			0.199	0.311	0.009	
DC6-48-60-18-8F	A	From Leg	4.000	0.000	0.000	160.000	2" Ice	0.326	0.476	0.022
			0.000	No Ice			0.791	0.791	0.020	
			0.000	1/2" Ice			1.274	1.274	0.035	
			0.000	1" Ice			1.450	1.450	0.053	
RRUS 11 B12	A	From Leg	4.000	0.000	0.000	160.000	2" Ice	1.831	1.831	0.095
			0.000	No Ice			2.833	1.182	0.051	
			0.000	1/2" Ice			3.043	1.330	0.072	
			0.000	1" Ice			3.259	1.485	0.095	
RRUS 11 B12	B	From Leg	4.000	0.000	0.000	160.000	2" Ice	3.715	1.826	0.153
			0.000	No Ice			2.833	1.182	0.051	
			0.000	1/2" Ice			3.043	1.330	0.072	
			0.000	1" Ice			3.259	1.485	0.095	
RRUS 11 B12	C	From Leg	4.000	0.000	0.000	160.000	2" Ice	3.715	1.826	0.153
			0.000	No Ice			2.833	1.182	0.051	
			0.000	1/2" Ice			3.043	1.330	0.072	
			0.000	1" Ice			3.259	1.485	0.095	
RRUS 32 B2	A	From Leg	4.000	0.000	0.000	160.000	2" Ice	3.715	1.826	0.153
			0.000	No Ice			2.731	1.668	0.053	
			0.000	1/2" Ice			2.953	1.855	0.074	
			0.000	1" Ice			3.182	2.049	0.098	
RRUS 32 B2	B	From Leg	4.000	0.000	0.000	160.000	2" Ice	3.663	2.458	0.157
			0.000	No Ice			2.731	1.668	0.053	
			0.000	1/2" Ice			2.953	1.855	0.074	
			0.000	1" Ice			3.182	2.049	0.098	
DBC0061F1V51-2	A	From Leg	4.000	0.000	0.000	160.000	2" Ice	3.663	2.458	0.157
			0.000	No Ice			0.413	0.433	0.025	
			0.000	1/2" Ice			0.496	0.518	0.031	
			0.000	1" Ice			0.586	0.609	0.038	
DBC0061F1V51-2	B	From Leg	4.000	0.000	0.000	160.000	2" Ice	0.788	0.815	0.057
			0.000	No Ice			0.413	0.433	0.025	
			0.000	1/2" Ice			0.496	0.518	0.031	
			0.000	1" Ice			0.586	0.609	0.038	
DBC0061F1V51-2	C	From Leg	4.000	0.000	0.000	160.000	2" Ice	0.788	0.815	0.057
			0.000	No Ice			0.413	0.433	0.025	
			0.000	1/2" Ice			0.496	0.518	0.031	
			0.000	1" Ice			0.586	0.609	0.038	
RRUS 32 B30	A	From Leg	4.000	0.000	0.000	160.000	2" Ice	0.788	0.815	0.057
			0.000	No Ice			2.692	1.573	0.060	
			0.000	1/2" Ice			2.912	1.756	0.080	
			0.000	1" Ice			3.138	1.945	0.104	
						2" Ice	3.614	2.346	0.161	

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

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft <sup>2</sup>	CAAA Side ft <sup>2</sup>	Weight K	
RRUS 32 B30	B	From Leg	4.000	0.000	160.000	No Ice	2.692	1.573	0.060
			0.000			1/2" Ice	2.912	1.756	0.080
			0.000			1" Ice	3.138	1.945	0.104
						2" Ice	3.614	2.346	0.161
RRUS 32 B30	C	From Leg	4.000	0.000	160.000	No Ice	2.692	1.573	0.060
			0.000			1/2" Ice	2.912	1.756	0.080
			0.000			1" Ice	3.138	1.945	0.104
						2" Ice	3.614	2.346	0.161
DC6-48-60-18-8C-EV	B	From Leg	4.000	0.000	160.000	No Ice	2.736	2.736	0.026
			0.000			1/2" Ice	2.962	2.962	0.052
			0.000			1" Ice	3.195	3.195	0.082
						2" Ice	3.683	3.683	0.152
RRUS 32	C	From Leg	4.000	0.000	160.000	No Ice	2.857	1.777	0.055
			0.000			1/2" Ice	3.083	1.968	0.077
			0.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
Platform Mount [LP 303-1_HR-1]	C	None		0.000	160.000	No Ice	17.090	17.090	1.495
						1/2" Ice	21.470	21.470	1.881
						1" Ice	25.720	25.720	2.346
						2" Ice	33.960	33.960	3.518
* *									
MX08FRO665-20 w/ Mount Pipe	A	From Leg	4.000	0.000	148.000	No Ice	8.010	4.230	0.098
			0.000			1/2" Ice	8.520	4.690	0.184
			0.000			1" Ice	9.040	5.160	0.281
						2" Ice	10.110	6.120	0.512
MX08FRO665-20 w/ Mount Pipe	B	From Leg	4.000	0.000	148.000	No Ice	8.010	4.230	0.098
			0.000			1/2" Ice	8.520	4.690	0.184
			0.000			1" Ice	9.040	5.160	0.281
						2" Ice	10.110	6.120	0.512
MX08FRO665-20 w/ Mount Pipe	C	From Leg	4.000	0.000	148.000	No Ice	8.010	4.230	0.098
			0.000			1/2" Ice	8.520	4.690	0.184
			0.000			1" Ice	9.040	5.160	0.281
						2" Ice	10.110	6.120	0.512
TA08025-B604	A	From Leg	4.000	0.000	148.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
						2" Ice	2.705	1.548	0.148
TA08025-B604	B	From Leg	4.000	0.000	148.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
						2" Ice	2.705	1.548	0.148
TA08025-B604	C	From Leg	4.000	0.000	148.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
						2" Ice	2.705	1.548	0.148
TA08025-B605	A	From Leg	4.000	0.000	148.000	No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
TA08025-B605	B	From Leg	4.000	0.000	148.000	No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
TA08025-B605	C	From Leg	4.000	0.000	148.000	No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 135998.003.01 - Deep River Rt9, CT (BU# 823666)	<b>Page</b> 12 of 21
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	<b>Client</b> Crown Castle	<b>Designed by</b> Rakshak

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
RDIDC-9181-PF-48	A	From Leg	4.000	0.000	0.000	148.000	2" Ice	2.705	1.723	0.164
			0.000	0.000			No Ice	2.012	1.168	0.022
			0.000	0.000			1/2" Ice	2.189	1.311	0.040
			0.000	0.000			1" Ice	2.373	1.461	0.060
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	148.000	2" Ice	2.763	1.784	0.110
			0.000	0.000			No Ice	1.900	1.900	0.029
			0.000	0.000			1/2" Ice	2.728	2.728	0.044
			0.000	0.000			1" Ice	3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	148.000	2" Ice	4.396	4.396	0.119
			0.000	0.000			No Ice	1.900	1.900	0.029
			0.000	0.000			1/2" Ice	2.728	2.728	0.044
			0.000	0.000			1" Ice	3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	148.000	2" Ice	4.396	4.396	0.119
			0.000	0.000			No Ice	1.900	1.900	0.029
			0.000	0.000			1/2" Ice	2.728	2.728	0.044
			0.000	0.000			1" Ice	3.401	3.401	0.063
Commscope MC-PK8-DSH	C	None			0.000	148.000	2" Ice	4.396	4.396	0.119
							No Ice	34.240	34.240	1.749
							1/2" Ice	62.950	62.950	2.099
							1" Ice	91.660	91.660	2.450
						2" Ice	149.080	149.080	3.151	
*										

## 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



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Comb. No.	Description
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
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	178 - 164.25	Pole	Max Tension	26	0.000	-0.000	0.000
			Max. Compression	26	-18.000	0.081	0.262
			Max. Mx	20	-7.398	59.299	-0.032
			Max. My	2	-7.425	0.022	58.531
			Max. Vy	20	-9.045	59.299	-0.032
			Max. Vx	14	8.916	0.026	-58.509
			Max. Torque	9			0.457
L2	164.25 - 129.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-41.732	0.432	-0.482
			Max. Mx	20	-19.199	585.936	-0.736
			Max. My	14	-19.255	0.456	-576.210
			Max. Vy	20	-20.194	585.936	-0.736
			Max. Vx	14	19.801	0.456	-576.210
			Max. Torque	11			0.677
L3	129.667 - 96	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.110	1.564	-1.826
			Max. Mx	20	-27.540	1305.286	-1.809
			Max. My	14	-27.587	1.045	-1281.942
			Max. Vy	20	-23.585	1305.286	-1.809
			Max. Vx	14	23.152	1.045	-1281.942
			Max. Torque	11			0.676
L4	96 - 63.1667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.173	2.763	-3.234
			Max. Mx	20	-37.385	2113.958	-2.971
			Max. My	14	-37.418	1.651	-2077.267
			Max. Vy	20	-26.880	2113.958	-2.971

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	63.1667 - 31.1667	Pole	Max. Vx	14	26.449	1.651	-2077.267
			Max. Torque	11			0.675
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.648	3.997	-4.691
			Max. Mx	20	-48.546	3002.485	-4.201
			Max. My	14	-48.565	2.265	-2953.006
			Max. Vy	20	-29.845	3002.485	-4.201
L6	31.1667 - 0	Pole	Max. Vx	14	29.422	2.265	-2953.006
			Max. Torque	11			0.674
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-103.629	5.603	-6.609
			Max. Mx	20	-63.528	4178.658	-5.767
			Max. My	14	-63.528	3.017	-4114.399
			Max. Vy	20	-32.940	4178.658	-5.767
			Max. Vx	14	32.532	3.017	-4114.399
			Max. Torque	11			0.673

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	34	103.629	4.136	-7.176
	Max. H <sub>x</sub>	21	47.657	32.910	-0.012
	Max. H <sub>z</sub>	3	47.657	-0.012	32.503
	Max. M <sub>x</sub>	2	4106.921	-0.012	32.503
	Max. M <sub>z</sub>	8	4176.664	-32.910	0.012
	Max. Torsion	11	0.673	-28.060	-16.241
	Min. Vert	23	47.657	28.060	16.241
	Min. H <sub>x</sub>	9	47.657	-32.910	0.012
	Min. H <sub>z</sub>	15	47.657	0.012	-32.503
	Min. M <sub>x</sub>	14	-4114.399	0.012	-32.503
	Min. M <sub>z</sub>	20	-4178.658	32.910	-0.012
	Min. Torsion	23	-0.672	28.060	16.241

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	52.952	0.000	0.000	2.967	0.791	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	63.543	0.012	-32.503	-4106.921	-1.007	0.412
0.9 Dead+1.0 Wind 0 deg - No Ice	47.657	0.012	-32.503	-4049.962	-1.237	0.414
1.2 Dead+1.0 Wind 30 deg - No Ice	63.543	16.214	-28.154	-3557.212	-2047.926	0.090
0.9 Dead+1.0 Wind 30 deg - No Ice	47.657	16.214	-28.154	-3508.012	-2019.327	0.090
1.2 Dead+1.0 Wind 60 deg - No Ice	63.543	28.351	-16.423	-2080.561	-3593.000	-0.256
0.9 Dead+1.0 Wind 60 deg - No Ice	47.657	28.351	-16.423	-2052.133	-3542.582	-0.258

