



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

November 2, 2021

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

RE: Exempt Modification Application
53 Slater Street, Manchester, CT 06040
Latitude: 41.805000
Longitude: -72.533611
Site #: 876347_Crown_VZW

Dear Ms. Bachman:

Verizon Wireless is requesting to file an exempt modification for an existing tower located at 53 Slater Street, Manchester, CT 06040. Verizon Wireless currently maintains twelve (12) antennas at the 113-foot level of the existing 155-foot tower. The property is owned by One Hundred Twenty One Connecticut Avenue Associates LLC and the tower is owned by Crown Castle. Verizon now intends to replace three (3) antennas. The new antennas would be installed at the 113-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 May 5, 2021.

Verizon Planned Modifications:

Remove:

- (2) Nokia B4 RRH
- (6) 1-5/8" Coax

Remove and Replace:

- (3) BXA-70063-6CF Antennas (REMOVE) - (3) MT6407-77A Antennas (REPLACE)
- (3) Nokia B25 RRH (REMOVE) - (3) Samsung B2/B66A RRH-BR049 (REPLACE)
- (3) Nokia B13 RRH (REMOVE) - (3) Samsung B5/B13 RRH-BR04C (REPLACE)
- (1) 1-5/8" Hybrid Line (REMOVE) – (1) 1-5/8" Hybrid Line (REPLACE)

Install New:

- (1) Raycap

Existing to Remain:

- (3) ANDREW Antennas
- (6) COMMSCOPE Antennas
- (1) Raycap
- (6) 1-5/8" Coax
- (1) 1-1/4" Hybrid Line



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

The facility was originally approved by the Town of Manchester Planning and Zoning Commission on August 17, 1998. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-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-SOj-73, a copy of this letter is being sent to The Honorable Jay Moran, Mayor, and Gary Anderson, Director of Planning for the Town of Manchester. 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

Attachments

Cc: The Honorable Jay Moran, Mayor
Town of Manchester
41 Center Street Manchester, CT 06045



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Steve Stephanou, Deputy General Manager
Town of Manchester
41 Center Street, Manchester, CT 06045

Gary Anderson, Director of Planning
Town of Manchester
494 Main Street Lincoln Center, 2nd FL Manchester, CT 06045

One Hundred Twenty One Connecticut Avenue Associates LLC – Property Owner
9 Lake Lane
Ellington, CT 06029

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

VOL 2013 PG 259

TOWN OF MANCHESTER
PLANNING AND ZONING COMMISSION



CERTIFICATE OF APPROVAL OF SPECIAL EXCEPTION

Owner of record: Raglin Associates, c/o Sullivan Tile Dist.

Property Address: 53 Slater Street

Applicant: Sprint Spectrum LP

Regulation(s) cited: Article IV, Section 19.05

SPECIAL EXCEPTION GRANTED:

with modifications and the condition that a caveat addressing co-location requirements be submitted for staff review and filed on the land records by the applicant prior to any construction.

- * ALL SITE WORK APPROVED BY THIS SPECIAL EXCEPTION MUST BE COMPLETED BY AUGUST 17, 2003 (5 yrs. From approval date). FAILURE TO COMPLETE ALL WORK WITHIN THE SPECIFIED TIME PERIOD WILL RESULT IN AUTOMATIC EXPIRATION OF THE APPROVAL.
- * THIS CERTIFICATE MUST BE RECORDED IN THE LAND RECORDS IN THE OFFICE OF THE TOWN CLERK BEFORE THE SPECIAL EXCEPTION IS LAWFULLY EFFECTIVE.

CERTIFIED:

Frank Davera

Secretary
Planning and Zoning Commission

Received for Record on
SEP 11 1998 at 2:43 P.M.

Joseph V. Campos
Joseph V. Campos, Town Clerk

*DATE ADOPTED: August 17, 1998

FILE NO. S-147

6. 1998 3:17PM

SPRINT PCS

NO. 9098 P. 3

TOWN OF MANCHESTER
41 CENTER STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191
(860) 647-3052 FAX: (860) 647-3144

ZONING PERMIT

CERTIFICATION OF ZONING COMPLIANCE REQUEST

PERMIT/APPLICATION NBR: 99 00000638
PERMIT TYPE: ZONE APP TYPE: DISH

DATE APPLIED: 10/08/98
PREPARED BY: PAT21
DATE ISSUED: 11/03/98

PROPERTY ADDRESS:
3 SLATER STREET
TENANT:

LEGAL DESCRIPTION:

OWNER NAME/ADDRESS:
MAGLIN ASSOCIATES
10 SULLIVAN TILE DIST
5 RAILROAD AVE
EAST HAVEN CT 06516

CONTRACTOR NAME/ADDRESS:

NUMBER:
SPRINT PCS

LOCATION:
OCCUPANCY TYPE: COMMERCIAL BUIL Certificate of O-C-U-P-T: C
Dimensions of structure: 150' Plans for building: YES

DESCRIPTION OF OTHER BUILDINGS NOT SHOWN:

CONDITIONS: _____ REMARKS: _____
ADDTNL APPROVAL: _____ ADDTNL PERMITS: _____

SCCELLANEOUS INFO: SITE DEVELOPMENT AND COLORS OF TOWER
AND EQUIPMENT CABINETS TO BE AS APPRVD
BY PZC ON 8/17/98

THIS IS TO CERTIFY THAT THE ABOVE STATED INFORMATION IS A PERMITTED AND
LAWFUL USE AS CONTROLLED BY THE ZONING REGULATIONS OF THE TOWN OF MANCHESTER,
CONNECTICUT, UPON AUTHORIZED SIGNATURE OF THE ZONING ENFORCEMENT OFFICER.

Thomas R. O'Mara
APPROVAL SIGNATURE

11/3/98
DATE

ORIGINAL

Exhibit B

Property Card

53 SLATER STREET

Location 53 SLATER STREET

Mblu 56/ 5140/ 53/ /

Acct# 514000053

Owner ONE HUNDRED TWENTY ONE
CONN-

Assessment \$1,690,200

Appraisal \$2,414,500

PID 14616

Building Count 4

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2011	\$1,689,400	\$725,100	\$2,414,500

Assessment			
Valuation Year	Improvements	Land	Total
2011	\$1,182,600	\$507,600	\$1,690,200

Owner of Record

Owner ONE HUNDRED TWENTY ONE CONN-
ECTICUT AVENUE ASSOCIATES LLC
Address 9 LAKE LANE
ELLINGTON, CT 06029

Sale Price \$1,180,000
Certificate C
Book & Page 2683/ 224
Sale Date 07/17/2003
Instrument 33

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
ONE HUNDRED TWENTY ONE CONN- RAGLIN ASSOCIATES LLC	\$1,180,000 \$0	C	2683/ 224 2132/ 338	33	07/17/2003 12/02/1999

Building Information

Building 1 : Section 1

Year Built: 1987
Living Area: 6333
Replacement Cost: \$474,167
**Replacement Cost
Less Depreciation:** \$265,500

Building Photo

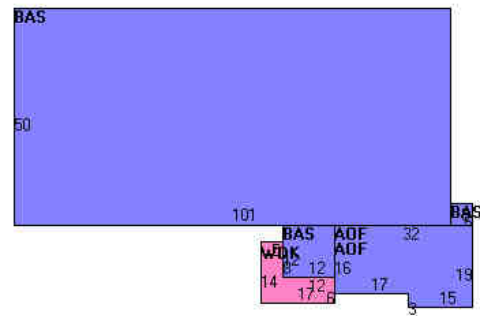
Building Attributes	
Field	Description
STYLE	Service Shop
MODEL	Ind/Comm

Grade	Average
Stories:	1
Occupancy	4
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	Brick Veneer
Roof Structure	Gable/Hip
Roof Cover	Enam Mtl Shing
Interior Wall 1	Wall Brd/Wood
Interior Wall 2	Minim/Masonry
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Partial
Bldg Use	Industrial 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	Heat/AC Packag
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Min WI
Rooms/Prtns	Average
Wall Height	14
% Comn Wall	0



(<http://images.vgsi.com/photos/ManchesterCTphotos//\00\03\43\03.jpg>)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	5219	5219
AOF	Office, (Average)	1114	1114
WDK	Wood Deck	142	0
		6475	6333

Building 2 : Section 1

Year Built: 1987
Living Area: 24306
Replacement Cost: \$1,082,175
Replacement Cost Less Depreciation: \$606,000