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Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Ice						
1.2 Dead+1.0 Wind 90 deg - No Ice	63.543	32.910	-0.012	1.744	-4176.664	-0.534
0.9 Dead+1.0 Wind 90 deg - No Ice	47.657	32.910	-0.012	0.798	-4117.985	-0.537
1.2 Dead+1.0 Wind 120 deg - No Ice	63.543	28.060	16.241	2057.366	-3543.838	-0.669
0.9 Dead+1.0 Wind 120 deg - No Ice	47.657	28.060	16.241	2027.457	-3494.176	-0.673
1.2 Dead+1.0 Wind 150 deg - No Ice	63.543	16.194	28.142	3562.695	-2044.433	-0.624
0.9 Dead+1.0 Wind 150 deg - No Ice	47.657	16.194	28.142	3511.579	-2015.891	-0.628
1.2 Dead+1.0 Wind 180 deg - No Ice	63.543	-0.012	32.503	4114.399	3.017	-0.412
0.9 Dead+1.0 Wind 180 deg - No Ice	47.657	-0.012	32.503	4055.496	2.724	-0.414
1.2 Dead+1.0 Wind 210 deg - No Ice	63.543	-16.214	28.154	3564.691	2049.919	-0.089
0.9 Dead+1.0 Wind 210 deg - No Ice	47.657	-16.214	28.154	3513.546	2020.802	-0.089
1.2 Dead+1.0 Wind 240 deg - No Ice	63.543	-28.351	16.423	2088.056	3594.984	0.257
0.9 Dead+1.0 Wind 240 deg - No Ice	47.657	-28.351	16.423	2057.679	3544.050	0.259
1.2 Dead+1.0 Wind 270 deg - No Ice	63.543	-32.910	0.012	5.767	4178.658	0.534
0.9 Dead+1.0 Wind 270 deg - No Ice	47.657	-32.910	0.012	4.759	4119.461	0.537
1.2 Dead+1.0 Wind 300 deg - No Ice	63.543	-28.060	-16.241	-2049.856	3545.851	0.668
0.9 Dead+1.0 Wind 300 deg - No Ice	47.657	-28.060	-16.241	-2021.900	3495.665	0.672
1.2 Dead+1.0 Wind 330 deg - No Ice	63.543	-16.194	-28.142	-3555.202	2046.453	0.624
0.9 Dead+1.0 Wind 330 deg - No Ice	47.657	-16.194	-28.142	-3506.034	2017.386	0.627
1.2 Dead+1.0 Ice+1.0 Temp	103.629	-0.000	0.000	6.609	5.603	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	103.629	0.002	-8.285	-1088.569	5.498	0.059
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	103.629	4.136	-7.176	-941.972	-540.780	-0.007
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	103.629	7.162	-4.144	-541.133	-940.596	-0.072
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	103.629	8.269	-0.002	6.544	-1086.819	-0.117
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	103.629	7.160	4.141	554.307	-940.267	-0.131
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	103.629	4.133	7.174	955.384	-540.212	-0.110
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	103.629	-0.002	8.285	1102.307	6.153	-0.059
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	103.629	-4.136	7.176	955.710	552.429	0.007
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	103.629	-7.162	4.144	554.873	952.243	0.072
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	103.629	-8.269	0.002	7.198	1098.467	0.117
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	103.629	-7.160	-4.141	-540.565	951.918	0.131
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	103.629	-4.133	-7.174	-941.644	551.864	0.110

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	Crown Castle	Rakshak

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	52.952	0.002	-6.522	-815.049	0.426	0.084
Dead+Wind 30 deg - Service	52.952	3.254	-5.650	-705.638	-406.972	0.015
Dead+Wind 60 deg - Service	52.952	5.689	-3.296	-411.749	-714.503	-0.058
Dead+Wind 90 deg - Service	52.952	6.604	-0.002	2.699	-830.683	-0.116
Dead+Wind 120 deg - Service	52.952	5.631	3.259	411.826	-704.701	-0.142
Dead+Wind 150 deg - Service	52.952	3.250	5.647	711.435	-406.279	-0.130
Dead+Wind 180 deg - Service	52.952	-0.002	6.522	821.245	1.226	-0.084
Dead+Wind 210 deg - Service	52.952	-3.254	5.650	711.834	408.625	-0.015
Dead+Wind 240 deg - Service	52.952	-5.689	3.296	417.946	716.155	0.058
Dead+Wind 270 deg - Service	52.952	-6.604	0.002	3.499	832.335	0.116
Dead+Wind 300 deg - Service	52.952	-5.631	-3.259	-405.628	706.354	0.142
Dead+Wind 330 deg - Service	52.952	-3.250	-5.647	-705.238	407.932	0.130

## 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	0.000	-52.952	0.000	0.000	52.952	0.000	0.000%
2	0.012	-63.543	-32.503	-0.012	63.543	32.503	0.000%
3	0.012	-47.657	-32.503	-0.012	47.657	32.503	0.000%
4	16.214	-63.543	-28.154	-16.214	63.543	28.154	0.000%
5	16.214	-47.657	-28.154	-16.214	47.657	28.154	0.000%
6	28.351	-63.543	-16.423	-28.351	63.543	16.423	0.000%
7	28.351	-47.657	-16.423	-28.351	47.657	16.423	0.000%
8	32.910	-63.543	-0.012	-32.910	63.543	0.012	0.000%
9	32.910	-47.657	-0.012	-32.910	47.657	0.012	0.000%
10	28.060	-63.543	16.241	-28.060	63.543	-16.241	0.000%
11	28.060	-47.657	16.241	-28.060	47.657	-16.241	0.000%
12	16.194	-63.543	28.142	-16.194	63.543	-28.142	0.000%
13	16.194	-47.657	28.142	-16.194	47.657	-28.142	0.000%
14	-0.012	-63.543	32.503	0.012	63.543	-32.503	0.000%
15	-0.012	-47.657	32.503	0.012	47.657	-32.503	0.000%
16	-16.214	-63.543	28.154	16.214	63.543	-28.154	0.000%
17	-16.214	-47.657	28.154	16.214	47.657	-28.154	0.000%
18	-28.351	-63.543	16.423	28.351	63.543	-16.423	0.000%
19	-28.351	-47.657	16.423	28.351	47.657	-16.423	0.000%
20	-32.910	-63.543	0.012	32.910	63.543	-0.012	0.000%
21	-32.910	-47.657	0.012	32.910	47.657	-0.012	0.000%
22	-28.060	-63.543	-16.241	28.060	63.543	16.241	0.000%
23	-28.060	-47.657	-16.241	28.060	47.657	16.241	0.000%
24	-16.194	-63.543	-28.142	16.194	63.543	28.142	0.000%
25	-16.194	-47.657	-28.142	16.194	47.657	28.142	0.000%
26	0.000	-103.629	0.000	0.000	103.629	-0.000	0.000%
27	0.002	-103.629	-8.285	-0.002	103.629	8.285	0.000%
28	4.136	-103.629	-7.176	-4.136	103.629	7.176	0.000%
29	7.162	-103.629	-4.144	-7.162	103.629	4.144	0.000%
30	8.269	-103.629	-0.002	-8.269	103.629	0.002	0.000%
31	7.160	-103.629	4.141	-7.160	103.629	-4.141	0.000%
32	4.133	-103.629	7.174	-4.133	103.629	-7.174	0.000%
33	-0.002	-103.629	8.285	0.002	103.629	-8.285	0.000%
34	-4.136	-103.629	7.176	4.136	103.629	-7.176	0.000%
35	-7.162	-103.629	4.144	7.162	103.629	-4.144	0.000%
36	-8.269	-103.629	0.002	8.269	103.629	-0.002	0.000%
37	-7.160	-103.629	-4.141	7.160	103.629	4.141	0.000%
38	-4.133	-103.629	-7.174	4.133	103.629	7.174	0.000%
39	0.002	-52.952	-6.522	-0.002	52.952	6.522	0.000%

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		Rakshak

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
40	3.254	-52.952	-5.650	-3.254	52.952	5.650	0.000%
41	5.689	-52.952	-3.296	-5.689	52.952	3.296	0.000%
42	6.604	-52.952	-0.002	-6.604	52.952	0.002	0.000%
43	5.631	-52.952	3.259	-5.631	52.952	-3.259	0.000%
44	3.250	-52.952	5.647	-3.250	52.952	-5.647	0.000%
45	-0.002	-52.952	6.522	0.002	52.952	-6.522	0.000%
46	-3.254	-52.952	5.650	3.254	52.952	-5.650	0.000%
47	-5.689	-52.952	3.296	5.689	52.952	-3.296	0.000%
48	-6.604	-52.952	0.002	6.604	52.952	-0.002	0.000%
49	-5.631	-52.952	-3.259	5.631	52.952	3.259	0.000%
50	-3.250	-52.952	-5.647	3.250	52.952	5.647	0.000%

## Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.00006620
3	Yes	4	0.0000001	0.00064468
4	Yes	6	0.0000001	0.00022753
5	Yes	6	0.0000001	0.00007823
6	Yes	6	0.0000001	0.00023506
7	Yes	6	0.0000001	0.00008051
8	Yes	5	0.0000001	0.00007043
9	Yes	4	0.0000001	0.00070223
10	Yes	6	0.0000001	0.00022500
11	Yes	6	0.0000001	0.00007724
12	Yes	6	0.0000001	0.00022937
13	Yes	6	0.0000001	0.00007889
14	Yes	5	0.0000001	0.00006141
15	Yes	4	0.0000001	0.00059519
16	Yes	6	0.0000001	0.00022782
17	Yes	6	0.0000001	0.00007822
18	Yes	6	0.0000001	0.00023439
19	Yes	6	0.0000001	0.00008012
20	Yes	5	0.0000001	0.00006496
21	Yes	4	0.0000001	0.00064492
22	Yes	6	0.0000001	0.00022866
23	Yes	6	0.0000001	0.00007873
24	Yes	6	0.0000001	0.00022488
25	Yes	6	0.0000001	0.00007723
26	Yes	4	0.0000001	0.00005909
27	Yes	6	0.0000001	0.00017076
28	Yes	6	0.0000001	0.00020538
29	Yes	6	0.0000001	0.00020532
30	Yes	6	0.0000001	0.00017043
31	Yes	6	0.0000001	0.00020713
32	Yes	6	0.0000001	0.00020777
33	Yes	6	0.0000001	0.00017269
34	Yes	6	0.0000001	0.00020978
35	Yes	6	0.0000001	0.00020941
36	Yes	6	0.0000001	0.00017206
37	Yes	6	0.0000001	0.00020724
38	Yes	6	0.0000001	0.00020702
39	Yes	4	0.0000001	0.00014500
40	Yes	4	0.0000001	0.00053799

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 135998.003.01 - Deep River Rt9, CT (BU# 823666)	<b>Page</b> 18 of 21
	<b>Project</b>	<b>Date</b> 20:08:04 08/25/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Rakshak

41	Yes	4	0.00000001	0.00056250
42	Yes	4	0.00000001	0.00014916
43	Yes	4	0.00000001	0.00052695
44	Yes	4	0.00000001	0.00055748
45	Yes	4	0.00000001	0.00014590
46	Yes	4	0.00000001	0.00054354
47	Yes	4	0.00000001	0.00055961
48	Yes	4	0.00000001	0.00014924
49	Yes	4	0.00000001	0.00055224
50	Yes	4	0.00000001	0.00052320

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	178 - 164.25	22.199	48	1.112	0.001
L2	167.167 - 129.667	19.699	48	1.089	0.001
L3	133.5 - 96	12.549	48	0.906	0.000
L4	100.667 - 63.1667	7.058	48	0.676	0.000
L5	68.6667 - 31.1667	3.249	48	0.446	0.000
L6	37.4167 - 0	0.973	48	0.235	0.000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.000	Lightning Rod 5/8" x 5' on 6' pole	48	22.199	1.112	0.001	38542
168.000	LNx-6514DS-A1M w/ Mount Pipe	48	19.890	1.091	0.001	19856
160.000	RA21.7770.00 w/ Mount Pipe	48	18.082	1.062	0.001	14146
148.000	MX08FRO665-20 w/ Mount Pipe	48	15.475	1.000	0.001	10534

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	178 - 164.25	111.601	20	5.597	0.004
L2	167.167 - 129.667	99.037	20	5.480	0.005
L3	133.5 - 96	63.093	20	4.559	0.002
L4	100.667 - 63.1667	35.480	20	3.403	0.001
L5	68.6667 - 31.1667	16.329	20	2.245	0.001
L6	37.4167 - 0	4.889	20	1.180	0.000

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

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b>	<b>Page</b>	
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	<b>Project</b>		<b>Date</b>
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	<b>Client</b>	<b>Designed by</b>	
	Crown Castle	Rakshak	

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.000	Lightning Rod 5/8" x 5' on 6' pole	20	111.601	5.597	0.005	7800
168.000	LNx-6514DS-A1M w/ Mount Pipe	20	99.994	5.492	0.005	4017
160.000	RA21.7770.00 w/ Mount Pipe	20	90.907	5.348	0.005	2857
148.000	MX08FRO665-20 w/ Mount Pipe	20	77.805	5.033	0.004	2123

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
L1	178 - 164.25 (1)	TP26x12.75x0.25	13.750	0.000	0.0	18.202	-7.398	1064.840	0.007
L2	164.25 - 129.667 (2)	TP34.063x22.689x0.313	37.500	0.000	0.0	32.323	-19.199	1890.880	0.010
L3	129.667 - 96 (3)	TP41.75x32.275x0.375	37.500	0.000	0.0	47.843	-27.540	2798.820	0.010
L4	96 - 63.1667 (4)	TP49.063x39.821x0.375	37.500	0.000	0.0	56.337	-37.385	3295.710	0.011
L5	63.1667 - 31.1667 (5)	TP56.125x46.957x0.375	37.500	0.000	0.0	64.538	-48.546	3775.460	0.013
L6	31.1667 - 0 (6)	TP62.938x53.847x0.375	37.417	0.000	0.0	74.465	-63.528	4356.200	0.015

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>ux</sub> kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M <sub>uy</sub> kip-ft	φM <sub>uy</sub> kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	178 - 164.25 (1)	TP26x12.75x0.25	59.299	635.996	0.093	0.000	635.996	0.000
L2	164.25 - 129.667 (2)	TP34.063x22.689x0.313	585.937	1569.308	0.373	0.000	1569.308	0.000
L3	129.667 - 96 (3)	TP41.75x32.275x0.375	1305.283	2844.517	0.459	0.000	2844.517	0.000
L4	96 - 63.1667 (4)	TP49.063x39.821x0.375	2113.958	3755.292	0.563	0.000	3755.292	0.000
L5	63.1667 - 31.1667 (5)	TP56.125x46.957x0.375	3002.492	4686.542	0.641	0.000	4686.542	0.000
L6	31.1667 - 0 (6)	TP62.938x53.847x0.375	4178.658	5847.241	0.715	0.000	5847.241	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V <sub>u</sub> K	φV <sub>n</sub> K	Ratio $\frac{V_u}{\phi V_n}$	Actual T <sub>u</sub> kip-ft	φT <sub>n</sub> kip-ft	Ratio $\frac{T_u}{\phi T_n}$
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<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 135998.003.01 - Deep River Rt9, CT (BU# 823666)	<b>Page</b> 20 of 21
	<b>Project</b>	<b>Date</b> 20:08:04 08/25/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Rakshak

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	178 - 164.25 (1)	TP26x12.75x0.25	9.045	319.452	0.028	0.456	641.752	0.001
L2	164.25 - 129.667 (2)	TP34.063x22.689x0.313	20.195	567.263	0.036	0.537	1618.875	0.000
L3	129.667 - 96 (3)	TP41.75x32.275x0.375	23.586	839.647	0.028	0.536	2955.683	0.000
L4	96 - 63.1667 (4)	TP49.063x39.821x0.375	26.880	988.714	0.027	0.535	4098.325	0.000
L5	63.1667 - 31.1667 (5)	TP56.125x46.957x0.375	29.845	1132.640	0.026	0.534	5378.317	0.000
L6	31.1667 - 0 (6)	TP62.938x53.847x0.375	32.940	1306.860	0.025	0.534	7160.175	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	178 - 164.25 (1)	0.007	0.093	0.000	0.028	0.001	0.101	1.050	4.8.2 ✓
L2	164.25 - 129.667 (2)	0.010	0.373	0.000	0.036	0.000	0.385	1.050	4.8.2 ✓
L3	129.667 - 96 (3)	0.010	0.459	0.000	0.028	0.000	0.470	1.050	4.8.2 ✓
L4	96 - 63.1667 (4)	0.011	0.563	0.000	0.027	0.000	0.575	1.050	4.8.2 ✓
L5	63.1667 - 31.1667 (5)	0.013	0.641	0.000	0.026	0.000	0.654	1.050	4.8.2 ✓
L6	31.1667 - 0 (6)	0.015	0.715	0.000	0.025	0.000	0.730	1.050	4.8.2 ✓



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	<b>Project</b>	<b>Date</b> 20:08:04 08/25/21
	<b>Client</b> Crown Castle	<b>Designed by</b> Rakshak

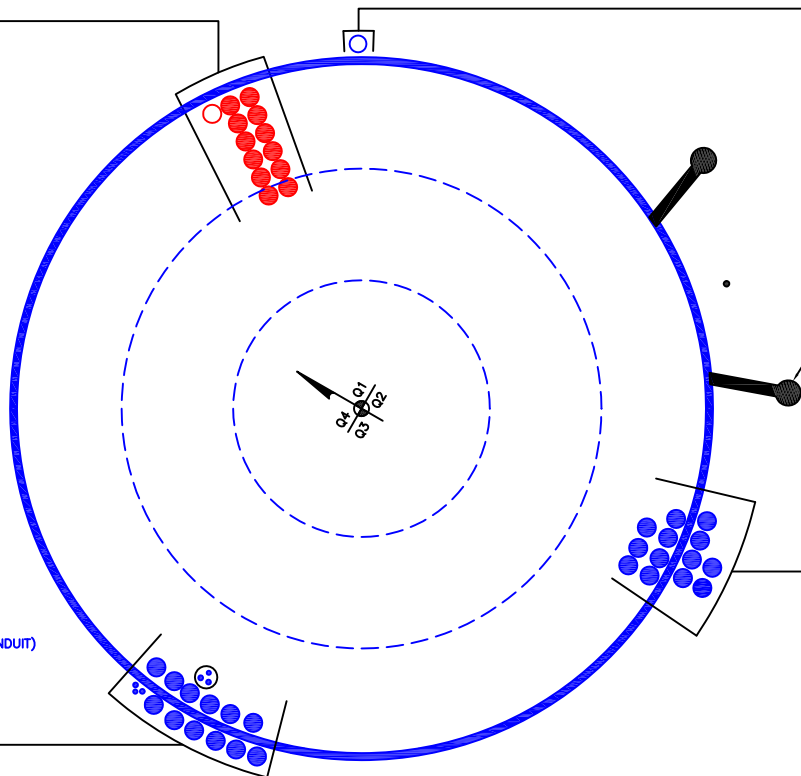
## Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
L1	178 - 164.25	Pole	TP26x12.75x0.25	1	-7.398	1118.082	9.6	Pass	
L2	164.25 - 129.667	Pole	TP34.063x22.689x0.313	2	-19.199	1985.424	36.6	Pass	
L3	129.667 - 96	Pole	TP41.75x32.275x0.375	3	-27.540	2938.761	44.7	Pass	
L4	96 - 63.1667	Pole	TP49.063x39.821x0.375	4	-37.385	3460.495	54.8	Pass	
L5	63.1667 - 31.1667	Pole	TP56.125x46.957x0.375	5	-48.546	3964.233	62.3	Pass	
L6	31.1667 - 0	Pole	TP62.938x53.847x0.375	6	-63.528	4574.010	69.5	Pass	
							Summary		
							Pole (L6)	69.5	Pass
							<b>RATING =</b>	<b>69.5</b>	<b>Pass</b>

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

(PROPOSED EQUIPMENT CONFIGURATION)  
(13) 1-5/8" TO 168 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)  
(1) 1-1/2" TO 148 FT LEVEL



CLIMBING PEGS  
W/ SAFETY CLIMB

(OTHER CONSIDERED EQUIPMENT)  
(13) 1-5/8" TO 178 FT LEVEL

(OTHER CONSIDERED EQUIPMENT-IN 2" CONDUIT)  
(1) 3/8" TO 160 FT LEVEL  
(2) 7/16" TO 160 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)  
(12) 1-5/8" TO 160 FT LEVEL  
(1) 3/8" TO 160 FT LEVEL  
(2) 7/16" TO 160 FT LEVEL

BUSINESS UNIT: 823666

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

# Monopole Base Plate Connection

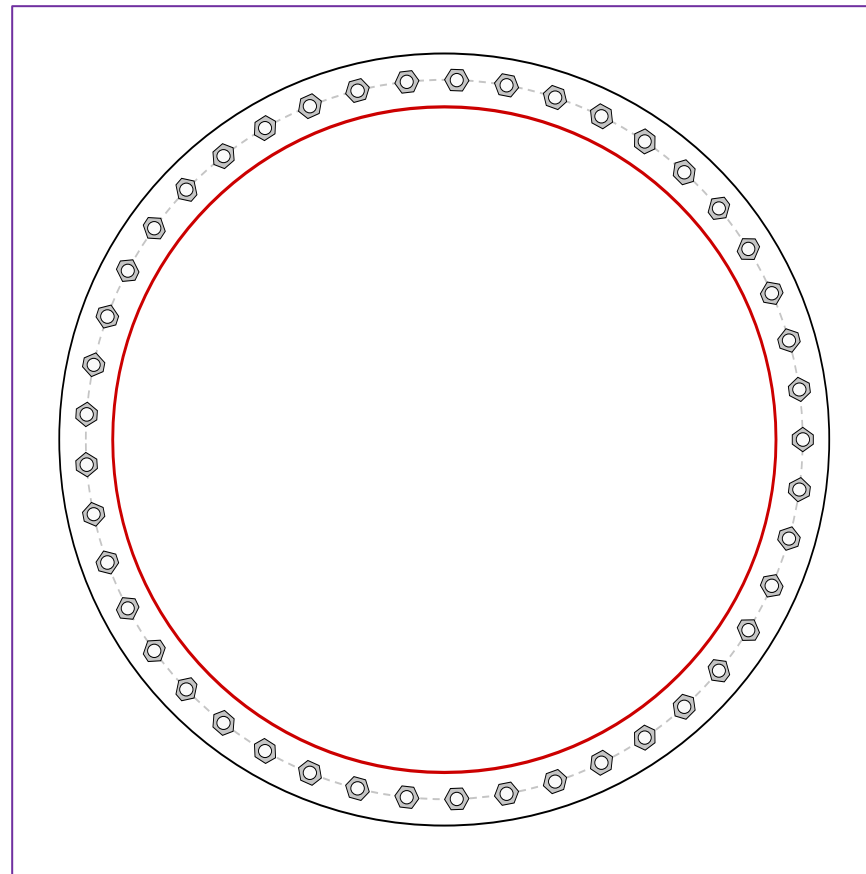


Site Info	
BU #	823666
Site Name	Deep River/Rt 9, CT
Order #	582520; Rev.0

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

Applied Loads	
Moment (kip-ft)	4178.66
Axial Force (kips)	63.53
Shear Force (kips)	32.94

\*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
(45) 1-1/4" $\phi$ bolts (A687 N; $F_y=105$ ksi, $F_u=125$ ksi) on 68" BC
Base Plate Data
73" OD x 1.5" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)
Stiffener Data
N/A
Pole Data
62.9375" x 0.375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u_t} = 64.13$	$\phi P_{n_t} = 90.84$	<b>Stress Rating</b>	
$V_u = 0.73$	$\phi V_n = 57.52$	<b>67.2%</b>	
$M_u = n/a$	$\phi M_n = n/a$	<b>Pass</b>	
Base Plate Summary			
Max Stress (ksi):	42.95	(Flexural)	
Allowable Stress (ksi):	45		
Stress Rating:	<b>90.9%</b>	<b>Pass</b>	

# Pier and Pad Foundation



**BU #:** 823666  
**Site Name:** Deep River/Rt 9, C  
**App. Number:** 582520; Rev.0

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

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

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	64	kips
Base Shear, $Vu_{comp}$ :	33	kips
Moment, $M_u$ :	4179	ft-kips
Tower Height, $H$ :	178	ft
BP Dist. Above Fdn, $bp_{dist}$ :	2.5	in
Bolt Circle / Bearing Plate Width, $BC$ :	68	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	189.14	33.00	<b>16.6%</b>	<b>Pass</b>
<i>Bearing Pressure (ksf)</i>	18.00	2.64	<b>14.7%</b>	<b>Pass</b>
<i>Overturning (kip*ft)</i>	6959.01	4317.88	<b>62.0%</b>	<b>Pass</b>
<i>Pad Flexure (kip*ft)</i>	4875.64	1946.87	<b>38.0%</b>	<b>Pass</b>
<i>Pad Shear - 1-way (kips)</i>	1436.12	226.65	<b>15.0%</b>	<b>Pass</b>
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.003	<b>1.8%</b>	<b>Pass</b>
<i>Flexural 2-way (Comp) (kip*ft)</i>	3989.84	0.00	<b>0.0%</b>	<b>Pass</b>

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	<b>38.0%</b>
Soil Rating*:	<b>62.0%</b>