Building Attributes : Bldg 2 of 4	
Field	Description
STYLE	Pre-Eng Garage
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	4
Exterior Wall 1	Pre-finish Metl

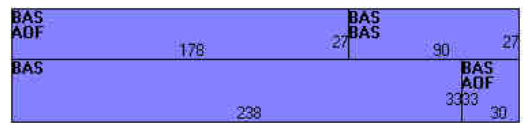
Building Photo

Exterior Wall 2	Brick Veneer
Roof Structure	Gable/Hip
Roof Cover	Enam Mtl Shing
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Partial
Bldg Use	Industrial 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	Heat AC Split
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Susp Ceil & WI
Rooms/Prtns	Average
Wall Height	22
% Comn Wall	0



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Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	18510	18510
AOF	Office, (Average)	5796	5796
		24306	24306

Building 3 : Section 1

Year Built: 1987
Living Area: 10320
Replacement Cost: \$433,337
Replacement Cost Less Depreciation: \$242,700

Building Attributes : Bldg 3 of 4	
Field	Description
STYLE	Pre-Eng Garage
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	12
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	Brick Veneer

Building Photo



(<http://images.vgsi.com/photos/ManchesterCTPhotos//\00\03\43\05.jpg>)

Roof Structure	Gable/Hip
Roof Cover	Enam Mtl Shing
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	Industrial 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Min Wl
Rooms/Prtns	Average
Wall Height	18
% Comn Wall	0

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	10320	10320
		10320	10320

Building 4 : Section 1

Year Built: 2008
Living Area: 12000
Replacement Cost: \$479,640
Replacement Cost Less Depreciation: \$465,300

Building Attributes : Bldg 4 of 4	
Field	Description
STYLE	Pre-Eng Garage
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	8
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	Concr/Cinder
Roof Structure	Gable/Hip
Roof Cover	Enam Mtl Shing
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas

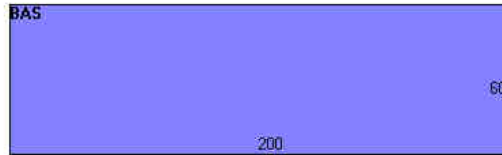
Building Photo



(<http://images.vgsi.com/photos/ManchesterCTPhotos/000343/06.jpg>)

Building Layout

Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	Industrial 96
Total Rooms	00
Total Bedrms	00
Total Baths	0
1st Floor Use:	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Min WI
Rooms/Prtns	Average
Wall Height	18
% Comn Wall	0



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	12000	12000
		12000	12000

Extra Features

Extra Features					Legend
Code	Description	Size	Value	Bldg #	
A/C	Partial AC	5796 S.F.	\$6,500	2	

Land

Land Use

Use Code 300
Description Industrial 96
Zone IND
Neighborhood 5000
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 4.96
Frontage 0
Depth 0
Assessed Value \$507,600
Appraised Value \$725,100

Outbuildings

Outbuildings							Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #	
PAV1	Paving Asphalt			13350 S.F.	\$19,200	4	
PAV1	Paving Asphalt			37000 S.F.	\$17,800	1	
FN3	Fence 6' Chain			300 L.F.	\$2,000	1	
PAV2	Paving Concrete			96 S.F.	\$300	4	
SHDT	Telephone Shed			319 S.F.	\$31,600	1	
FN4	Fence 8' Chain			54 L.F.	\$900	1	
SHDT	Telephone Shed			319 S.F.	\$31,600	1	

Valuation History

Appraisal

Valuation Year	Improvements	Land	Total
2010	\$1,766,600	\$760,300	\$2,526,900
2005	\$871,200	\$540,700	\$1,411,900
2000	\$1,082,500	\$540,700	\$1,623,200

Assessment			
Valuation Year	Improvements	Land	Total
2010	\$1,236,700	\$532,300	\$1,769,000
2005	\$609,900	\$378,500	\$988,400
2000	\$757,800	\$378,500	\$1,136,300

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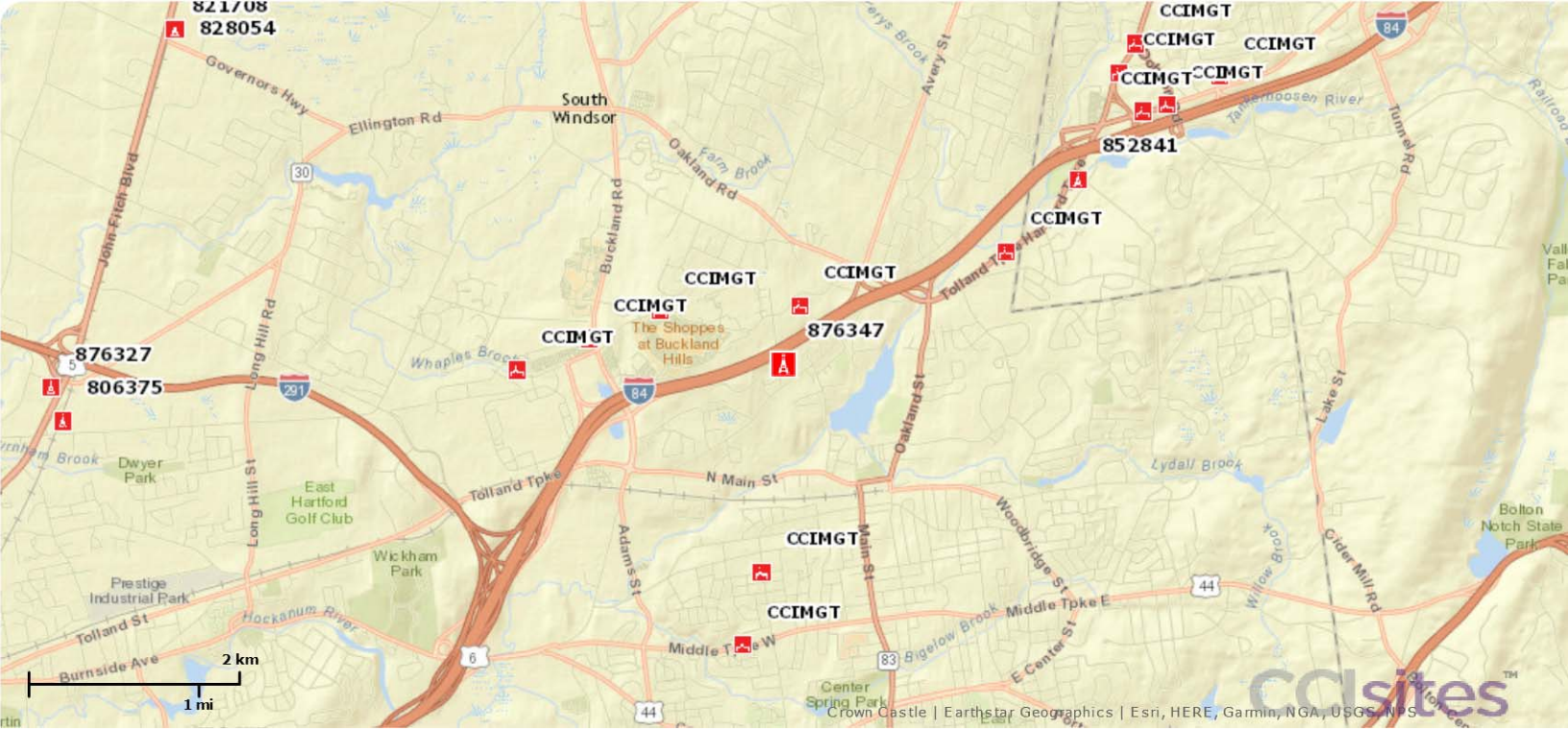


Exhibit C

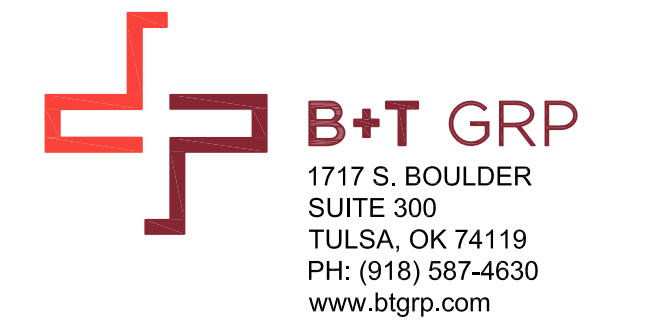
Construction Drawings



VERIZON SITE NUMBER: 468759
VERIZON SITE NAME: BUCKLAND CT
SITE TYPE: MONOPOLE
TOWER HEIGHT: 155'-0"