Pad Properties		
Depth, $D$ :	3.5	ft
Pad Width, $W_1$ :	29	ft
Pad Thickness, $T$ :	4	ft
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	8	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	32	
Pad Clear Cover, $cc_{pad}$ :	3	in

Material Properties		
Rebar Grade, $F_y$ :	60	ksi
Concrete Compressive Strength, $F'_c$ :	4	ksi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	165	pcf
Ultimate Gross Bearing, $Q_{ult}$ :	24.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	40	degrees
SPT Blow Count, $N_{blows}$ :	50	
Base Friction, $\mu$ :		
Neglected Depth, $N$ :	3.50	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, $gw$ :	N/A	ft

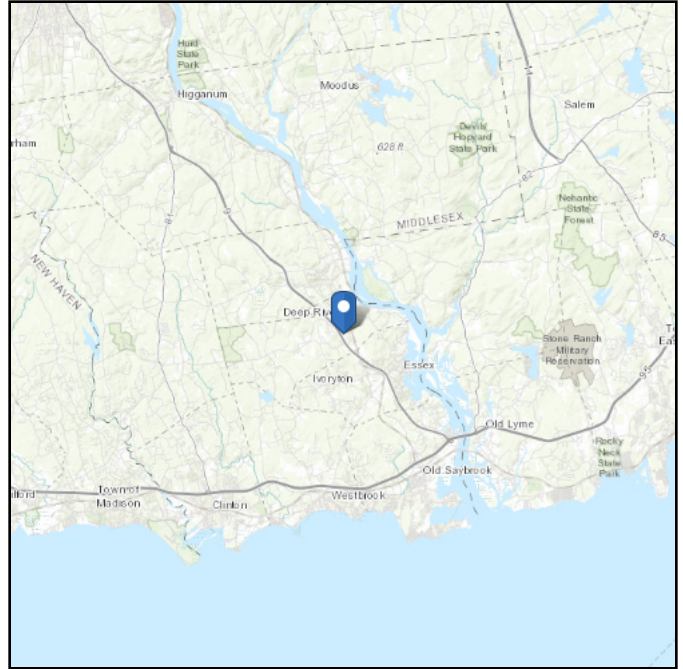
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# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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

**Elevation:** 94.97 ft (NAVD 88)  
**Latitude:** 41.372825  
**Longitude:** -72.434436

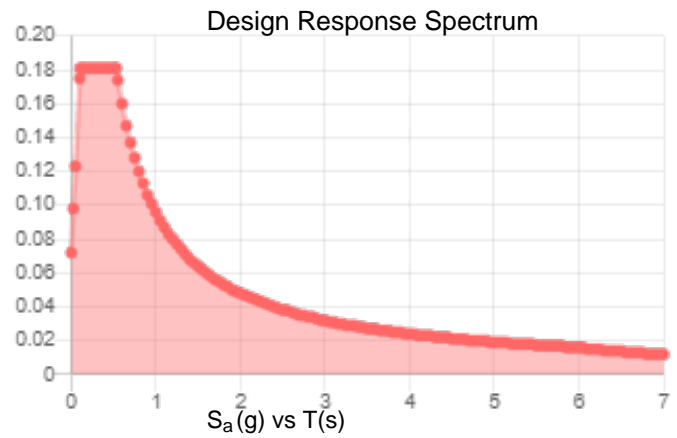
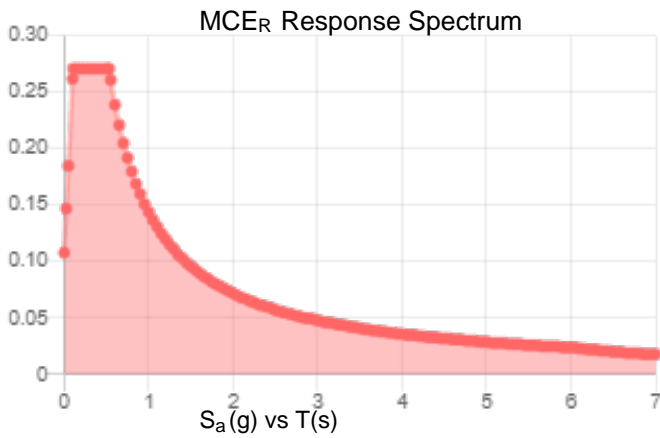


**Site Soil Class:** D - Stiff Soil

**Results:**

$S_s$ :	0.169	$S_{DS}$ :	0.181
$S_1$ :	0.06	$S_{D1}$ :	0.096
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.085
$S_{MS}$ :	0.271	PGA <sub>M</sub> :	0.137
$S_{M1}$ :	0.144	F <sub>PGA</sub> :	1.6
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Fri Aug 06 2021

**Date Source:**

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



## Ice

---

**Results:**

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

**Date Accessed:** Fri Aug 06 2021

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

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

---

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**



Maser Consulting Connecticut  
1055 Washington Boulevard  
Stamford, CT 06901  
203.324.0800  
peter.albano@colliersengineering.com

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## Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10117366  
Maser Consulting Connecticut Project #: 21777999A

December 1, 2021

### Site Information

Site ID: 467700-VZW / DEEP RIVER CT  
Site Name: DEEP RIVER CT  
Carrier Name: Verizon Wireless  
Address: 15 Pent Road  
Deep River, Connecticut 06417  
Middlesex County  
Latitude: 41.372222°  
Longitude: -72.435000°

### Structure Information

Tower Type: Monopole  
Mount Type: 12.50-Ft Platform

FUZE ID # 16271929

### Analysis Results

Platform: 43.5% Pass

### \*\*\*Contractor PMI Requirements:

*Included at the end of this MA report*

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

*Contractor - Please Review Specific Site PMI Requirements Upon Award*

*Requirements also Noted on Mount Modification Drawings*

*Requirements may also be Noted on A & E drawings*

*For additional questions and support, please reach out to:*

*[pmisupport@colliersengineering.com](mailto:pmisupport@colliersengineering.com)*

Report Prepared By: Selene Chen



## **Executive Summary:**

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

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:**

<b>Document Type</b>	<b>Remarks</b>
<i>Radio Frequency Data Sheet (RFDS)</i>	<i>Verizon RFDS Site ID: 323729, dated October 12, 2021</i>
<i>Mount Mapping Report</i>	<i>RKS Design &amp; Engineering, LLC, Site ID: CC: 823666, VZW:467700, dated November 6, 2021</i>
<i>Mount Analysis Report</i>	<i>Maser Consulting, Project #: 21777999A, dated November 16, 2021</i>
<i>Mount Modification Drawings</i>	<i>Maser Consulting, Project #: 21777999A, dated December 1, 2021</i>

## **Analysis Criteria:**

Codes and Standards:	ANSI/TIA-222-H
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), $V_{ULT}$ : 124 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:	$S_s$ : 0.209 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
168.50	170.00	6	JMA Wireless	MX06FRO660-03	Added
		3	Samsung	MT6407-77A	
		3	Samsung	RF4439d-25A	
		3	Samsung	RF4440d-13A	
		1	RFS	DB-B1-6C-12AB-0Z	
		3	Commscope	LNx-6514DS-A1M	Retained
		1	Raycap	RHSDC-3315-PF-48	

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 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 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 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:
  - o Channel, Solid Round, Angle, Plate      ASTM A36 (Gr. 36)
  - o HSS (Rectangular)                            ASTM 500 (Gr. B-46)
  - o Pipe    ASTM A53 (Gr. B-35)
  - o Threaded Rod                                    F1554 (Gr. 36)
  - o Bolts    ASTM A325
8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

**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
<i>Standoff Horizontal</i>	33.5 %	<i>Pass</i>
<i>Platform Crossmember</i>	16.6 %	<i>Pass</i>
<i>Corner Plate</i>	22.5 %	<i>Pass</i>
<i>Grating Support</i>	17.9 %	<i>Pass</i>
<i>Cross Arm Plate</i>	33.2 %	<i>Pass</i>
<i>Face Horizontal</i>	14.2 %	<i>Pass</i>
<i>Mount Pipe</i>	42.0 %	<i>Pass</i>
<i>Mod Support Rail</i>	17.9 %	<i>Pass</i>
<i>Mod Support Rail Brace</i>	31.7 %	<i>Pass</i>
<i>Connection Check</i>	43.5 %	<i>Pass</i>
<b>Structure Rating – (Controlling Utilization of all Components)</b>		<b>43.5%</b>

**Recommendation:**

The existing mount will be **SUFFICIENT** for the final loading after the proposed modifications are successfully completed.

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

**Attachments:**

1. Mount Photos
2. Mount Mapping Report (for reference only)
3. Analysis Calculations
- 4. Contractor Required PMI Report Deliverables**
5. Antenna Placement Diagrams
6. TIA Adoption and Wind Speed Usage Letter







### Antenna Mount Mapping Form (PATENT PENDING)

FCC #  
UNKNOWN

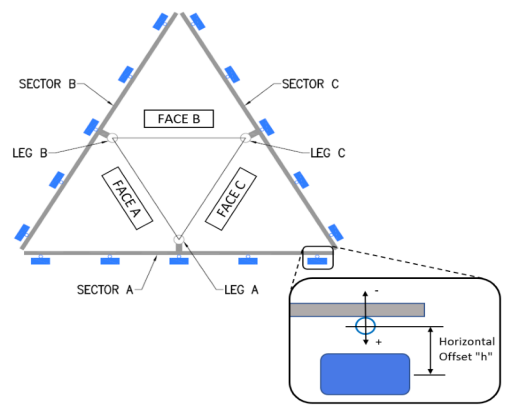
<b>Tower Owner:</b>	CC	<b>Mapping Date:</b>	11/8/2021
<b>Site Name:</b>	CC: Deep River/RT 9; VZW: NE DEEP RIVER	<b>Tower Type:</b>	Monopole
<b>Site Number or ID:</b>	CC: 823666, VZW: 467700	<b>Tower Height (Ft.):</b>	UNKNOWN
<b>Mapping Contractor:</b>	RKS Design & Engineering, LLC	<b>Mount Elevation (Ft.):</b>	167.8

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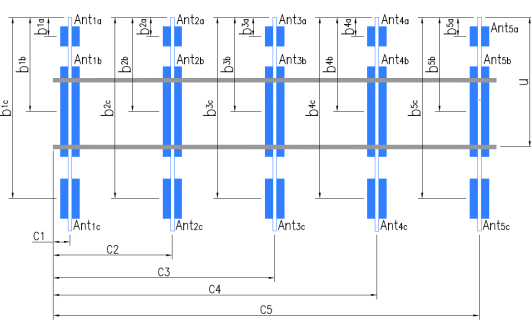
Please insert the sketches of the antenna mount from the "Sketches" tab with dimensions and members here.

Mount Pipe Configuration and Geometries [Unit = Inches]							
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "U"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "U"	Horizontal Offset "C1, C2, C3, etc."
A1	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	17.50	C1	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	17.50
A2	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	74.00	C2	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	74.00
A3	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	107.75	C3	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	107.75
A4	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	132.75	C4	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	132.75
A5				C5			
A6				C6			
B1	PIPE 2.375"Ø X 0.18" X 96" LONG	47.75	17.50	D1			
B2	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	74.00	D2			
B3	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	107.75	D3			
B4	PIPE 2.375"Ø X 0.18" X 72" LONG	47.75	132.75	D4			
B5				D5			
B6				D6			

Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :		
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :		
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :		4.4
Please enter additional information or comments below.		
Tower Face Width at Mount Elev. (ft.):		24.2
Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):		0.31
For T-Arms/Platforms on monopoles, report the weld size from the main standoff to the plate bolting into the collar mount.		



Ants. Items	Enter antenna model. If not labeled, enter "Unknown".					Mounting Locations [Units are inches and degrees]			Photos of antennas	
	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances "b <sub>1a</sub> , b <sub>2a</sub> , b <sub>3a</sub> , b <sub>1b</sub> ,..." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)		Antenna Azimuth (Degrees)
<b>Sector A</b>										
Ant <sub>1a</sub>	B4 RRH2X60-4R	10.50	5.75	36.50		170.196	19.00	-9.00		161
Ant <sub>1b</sub>	HBXX-6517DS-A2M	12.00	6.50	75.00		169.404	28.50	10.00	40.00	161
Ant <sub>1c</sub>										
Ant <sub>2a</sub>										
Ant <sub>2b</sub>	BXA-70063-6CF-EDIN	11.00	5.00	71.00		169.321	29.50	9.00	40.00	162
Ant <sub>2c</sub>										
Ant <sub>3a</sub>										
Ant <sub>3b</sub>	HBXX-6517DS-A2M	12.00	6.50	75.00		169.404	28.50	10.00	40.00	162
Ant <sub>3c</sub>										
Ant <sub>4a</sub>										
Ant <sub>4b</sub>	LNX-6514DS-A1M	12.00	7.00	73.00		169.071	32.50	8.50	40.00	162
Ant <sub>4c</sub>										
Ant <sub>5a</sub>										
Ant <sub>5b</sub>										
Ant <sub>5c</sub>										
Ant on Standoff	RHSDC-3315-PF-48	17.50	10.50	25.50			38.00	6.00		161
Ant on Standoff										
Ant on Tower										
Ant on Tower										



**Antenna Layout (Looking Out From Tower)**



**Observed Safety and Structural Issues During the Mount Mapping**

Issue #	Description of Issue	Photo #
1	TOAL COAX(13): (12) FH 1-5/8; (1) 1.55"Ø HYBRID	23
2		
3		
4		
5		
6		
7		
8		

**Observed Obstructions to Tower Lighting System**

If the tower lighting system is being obstructed by the carrier's equipment (for example: a light nested by the antennas), please provide photos and fill in the information below.		Photo #
Description of Obstruction:		
Type of Light:	Photo #	Additional Comments:
Lighting Technology:	Photo #	
Elevation (AGL) at base of light (Ft.):	Photo #	
Is a service loop available?	Photo #	
Is beacon installed on an extension?	Photo #	

**Mapping Notes**

1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

**Standard Conditions**

1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.



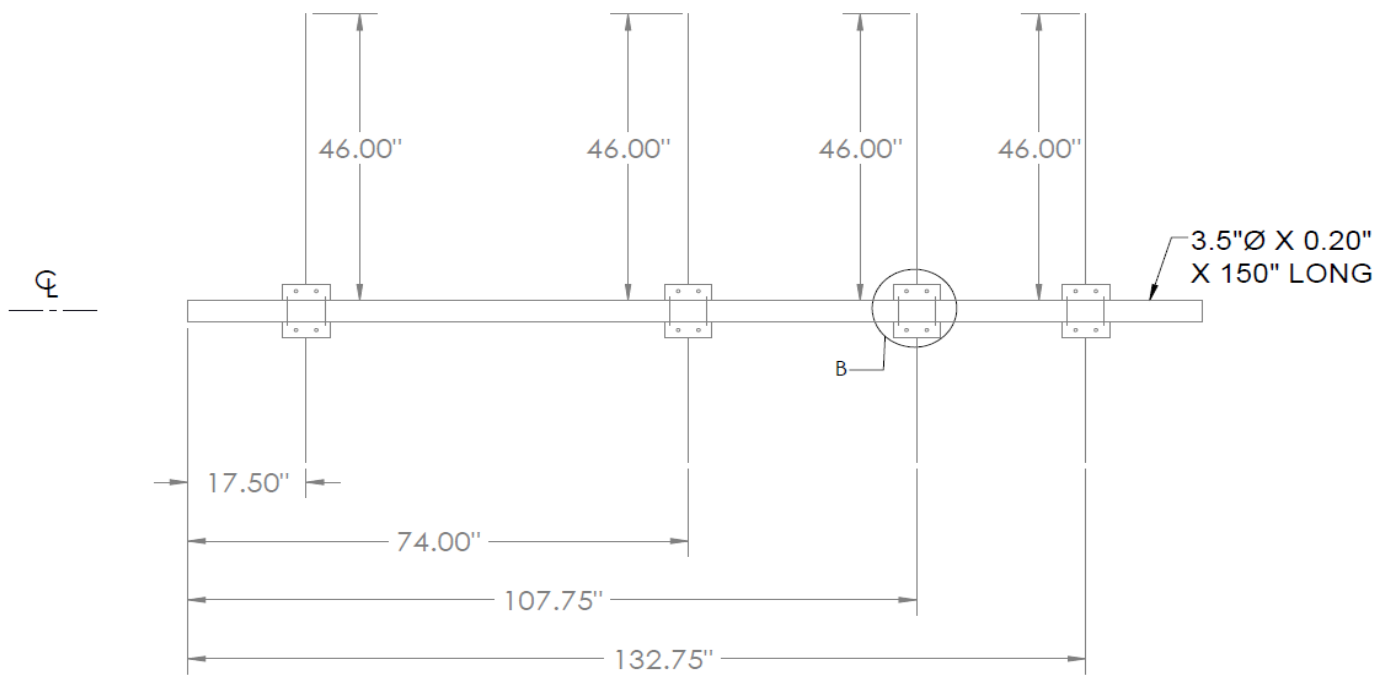
### Antenna Mount Mapping Form (PATENT PENDING)

FCC #  
UNKNOWN

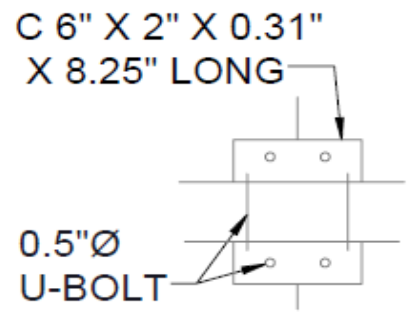
<b>Tower Owner:</b>	CC	<b>Mapping Date:</b>	11/6/2021
<b>Site Name:</b>	CC: Deep River/RT 9; VZW: NE DEEP RIVER	<b>Tower Type:</b>	Monopole
<b>Site Number or ID:</b>	CC: 823666, VZW: 467700	<b>Tower Height (Ft.):</b>	UNKNOWN
<b>Mapping Contractor:</b>	RKS Design & Engineering, LLC	<b>Mount Elevation (Ft.):</b>	167.8

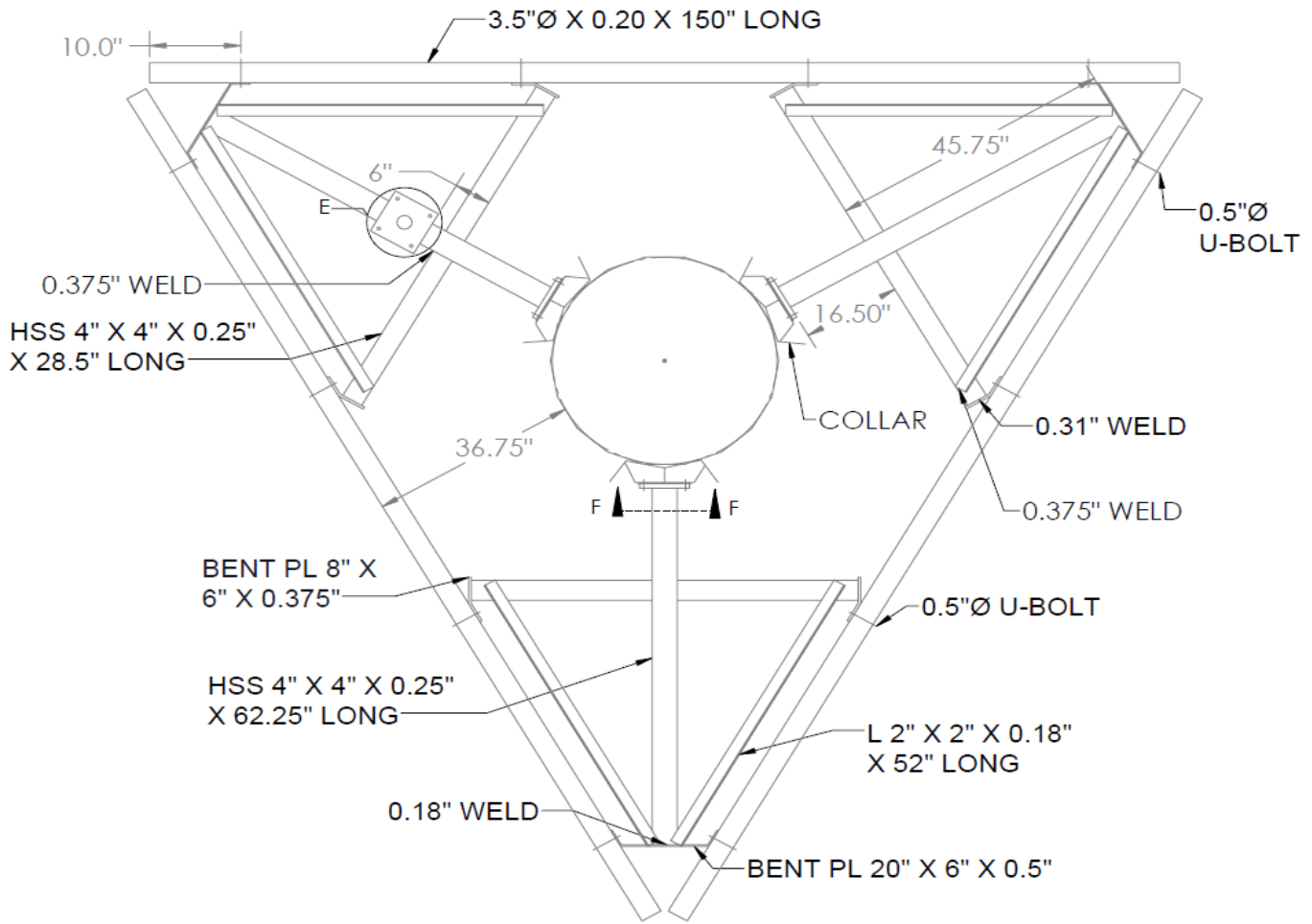
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**Please Insert Sketches of the Antenna Mount**