BUSINESS UNIT #: 876347
SITE ADDRESS: 53 SLATER STREET
 MANCHESTER, CT 06040
COUNTY: HARTFORD
JURISDICTION: CONNECTICUT SITING COUNCIL

VERIZON 5G L-SUB6 - CARRIER ADD



VERIZON SITE NUMBER: 468759
BU #: 876347
BUCKLAND MALL
 53 SLATER STREET
 MANCHESTER, CT 06040
 EXISTING 155'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/15/21	LHT	PRELIMINARY REVIEW	MTJ
0	6/16/21	JJR	CONSTRUCTION	MTJ

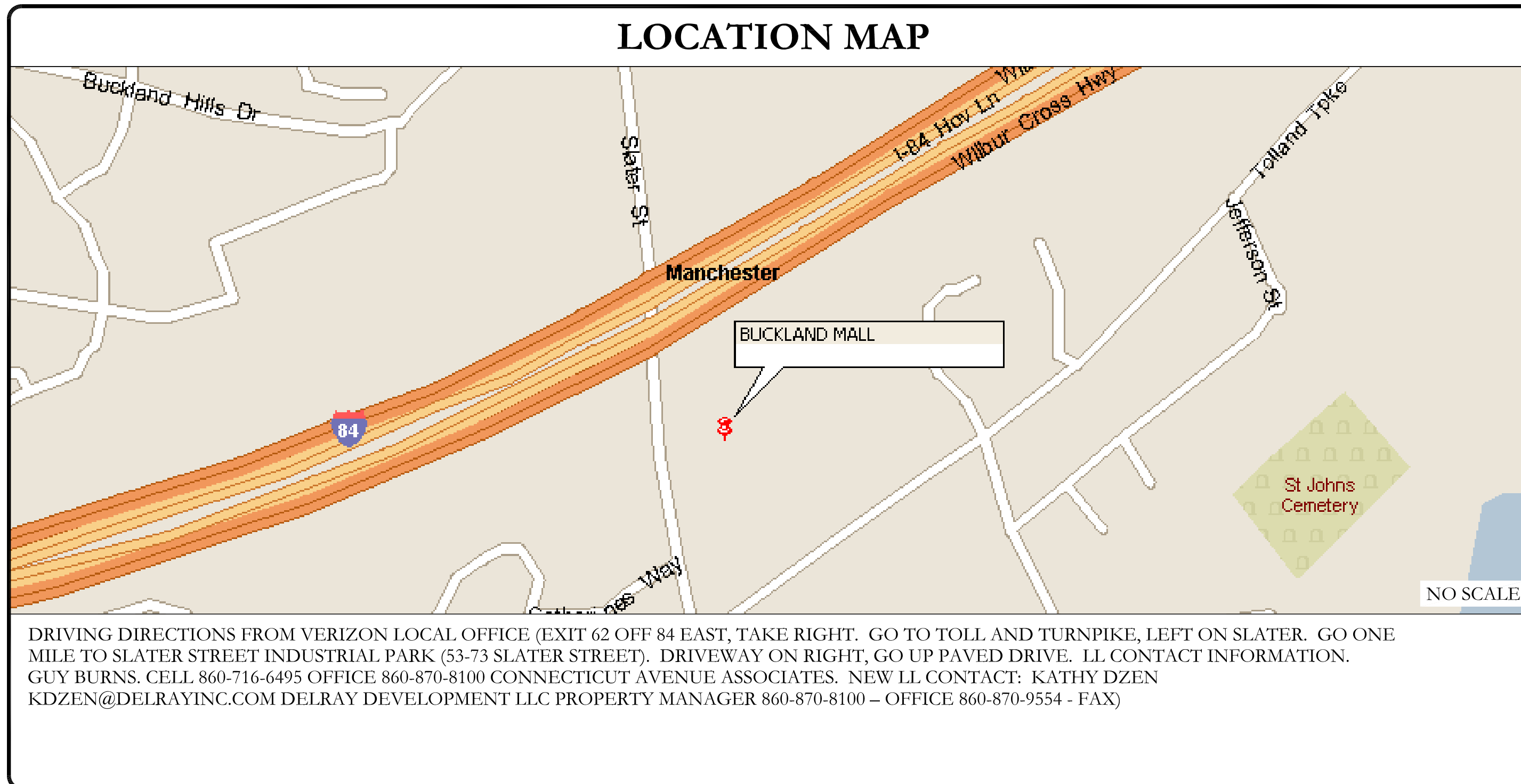
SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BUCKLAND MALL
SITE ADDRESS:	53 SLATER STREET MANCHESTER, CT 06040
COUNTY:	HARTFORD
MAP/PARCEL #:	14616
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.805°
LONGITUDE:	-72.5336°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	196'
CURRENT ZONING:	IND
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:	ONE HUNDRED TWENTY ONE CONNECTICUT AVENUE ASSOCIATES LLC 9 LAKE LANE ELLINGTON, CT 06029
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	VERIZON WIRELESS 20 ALEXANDER DRIVE, 2ND FLOOR WALLINGFORD, CT 06492
ELECTRIC PROVIDER:	NOT PROVIDED
TELCO PROVIDER:	NOT PROVIDED

DRAWING INDEX

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

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



APPROVALS

SIGNATURE	DATE
_____	_____
_____	_____
_____	_____
_____	_____

CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT <https://pmi.vxwsmart.com>

SMART TOOL VENDOR PROJECT NUMBER _____

VzW LOCATION CODE (PSLC) _____

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

MOUNT MODIFICATION REQUIRED N

VzW APPROVED SMART KIT VENDORS

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

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	2018 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: BY OTHERS
 DATED: _____

MOUNT ANALYSIS: BY OTHERS
 DATED: _____

RFDS REVISION: N/A
 DATED: 3/16/21

ORDER ID: 552625
 REVISION: 0

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

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:

- REMOVE (3) ANTENNAS
- REMOVE (8) RRHS
- REMOVE (6) COAX CABLE
- REMOVE (1) HYBRID CABLE
- RELOCATE (3) ANTENNAS
- INSTALL (3) DUAL MOUNT BRACKET
- INSTALL (3) ANTENNAS
- INSTALL (6) RRHS
- INSTALL (1) OVP
- INSTALL (1) HYBRID CABLE

GROUND SCOPE OF WORK:

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

ISSUED FOR:

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

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

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

149606.001.01_BUCKLAND_MALL.dwg - SheetT-1 - User: mjones - Jun 17, 2021 - 8:01am

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
4.1. ALL EMBANKMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET WORK 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 (WIREMOULD 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 LOCKOUT 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	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
DC VOLTAGE	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
- MICRO WAVE
- (N) NEW
- NEC NATIONAL ELECTRIC CODE
- (P) PROPOSED
- PP POWER PLANT
- QTY QUANTITY
- RECT RECTIFIER
- RBS RADIO BASE STATION
- RET REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RRH REMOTE RADIO HEAD
- RRU REMOTE RADIO UNIT
- SIAD SMART INTEGRATED DEVICE
- TMA TOWER MOUNTED AMPLIFIER
- TYP TYPICAL
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- W.P. WORK POINT

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



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VERIZON SITE NUMBER:
468759


BU #: 876347
BUCKLAND MALL

53 SLATER STREET
MANCHESTER, CT 06040

EXISTING 155'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/15/21	LHT	PRELIMINARY REVIEW	MTJ
0	6/16/21	JJR	CONSTRUCTION	MTJ