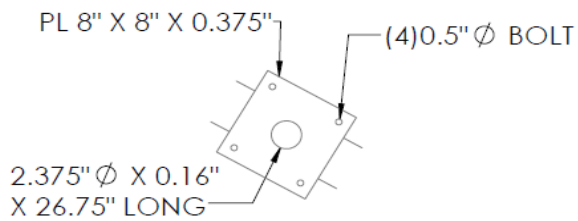


**SECTOR A,B,C**

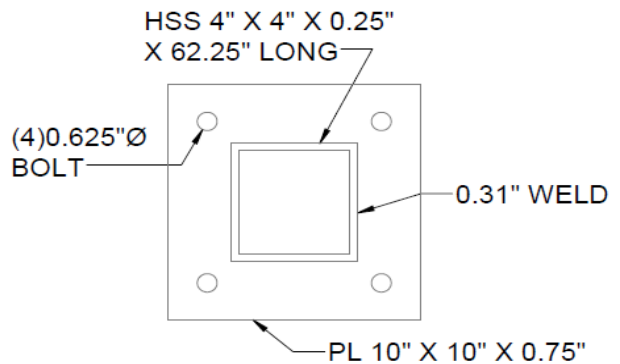




**MOUNT PLAN VIEW**

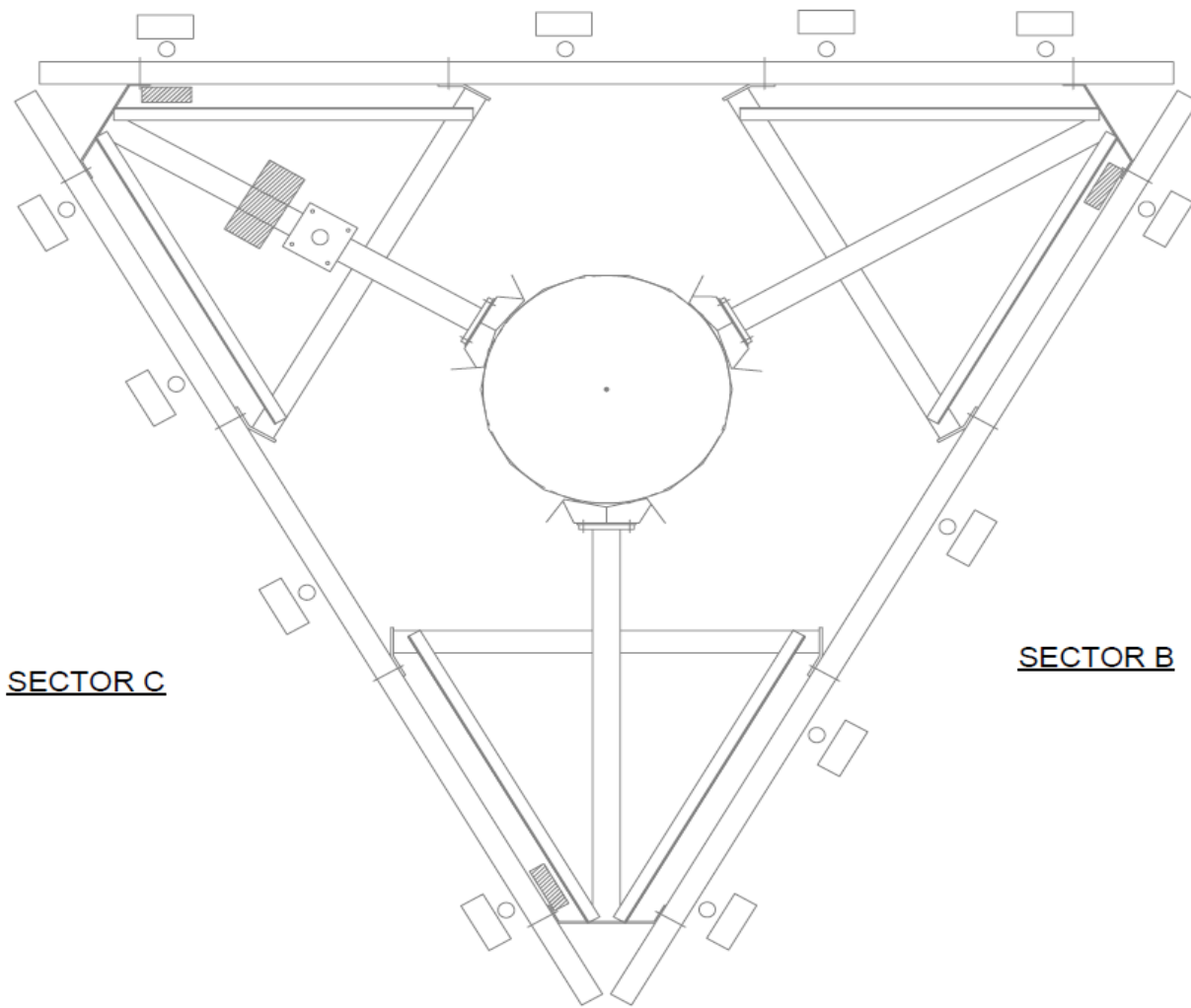


**DETAIL E**



**SECTION F-F**

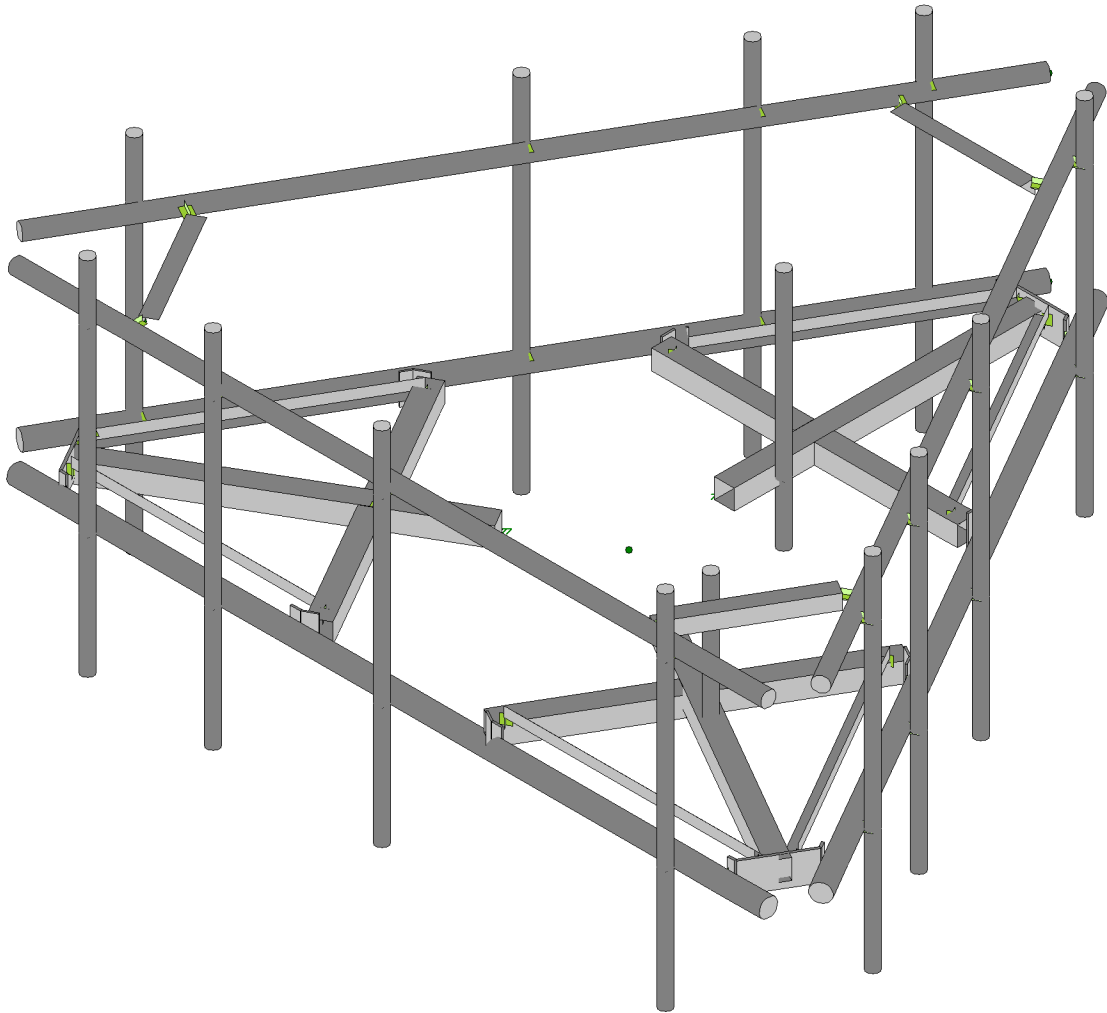
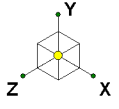
SECTOR A



SECTOR C

SECTOR B

**ANTENNA PLAN VIEW**



Envelope Only Solution

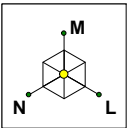
SK - 1

Nov 29, 2021 at 3:33 PM

MOD\_467700-VZW\_MT\_LO\_H.r3d

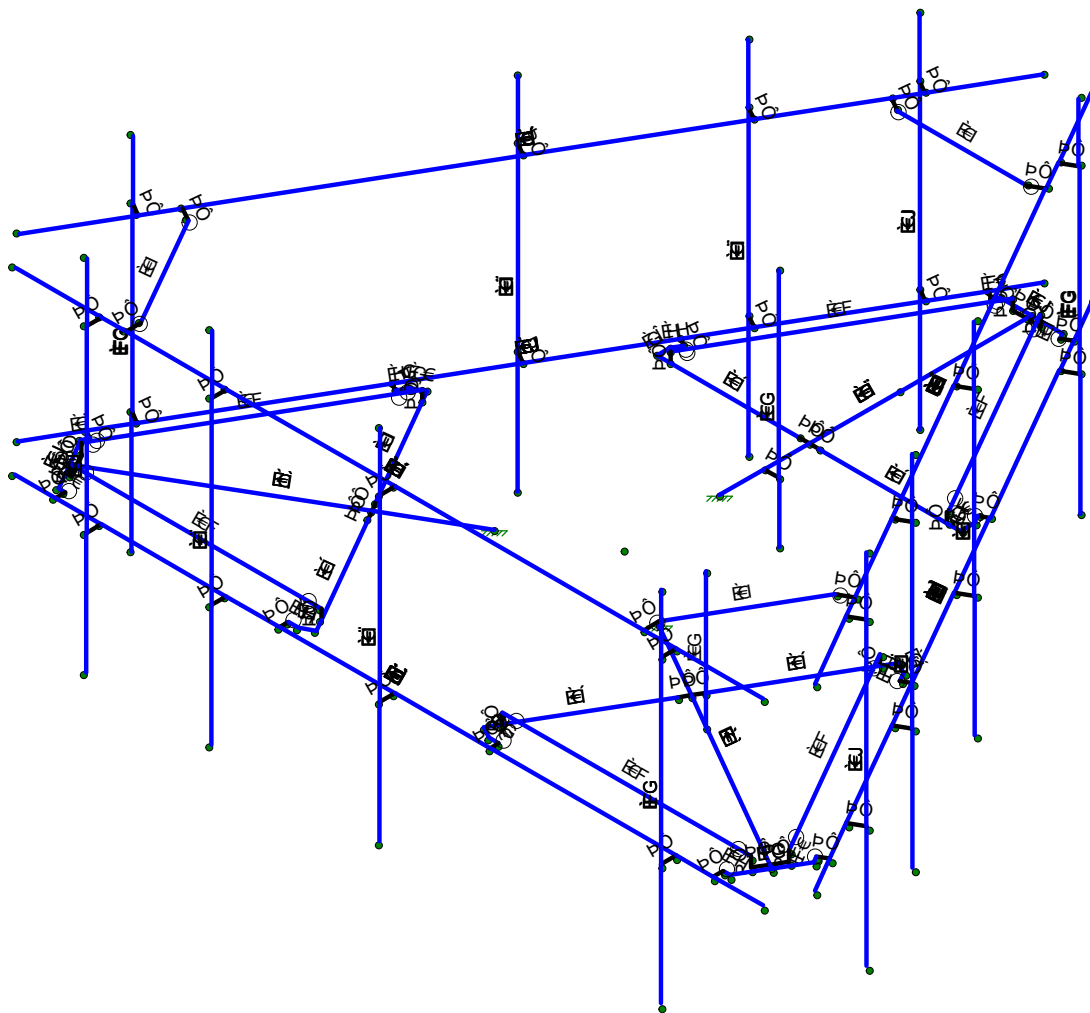






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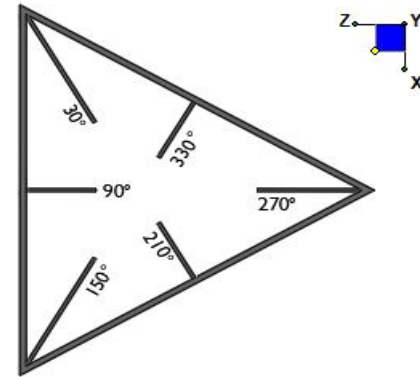




## I. Mount-to-Tower Connection Check

### RISA Model Data

Nodes (labeled per RISA)	Orientation (per graphic of typical platform)
N1	150
N30	270
N58	30



TYPICAL PLATFORM

### Tower Connection Bolt Checks

Any moment resistance?:

Bolt Quantity per Reaction:

$d_x$  (in) (Delta X of typ. bolt config. sketch):

$d_y$  (in) (Delta Y of typ. bolt config. sketch):

Bolt Type:

Bolt Diameter (in):

Required Tensile Strength (kips):

Required Shear Strength (kips):

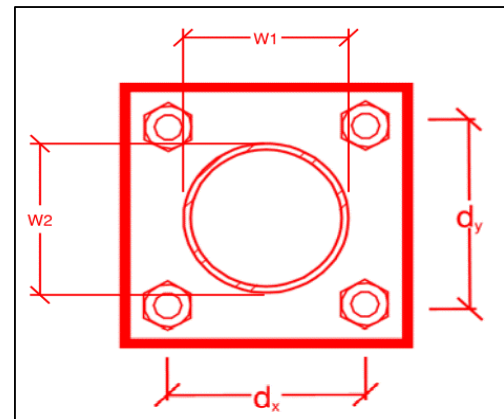
Tensile Strength / bolt (kips):

Shear Strength / bolt (kips):

Tensile Capacity Overall:

Shear Capacity Overall:

yes
4
7
7
A325N
0.625
18.7
3.6
20.7
12.4
<b>22.5%*</b>
<b>7.2%</b>



\*Note: Tension reduction not required if tension or shear capacity < 30%

### Tower Connection Plate and Weld Check

Connecting Standoff Member Shape:

Plate Width (in):

Plate Height (in):

W1 (in):

W2 (in):

Fy (ksi, plate):

$t_{plate}$  (in):

Weld Size (1/16 in):

$\Phi * R_n$  (kip/in):

Required Weld Strength (kip/in):

Plate Bending Capacity:

Weld Capacity:

Rect
10
10
4
4
36
0.75
5
6.96
3.03
<b>31.1%</b>
<b>43.5%</b>

### Max Plate Bending Strengths

$Mu_{xx}$ (kip-in):	14.0
$\Phi * Mn_{xx}$ (kip-in):	45.6
$Mu_{yy}$ (kip-in):	0.2
$\Phi * Mn_{yy}$ (kip-in):	45.6

# Mount Desktop – Post Modification Inspection (PMI) Report Requirements

## Documents & Photos Required from Contractor – Mount Modification

Electronic pdf version of this can be downloaded at <https://pmi.vzwsmart.com>

For additional questions and support, please reach out to [pmisupport@colliersengineering.com](mailto:pmisupport@colliersengineering.com)

---

**Purpose** – to upload the proper documentation to the SMART Tool in order to allow the SMART Tool engineering vendor to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

### **Base Requirements:**

- If installation of the modification will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawings (proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the post-modification passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo shall be time and date stamped.
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: <https://pmi.vzwsmart.com>

### **Photo Requirements:**

- Photos taken at ground level
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation of the modifications.
  - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed
- Photos taken at Mount Elevation
  - Photos showing the safety climb wire rope above and below the mount prior to modification.
  - Photos showing the climbing facility and safety climb if present.
  - Photos showing each individual sector after installation of modifications. Each entire sector must be in one photo to show the interconnection of members.

- These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.
- Photos of each installed modification per the modification drawings; pictures shall also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the distances (relative distance between collars) of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, an elevation measurement shall be provided before the elevation change.

**Material Certification:**

- Materials utilized must be as per specification on the drawings or the equivalent as validated by the SMART Tool vendor.
  - If the materials are as specified on the drawings
    - The contractor shall provide the packing list, or the materials certifications for the materials utilized to perform the mount modification
    - Commscope, Metrosite, Perfect Vision, Sabre, and Site Pro have all agreed to support Verizon vendors with the necessary material certifications
  - If seeking permission to use an equivalent
    - It is required that the SMART Tool engineering vendor approval of such is included in the contractor submission package. There may be an additional charge for approval if the equivalent submission doesn't meet specifications as prescribed in the drawings.

All hardware has been properly installed, and the existing hardware was inspected.

The material utilized was as specified on the SMART Tool engineering vendor Mount Modification Drawings and included in the material certification folder is a packing list or invoice for these materials.

OR

The material utilized was approved by a SMART Tool as an "equivalent" and this approval is included as part of the contractor submission.

**Antenna & equipment placement and Geometry Confirmation:**

The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

**Comments:**

**Certifying Individual:**

Company:	
Employee Name:	
Contact Phone:	
Email:	
Date:	

**Was the mount modification completed in conjunction with the equipment change / installation?**

Yes       No

**Special Instructions / Validation as required from the MA or Mod Drawings:**

**Issue:**

**Response:**

**Contractor certifies that the climbing facility / safety climb was not damaged or obstructed prior to starting work:**

Yes       No

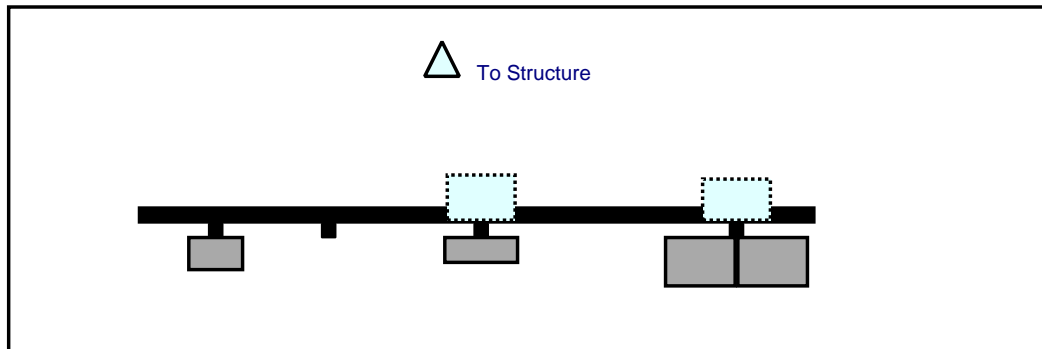
**Contractor certifies no new damage/obstructions created during the current installation:**

Yes       No

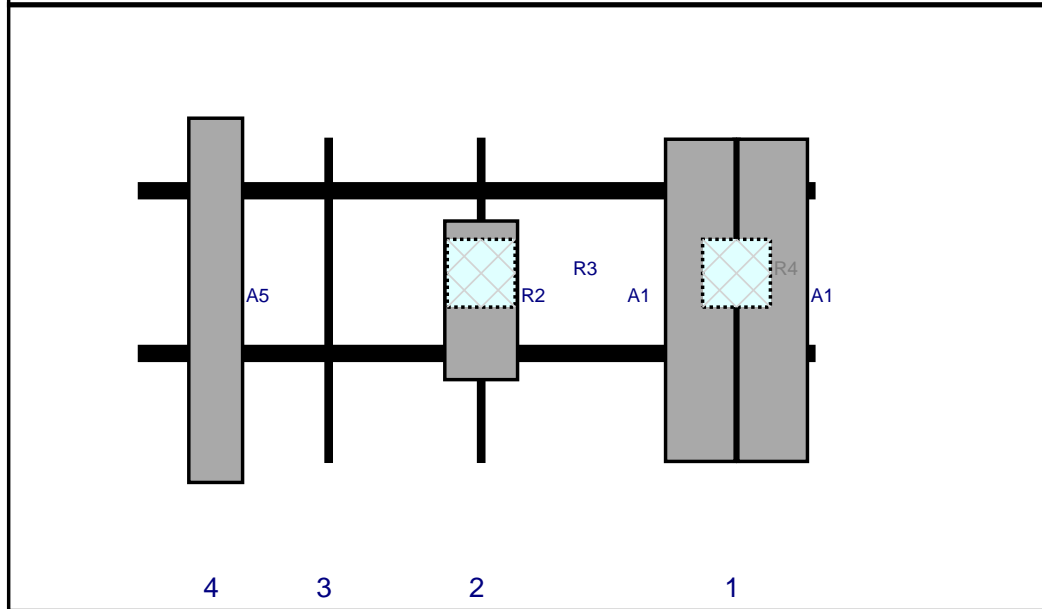
**Contractor to certify the condition of the safety climb and verify no obstructions when leaving the site:**

Safety climb in good condition with no obstructions       Safety Climb Damaged  
 Safety Climb Obstructed

Plan View

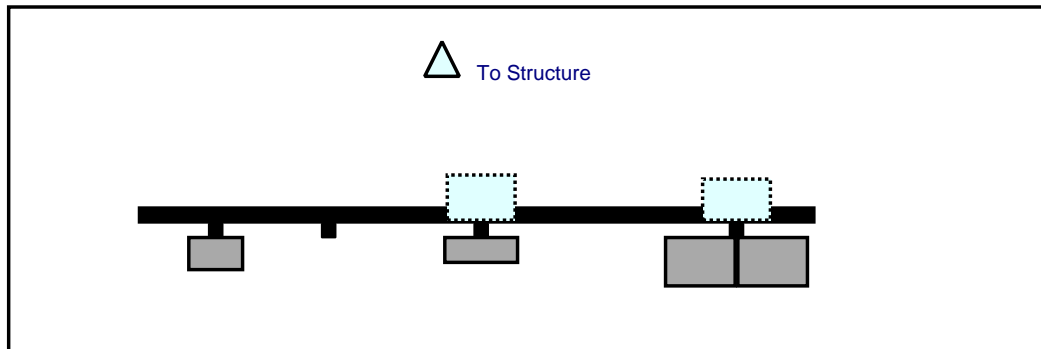


Front View  
Looking at Structure

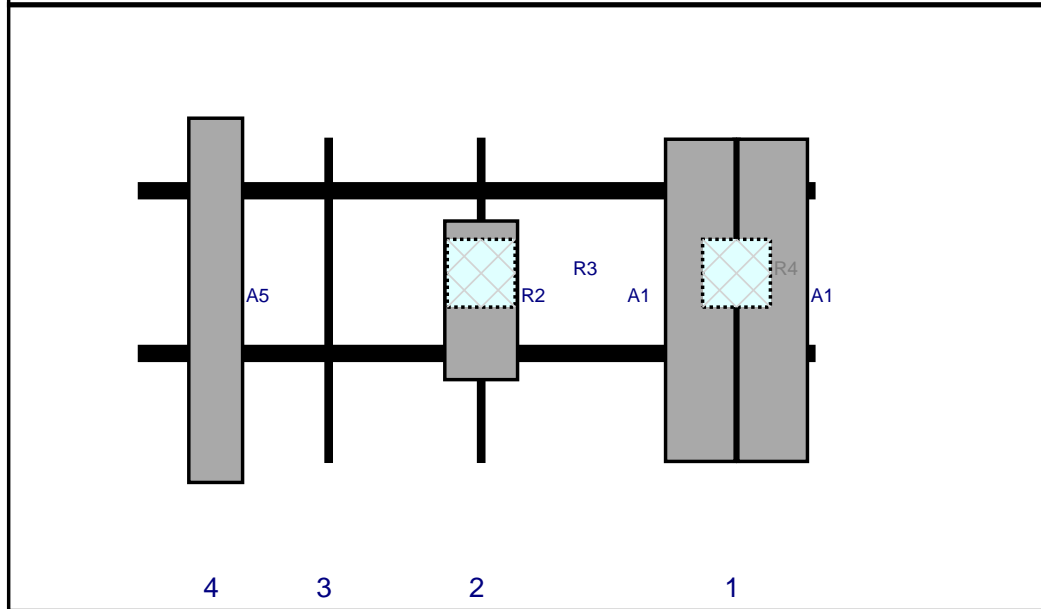


Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	MX06FRO660-03	71.3	15.4	132.5	1	a	Front	36	8	Added	
A1	MX06FRO660-03	71.3	15.4	132.5	1	b	Front	36	-8	Added	
R4	RF4440d-13A	15	15	132.5	1	a	Behind	30	0	Added	
R2	MT6407-77A	35.1	16.1	76	2	a	Front	36	0	Added	
R3	RF4439d-25A	15	15	76	2	a	Behind	30	0	Added	
A5	LNx-6514DS-A1M	80.6	11.9	17.25	4	a	Front	36	0	Retained	11/06/2021