B&T ENGINEERING, INC.
PEC.0001564
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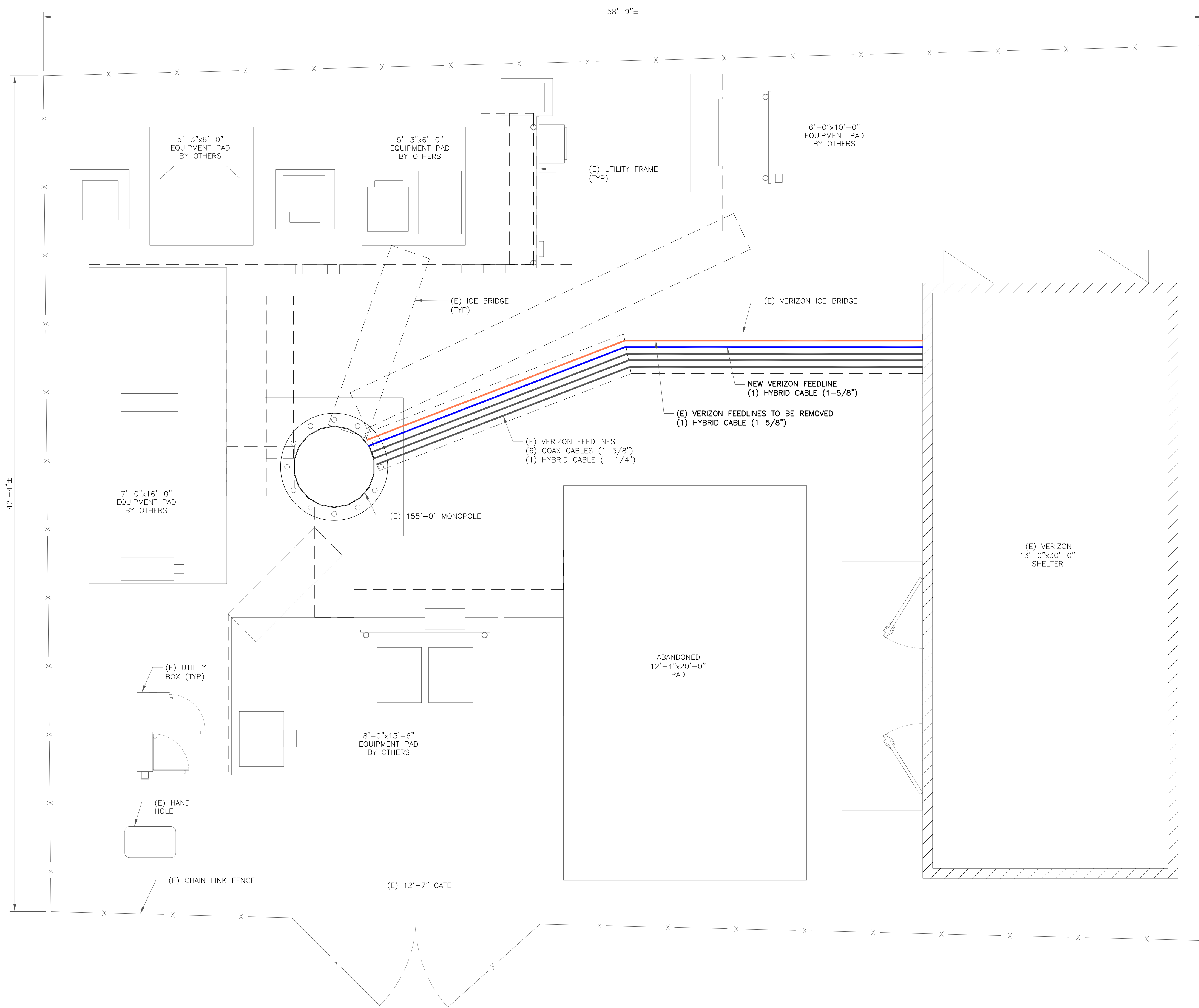
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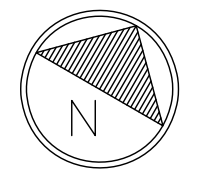
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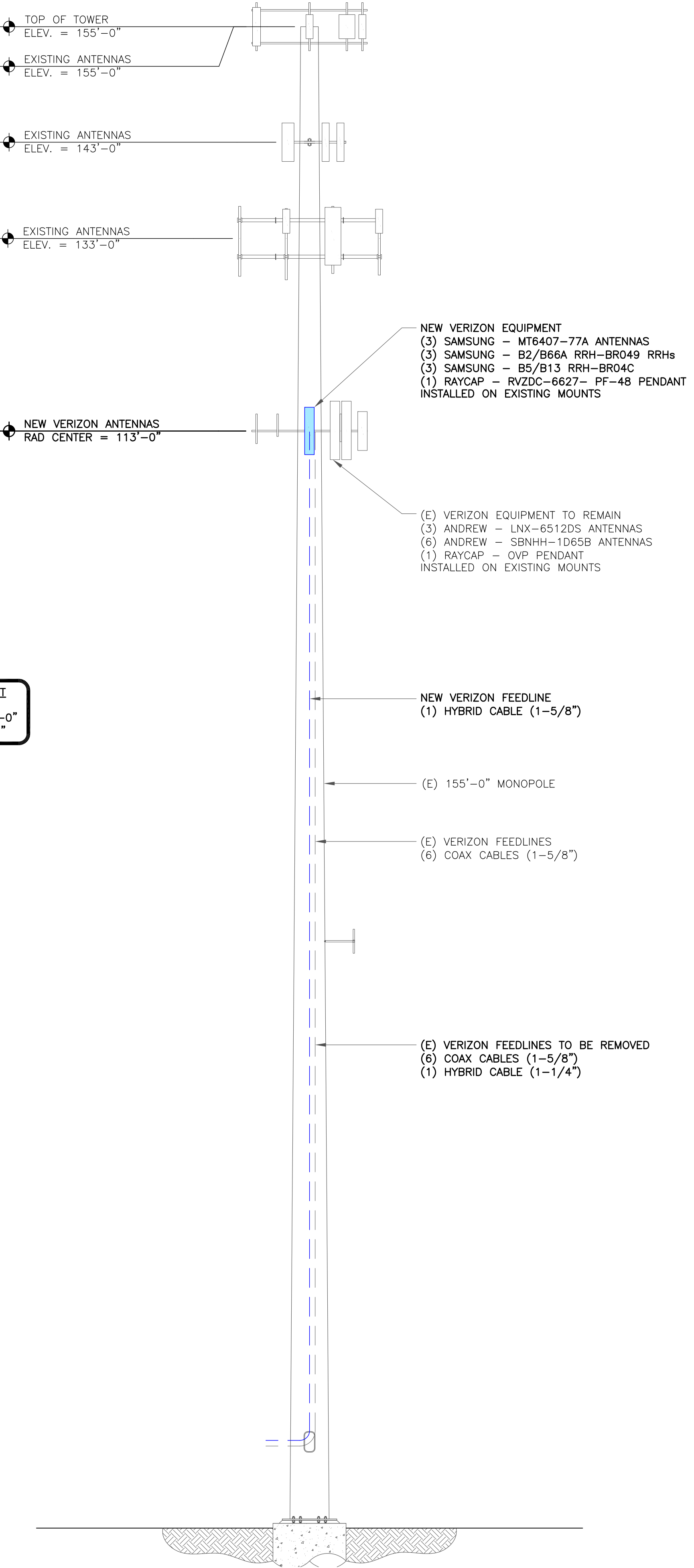
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1 SITE PLAN
SCALE: 3/8"=1'-0" (FULL SIZE)
3/16"=1'-0" (11x17)