Plan View



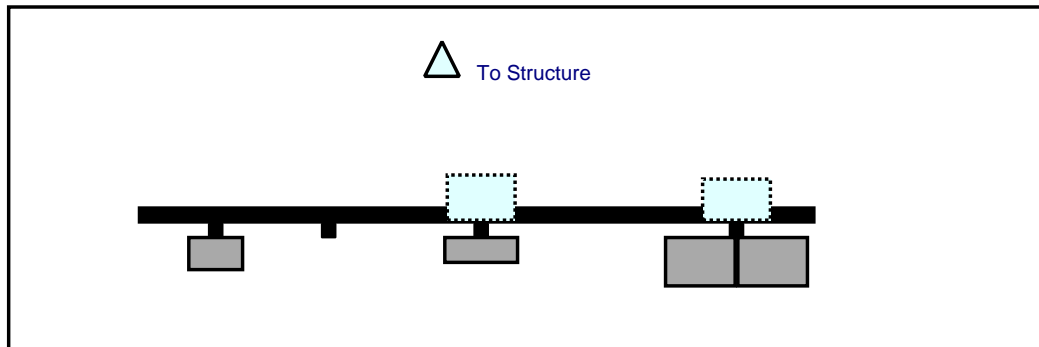
Front View  
Looking at Structure



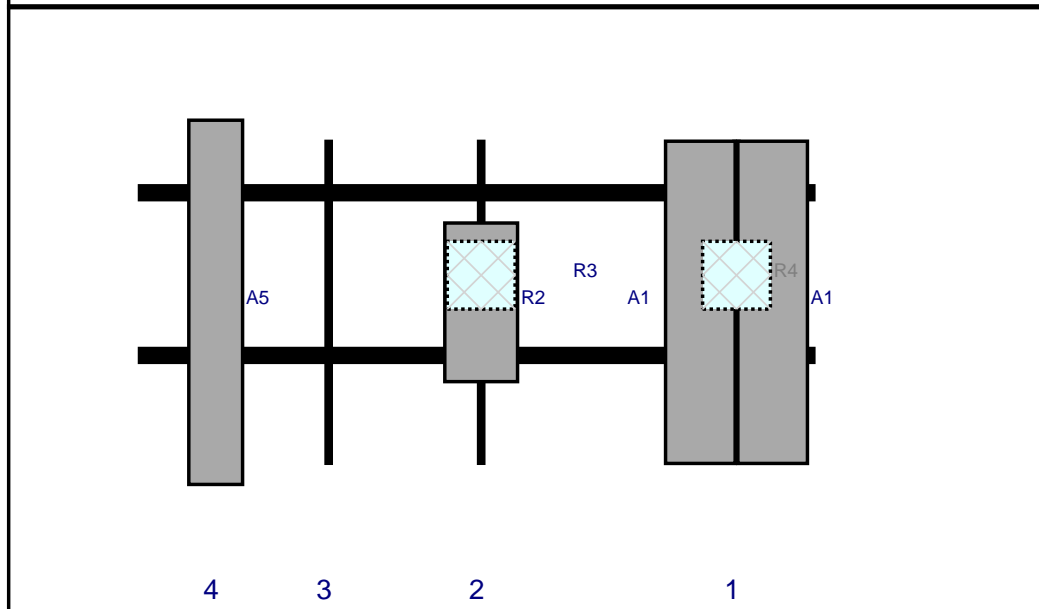
Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	MX06FRO660-03	71.3	15.4	132.5	1	a	Front	36	8	Added	
A1	MX06FRO660-03	71.3	15.4	132.5	1	b	Front	36	-8	Added	
R4	RF4440d-13A	15	15	132.5	1	a	Behind	30	0	Added	
R2	MT6407-77A	35.1	16.1	76	2	a	Front	36	0	Added	
R3	RF4439d-25A	15	15	76	2	a	Behind	30	0	Added	
A5	LNx-6514DS-A1M	80.6	11.9	17.25	4	a	Front	36	0	Retained	11/06/2021



Plan View



Front View  
Looking at Structure



Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	MX06FRO660-03	71.3	15.4	132.5	1	a	Front	36	8	Added	
A1	MX06FRO660-03	71.3	15.4	132.5	1	b	Front	36	-8	Added	
R4	RF4440d-13A	15	15	132.5	1	a	Behind	30	0	Added	
R2	MT6407-77A	35.1	16.1	76	2	a	Front	36	0	Added	
R3	RF4439d-25A	15	15	76	2	a	Behind	30	0	Added	
A5	LNx-6514DS-A1M	80.6	11.9	17.25	4	a	Front	36	0	Retained	11/06/2021

# Maser Consulting Connecticut

**Subject**

TIA-222-H Usage

**Site Information**

Site ID: 467700-VZW / DEEP RIVER CT

Site Name: DEEP RIVER CT

Carrier Name: VERIZON WIRELESS

Address: 15 Pent Road

Deep River, Connecticut 06417

Middlesex County

Latitude: 41.372222°

Longitude: -72.435000°

**Structure Information**

Tower Type: Monopole

Mount Type: Platform

To Whom It May Concern,

We respectfully submit the above referenced Antenna Mount Structural Analysis report in conformance with ANSI/TIA-222-H, Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures.

The 2015 International Building Code states that, in Section 3108, telecommunication towers shall be designed and constructed in accordance with the provisions of TIA-222. TIA-222-H is the latest revision of the TIA-222 Standard, effective as of January 01, 2018.

As with all ANSI standards and engineering best practice is to apply the most current revision of the standard. This ensures the engineer is applying all updates. As an example, the TIA-222-H Standard includes updates to bring it in line with the latest AISC and ACI standards and it also incorporates the latest wind speed maps by ASCE 7 based on updated studies of the wind data.

The TIA-222-H standard clarifies these specific requirements for the antenna mount analysis such as modeling methods, seismic analysis, 30-degree increment wind directions and maintenance loading. Therefore, it is our opinion that TIA-222-H is the most appropriate standard for antenna mount structural analysis and is acceptable for use at this site to ensure the engineer is taking into account the most current engineering standard available.

Sincerely,



Derek Hartzell, PE  
Technical Specialist

# Exhibit F

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

Site Name: **DEEP RIVER 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 <sup>2</sup> )	(mW/cm <sup>2</sup> )	(%)
VZW 700	751	4	609	2437	170	0.0030	0.5007	0.61%
VZW CDMA	874.8	2	459	918	170	0.0011	0.5832	0.20%
VZW Cellular	874	4	623	2494	170	0.0031	0.5827	0.53%
VZW PCS	1975	4	1428	5713	170	0.0071	1.0000	0.71%
VZW AWS	2120	4	1530	6122	170	0.0076	1.0000	0.76%
VZW CBAND	3730.08	2	21627	43254	170	0.0538	1.0000	5.38%

**Total Percentage of Maximum Permissible Exposure** 8.19%


\*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<sup>2</sup> = milliwatts per square centimeter  
 ERP = Effective Radiated Power

Absolute worst case maximum values used.

# Exhibit G

## Recipient Mailings



**UNITED STATES  
POSTAL SERVICE®**

**Click-N-Ship®**

**P**

usps.com 9405 5036 9930 0186 6239 31 0089 5000 0010 1581  
**\$8.95**  
**US POSTAGE**  
 Flat Rate Envoy

03/08/2022

Mailed from 01566

**PRIORITY MAIL 1-DAY™**

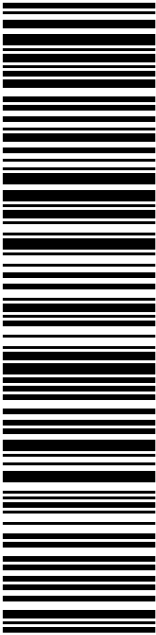
Expected Delivery Date: 03/09/22  
 Ref#: CR-823666  
**0006**

DEBORAH CHASE  
 NORTHEAST SITE SOLUTIONS  
 420 MAIN ST  
 STE 1  
 STURBRIDGE MA 01566-1359

**C006**

SHIP TO:  
 SARAH SNELL  
 1800 W PARK DR  
 WESTBOROUGH MA 01581-3926

**USPS TRACKING #**



**9405 5036 9930 0186 6239 31**

Electronic Rate Approved #038555749



Cut on dotted line.

### Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0186 6239 31**

Trans. #: 558300236	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 03/08/2022	Total: <b>\$8.95</b>
Ship Date: 03/08/2022	
Expected Delivery Date: 03/09/2022	

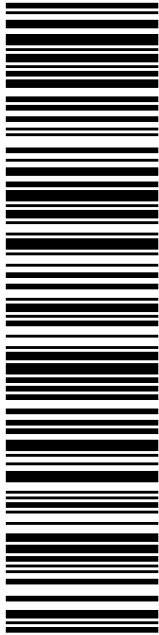
**From:** DEBORAH CHASE      Ref#: CR-823666  
 NORTHEAST SITE SOLUTIONS  
 420 MAIN ST  
 STE 1  
 STURBRIDGE MA 01566-1359

**To:** SARAH SNELL  
 1800 W PARK DR  
 WESTBOROUGH MA 01581-3926

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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**USPS TRACKING #**

**9405 5036 9930 0186 6239 48**

Electronic Rate Approved #038555749

**SHIP**

TO: ANGUS L MCDONALD  
FIRST SELECTMAN  
174 MAIN ST  
DEEP RIVER CT 06417-2008

**P**

03/08/2022

**US POSTAGE**  
Flat Rate Env  
\$8.95

usps.com 9405 5036 9930 0186 6239 48 0089 5000 0010 6417

**U.S. POSTAGE PAID**  
click-n-ship®


Mailed from 01566

**PRIORITY MAIL 2-DAY™**

DEBORAH CHASE  
NORTHEAST SITE SOLUTIONS  
420 MAIN ST  
STE 1  
STURBRIDGE MA 01566-1359

Expected Delivery Date: 03/11/22  
Ref#: CR-823666  
**0006**

**C003**



**Click-N-Ship®**



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## Click-N-Ship® Label Record

<b>USPS TRACKING # :</b>	
<b>9405 5036 9930 0186 6239 48</b>	
Trans. #:	558300236
Print Date:	03/08/2022
Ship Date:	03/08/2022
Expected Delivery Date:	03/11/2022
Priority Mail® Postage:	<b>\$8.95</b>
Total:	<b>\$8.95</b>
<b>From:</b>	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
<b>To:</b>	ANGUS L MCDONALD FIRST SELECTMAN 174 MAIN ST DEEP RIVER CT 06417-2008
Ref#:	CR-823666

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usps.com 9405 5036 9930 0186 6239 62 0089 5000 0010 6417  
**US POSTAGE**  
 Flat Rate Envoy

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03/08/2022 Mailed from 01566

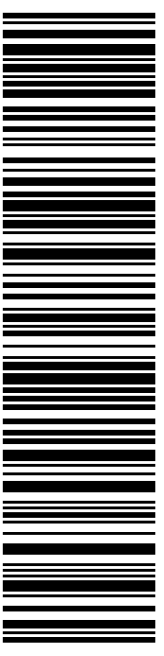
**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 03/11/22  
 Ref#: CR-823666  
**0006**

**C003**

SHIP TO: MIKE D'AMATO  
 ZONING ENFORCEMENT OFFICER  
 174 MAIN ST  
 DEEP RIVER CT 06417-2008

**USPS TRACKING #**



**9405 5036 9930 0186 6239 62**

Electronic Rate Approved #038555749



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5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0186 6239 62**

Trans. #: 558300236	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 03/08/2022	Total: <b>\$8.95</b>
Ship Date: 03/08/2022	
Expected Delivery Date: 03/11/2022	

**From:** DEBORAH CHASE      Ref#: CR-823666  
 NORTHEAST SITE SOLUTIONS  
 420 MAIN ST  
 STE 1  
 STURBRIDGE MA 01566-1359


**To:** MIKE D'AMATO  
 ZONING ENFORCEMENT OFFICER  
 174 MAIN ST  
 DEEP RIVER CT 06417-2008

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usps.com 9405 5036 9930 0186 6239 79 0089 5000 0010 6498  
**US POSTAGE**  
 Flat Rate Env  
 03/08/2022

**U.S. POSTAGE PAID**  
Click-N-Ship®

Mailed from 01566

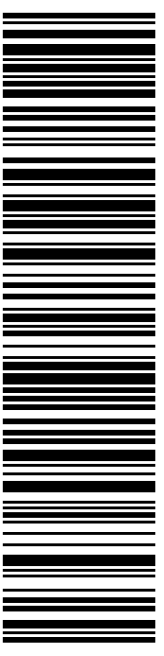
**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 03/11/22  
 Re#: CR-823666  
**0006**

**R004**

SHIP TO:  
 BEKS HOLDINGS LLC  
 14 TIMBERLANE DR  
 WESTBROOK CT 06498-3561

**USPS TRACKING #**



**9405 5036 9930 0186 6239 79**

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5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0186 6239 79**

Trans. #: 558300236	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 03/08/2022	Total: <b>\$8.95</b>
Ship Date: 03/08/2022	
Expected Delivery Date: 03/11/2022	

**From:** DEBORAH CHASE  
 NORTHEAST SITE SOLUTIONS  
 420 MAIN ST  
 STE 1  
 STURBRIDGE MA 01566-1359

Re#: CR-823666

**To:** BEKS HOLDINGS LLC  
 14 TIMBERLANE DR  
 WESTBROOK CT 06498-3561

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823666  
-Crown W2w



FARMINGTON  
210 MAIN ST  
FARMINGTON, CT 06032-9998  
(800)275-8777

03/09/2022

01:19 PM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Wed 03/09/2022 Tracking #: 9405 5036 9930 0186 6239 31	1		\$0.00
Prepaid Mail Deep River, CT 06417 Weight: 0 lb 7.00 oz Acceptance Date: Wed 03/09/2022 Tracking #: 9405 5036 9930 0186 6239 48	1		\$0.00
Prepaid Mail Deep River, CT 06417 Weight: 0 lb 7.00 oz Acceptance Date: Wed 03/09/2022 Tracking #: 9405 5036 9930 0186 6239 62	1		\$0.00
Prepaid Mail Westbrook, CT 06498 Weight: 0 lb 7.00 oz Acceptance Date: Wed 03/09/2022 Tracking #: 9405 5036 9930 0186 6239 79	1		\$0.00
Grand Total:			\$0.00