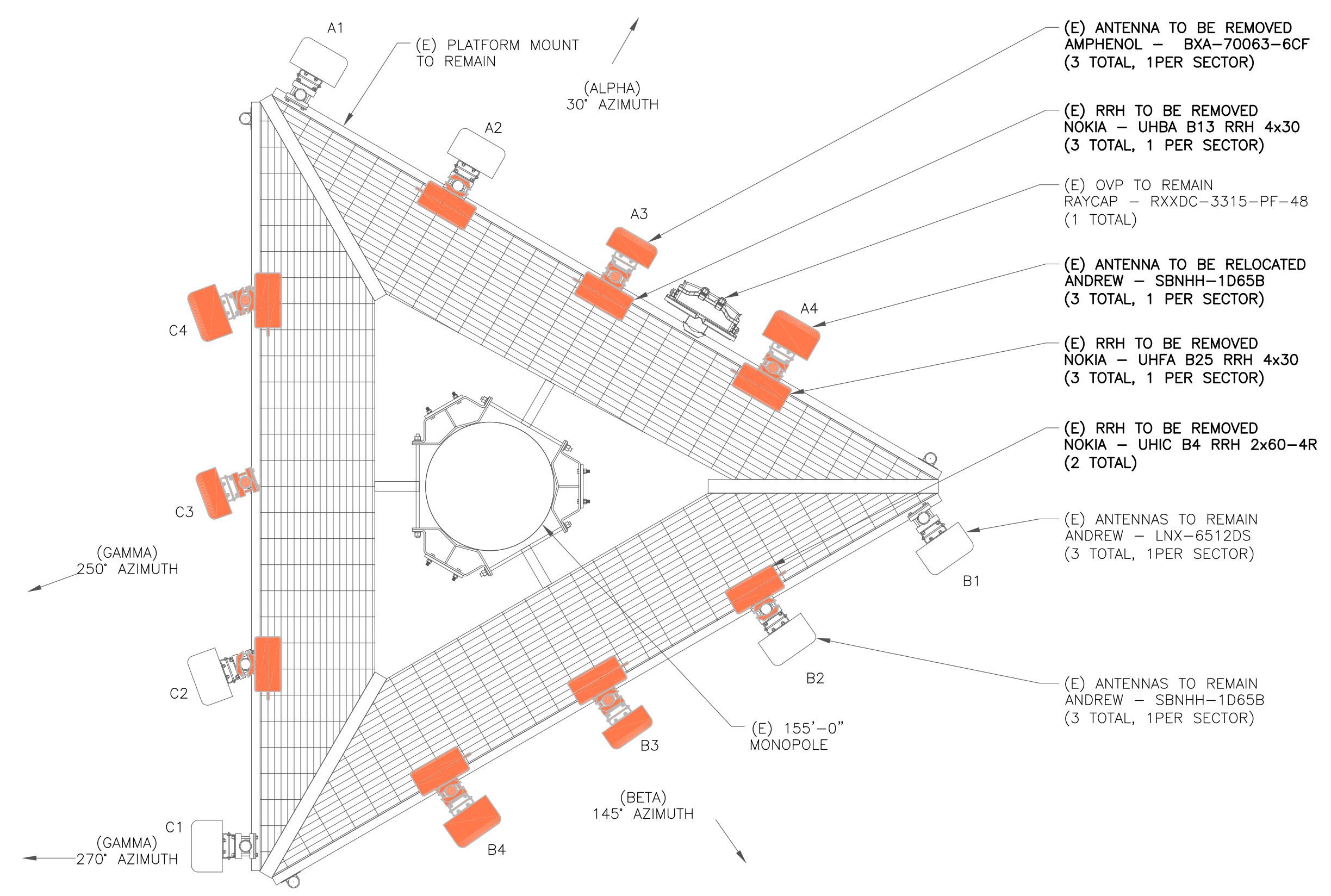


149606.001.01_BUCKLAND MALL.dwg - Sheet: C-1 - User: mjonas - Jun 17, 2021 - 8:02am

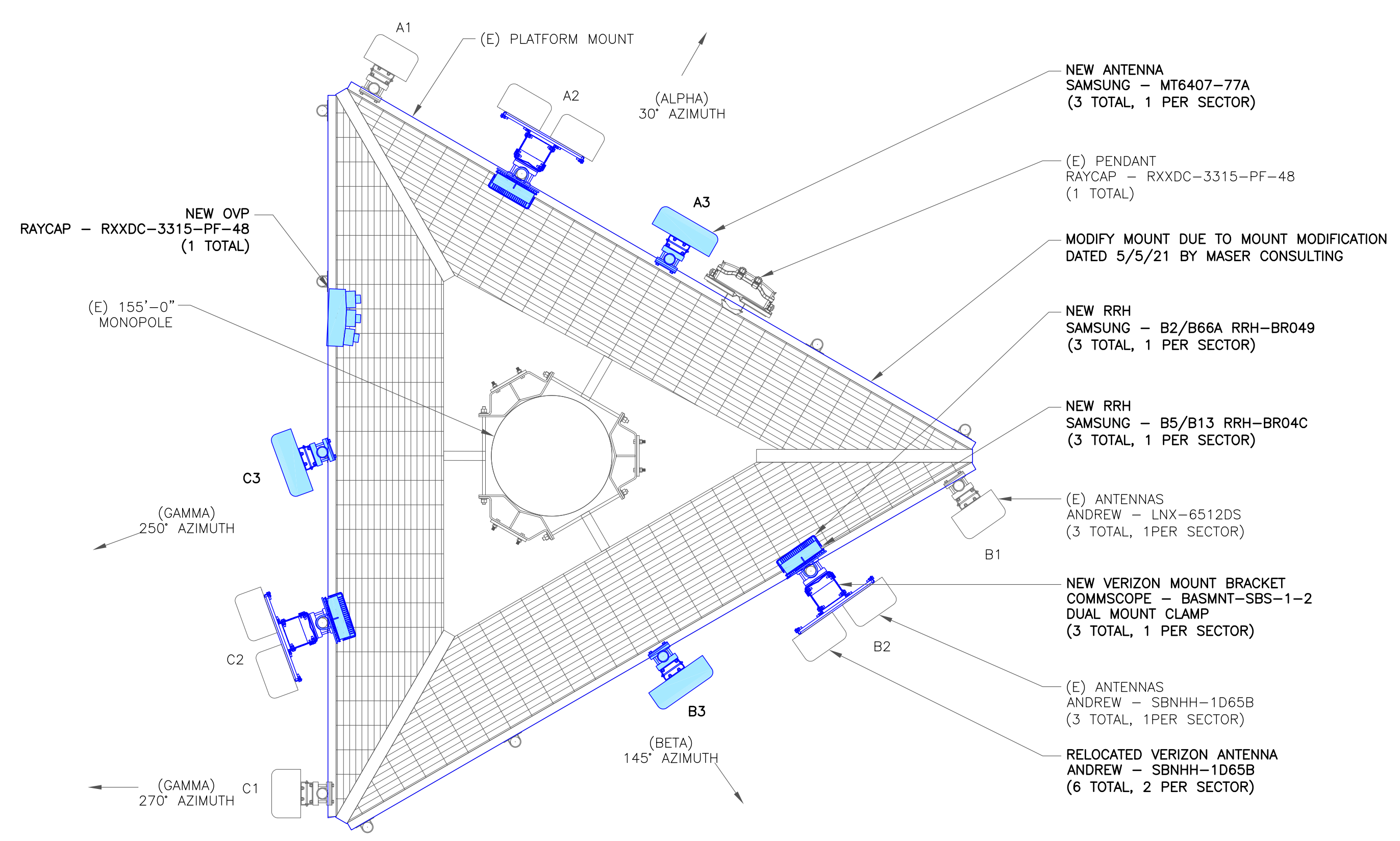


1 TOWER ELEVATION
SCALE: NOT TO SCALE

VERIZON EQUIPMENT
ANTENNA CL: 113'-0"
MOUNT CL: 113'-0"



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 NEW ANTENNA PLAN
SCALE: NOT TO SCALE

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PH: (918) 587-4630
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VERIZON SITE NUMBER:
468759

BU #: **876347**
BUCKLAND MALL

53 SLATER STREET
MANCHESTER, CT 06040

EXISTING 155'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	4/15/21	LHT	PRELIMINARY REVIEW	MTJ
0	6/16/21	JJR	CONSTRUCTION	MTJ

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VERIZON SITE NUMBER:
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BU #: **876347**
BUCKLAND MALL

53 SLATER STREET
 MANCHESTER, CT 06040

EXISTING 155'-0" MONOPOLE

ISSUED FOR:

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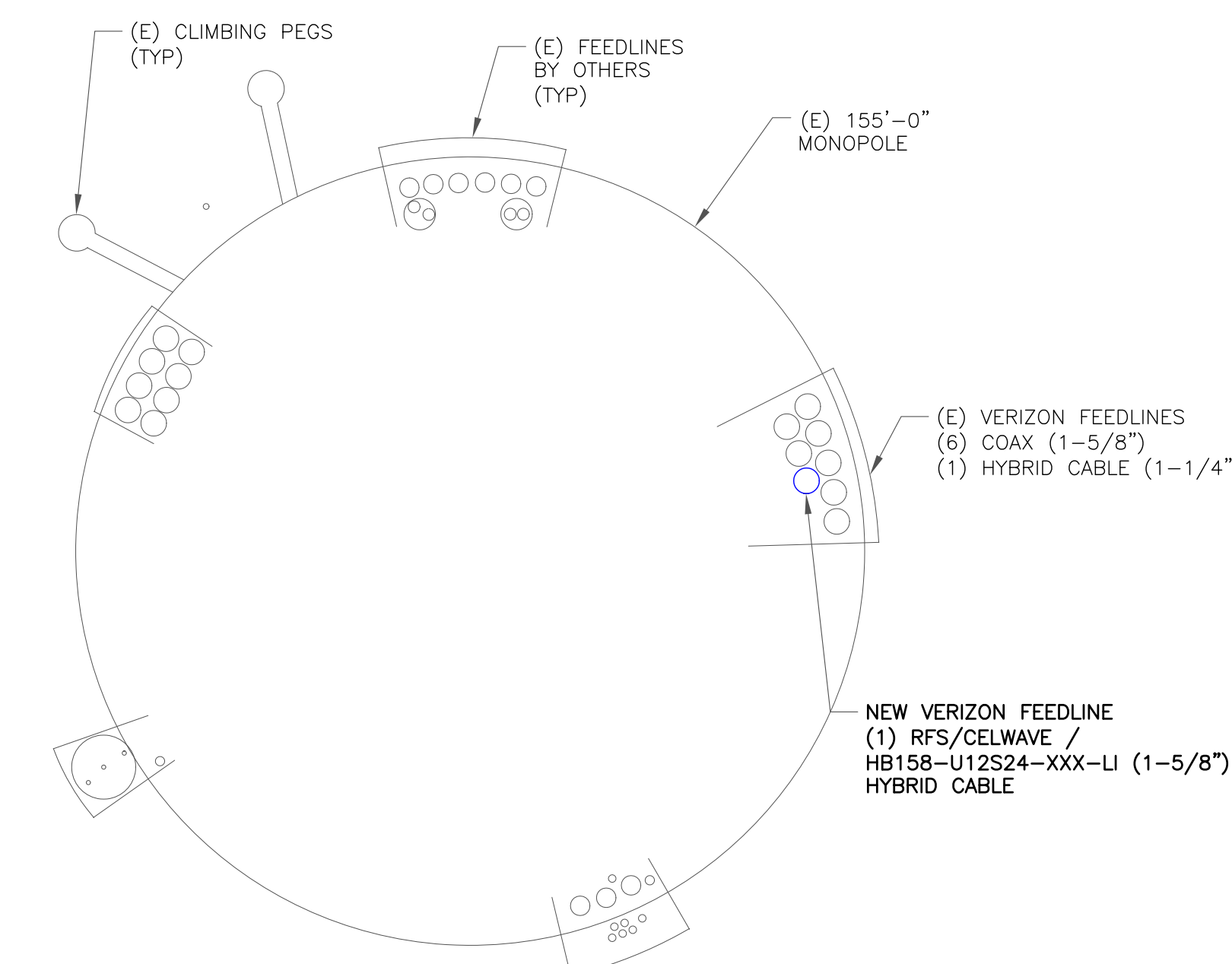
ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	ANDREW	LNx-6512DS	113'-0"	30°	0°	0°	-	-
A2L	EXISTING	ANDREW	SBNHH-1D65B	113'-0"	30°	0°	7°/3°/3°/7°	SAMSUNG	(1) B2/B66A RRH-BR049
A2R	EXISTING	ANDREW	SBNHH-1D65B	113'-0"	30°	0°	7°/3°/3°/7°	SAMSUNG	(1) B5/B13 RRH-BR04C
A3	NEW	SAMSUNG	MT6407-77A	113'-0"	30°	0°	3°	-	-
B1	EXISTING	ANDREW	LNx-6512DS	113'-0"	145°	0°	0°	-	-
B2L	EXISTING	ANDREW	SBNHH-1D65B	113'-0"	145°	0°	6°/2°/2°/6°	SAMSUNG	(1) B2/B66A RRH-BR049
B2R	EXISTING	ANDREW	SBNHH-1D65B	113'-0"	145°	0°	6°/2°/2°/6°	SAMSUNG	(1) B5/B13 RRH-BR04C
B3	NEW	SAMSUNG	MT6407-77A	113'-0"	145°	0°	3°	-	-
C1	EXISTING	ANDREW	LNx-6512DS	113'-0"	270°	0°	0°	-	-
C2L	EXISTING	ANDREW	SBNHH-1D65B	113'-0"	250°	0°	8°/4°/3°/8°	SAMSUNG	(1) B2/B66A RRH-BR049
C2R	EXISTING	ANDREW	SBNHH-1D65B	113'-0"	250°	0°	8°/4°/3°/8°	SAMSUNG	(1) B5/B13 RRH-BR04C
C3	NEW	SAMSUNG	MT6407-77A	113'-0"	250°	0°	3°	-	-

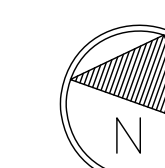
1 VERIZON TOWER EQUIPMENT SCHEDULE
 SCALE: NOT TO SCALE

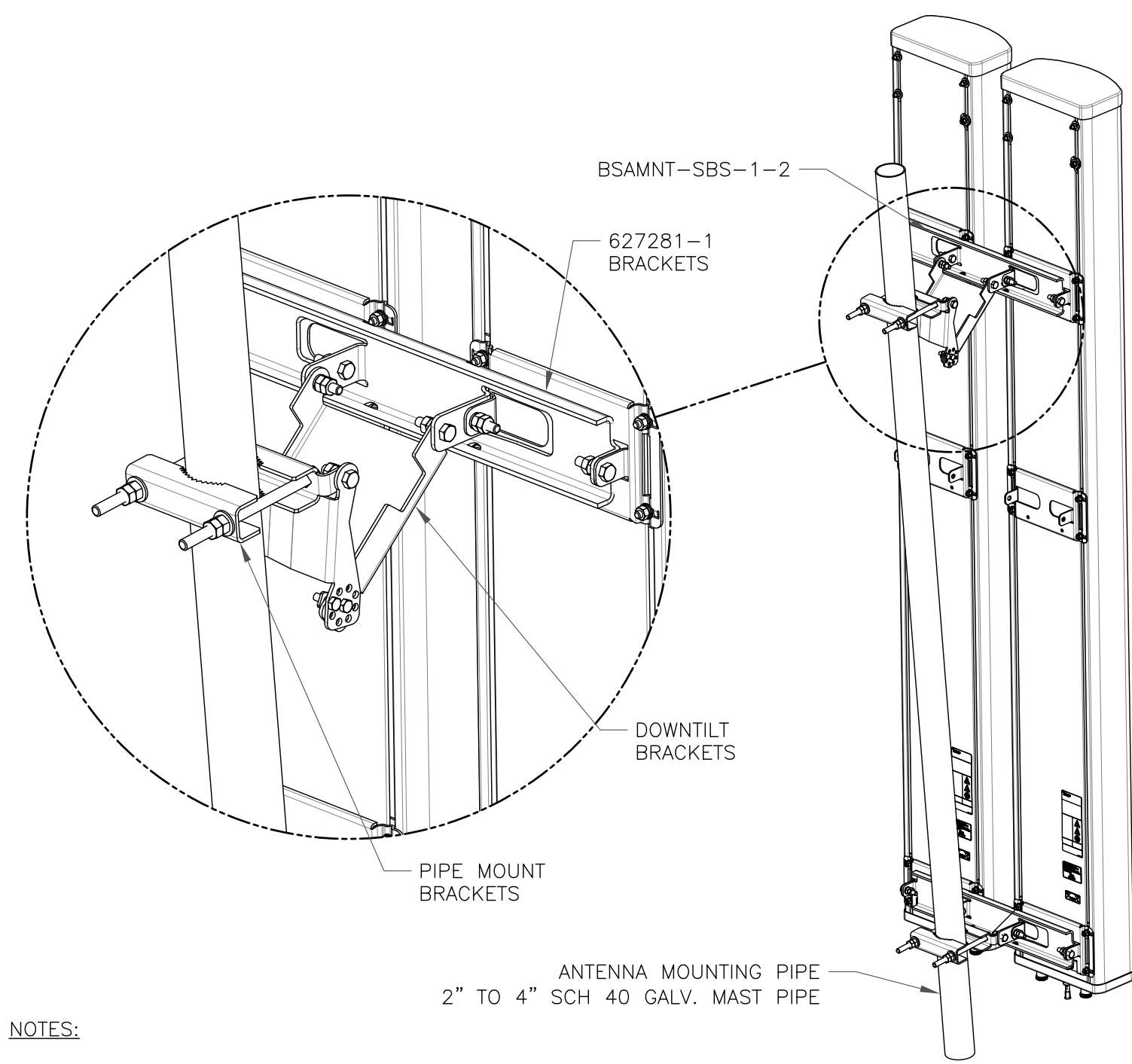
CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	163'-0"±	6
EXISTING	HYBRID	1-1/4"	163'-0"±	1
NEW	HYBRID	1-5/8"	163'-0"±	1
TOTAL CABLE QTY:				8



2 BASE LEVEL DETAIL
 SCALE: NOT TO SCALE



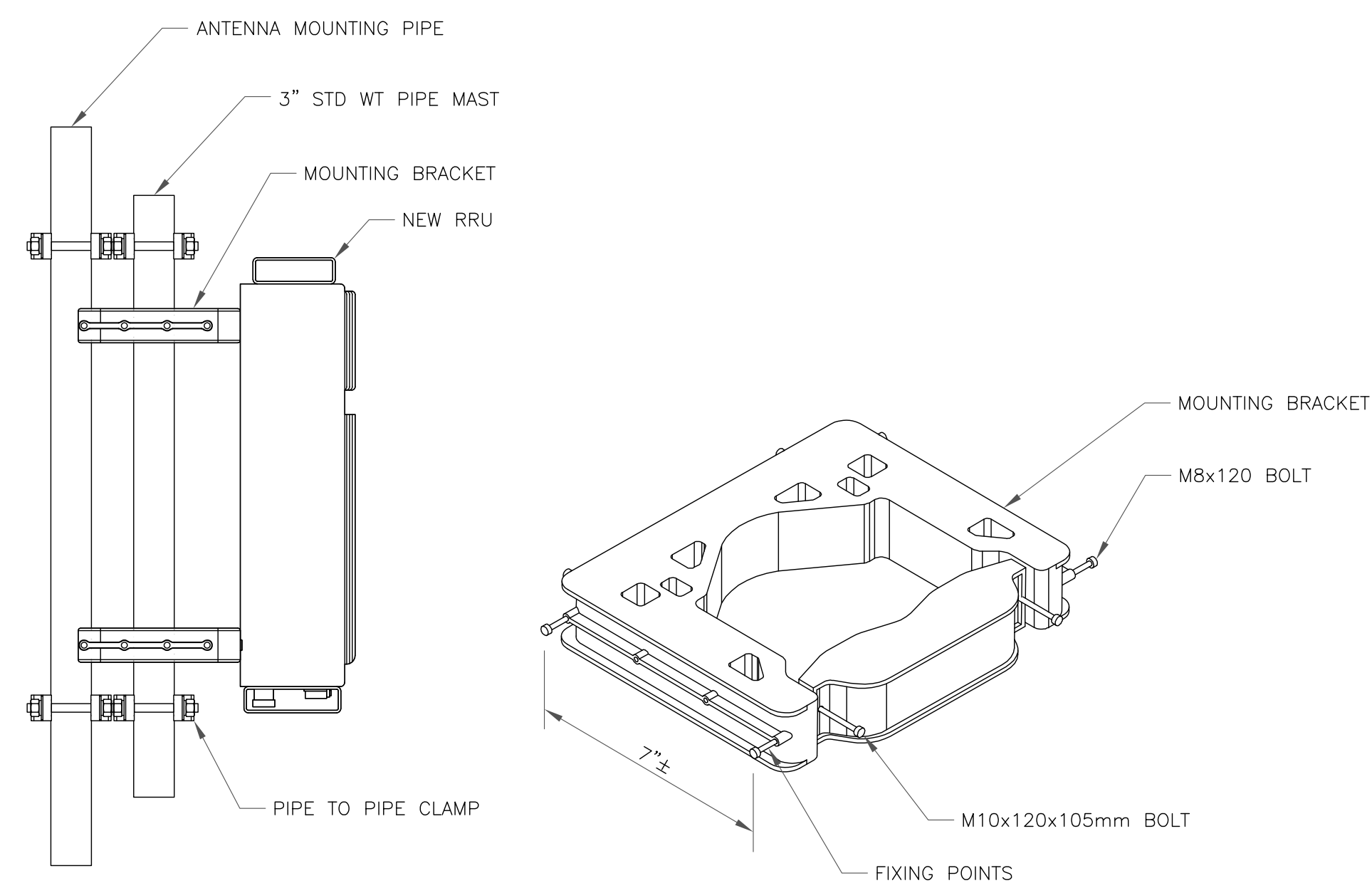


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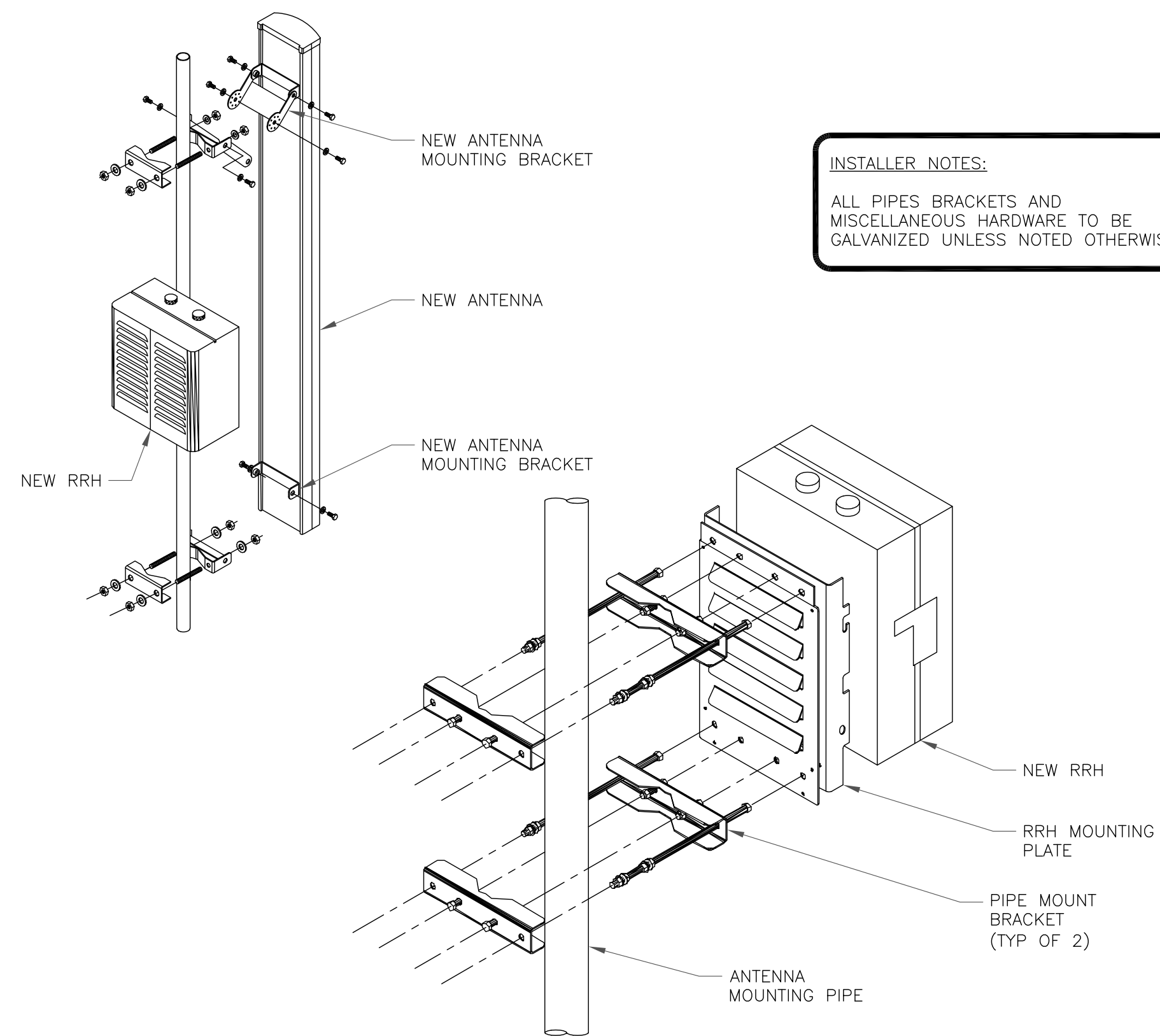
- BSAMNT-SBS-1-2 KIT CONTAINS (2) 627281 MOUNTING BRACKETS.
- TORQUE THE M10 BOLT ASSEMBLY TO 37 N.m. PER MANUFACTURE'S RECOMMENDATIONS.

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

2 NOT USED
SCALE: NOT TO SCALE



3 NOKIA - 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

verizon
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3 CORPORATE PARK DRIVE, SUITE 101
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SUITE 300
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www.btgrp.com

VERIZON SITE NUMBER:
468759

BU #: **876347**
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53 SLATER STREET
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EXISTING 155'-0" MONOPOLE

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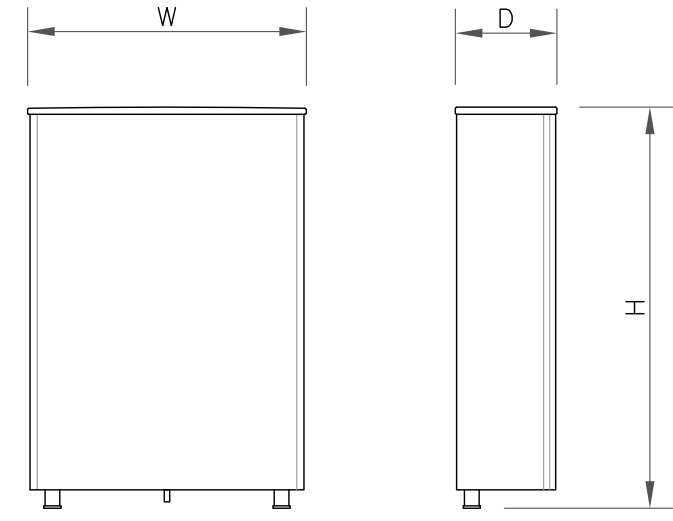
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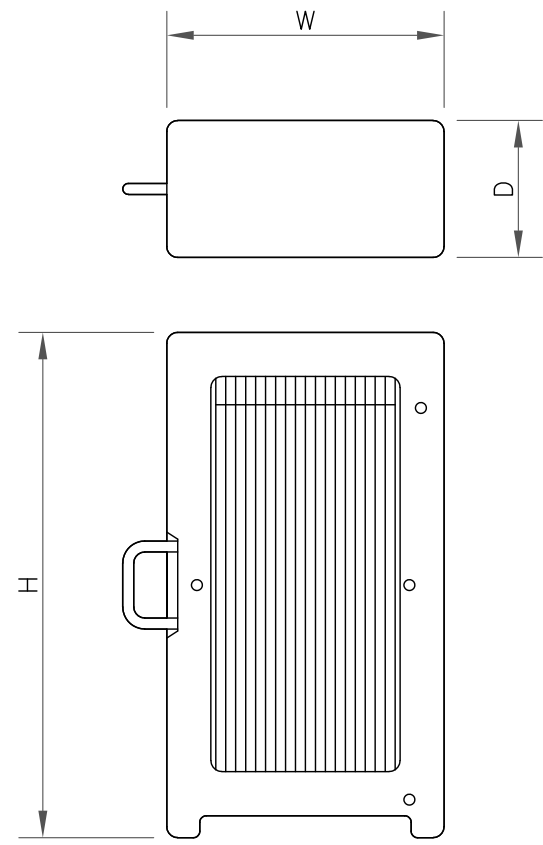
REVISION:

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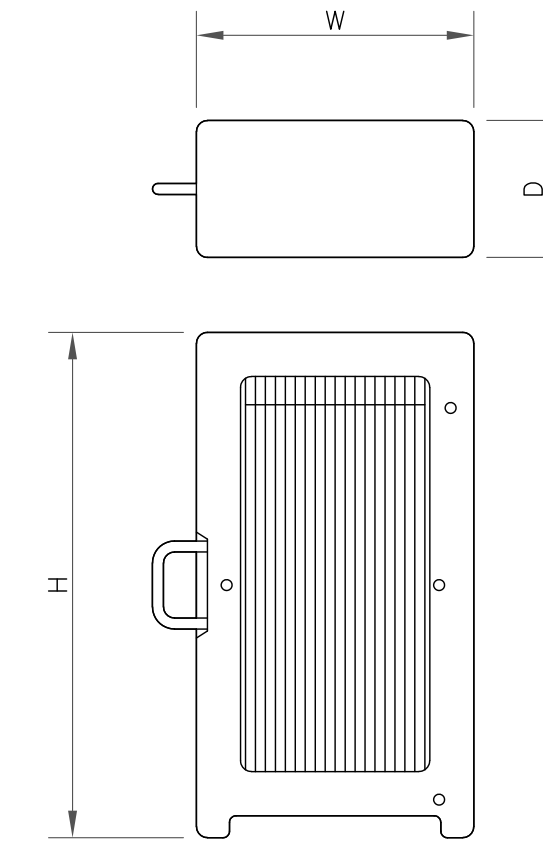
ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407-77A
WIDTH	16.06"
DEPTH	5.51"
HEIGHT	35.12"
WEIGHT	87.10 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	SAMSUNG
MODEL #	RFV01U-D1A
WIDTH	15"
DEPTH	10.0"
HEIGHT	15"
WEIGHT	84.4 LBS

2 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	SAMSUNG
MODEL #	RFV01U-D2A
WIDTH	15"
DEPTH	8.10"
HEIGHT	15"
WEIGHT	70.30 LBS

3 RRU SPECS
SCALE: NOT TO SCALE

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BUCKLAND MALL

53 SLATER STREET
MANCHESTER, CT 06040

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ISSUED FOR:

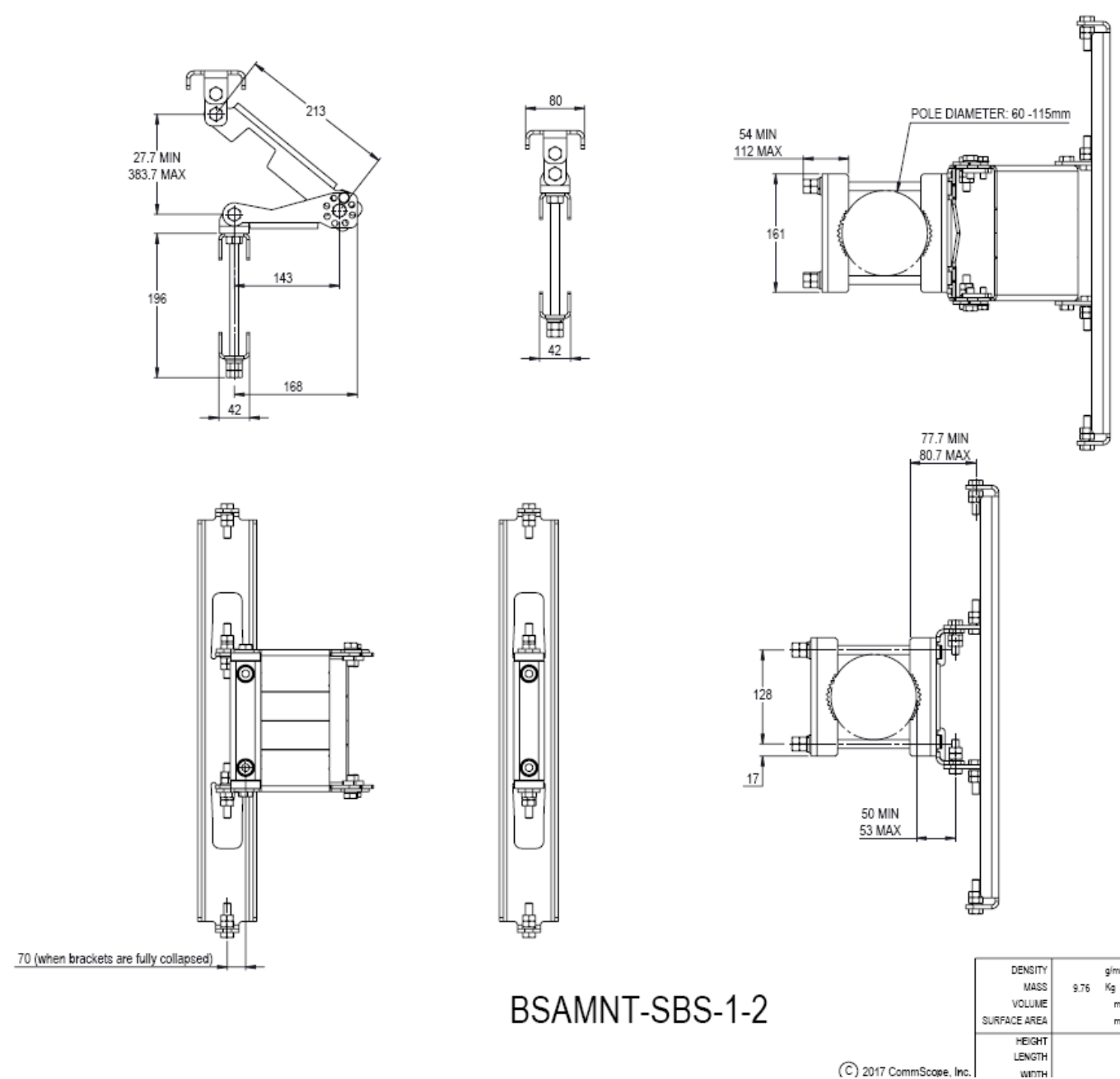
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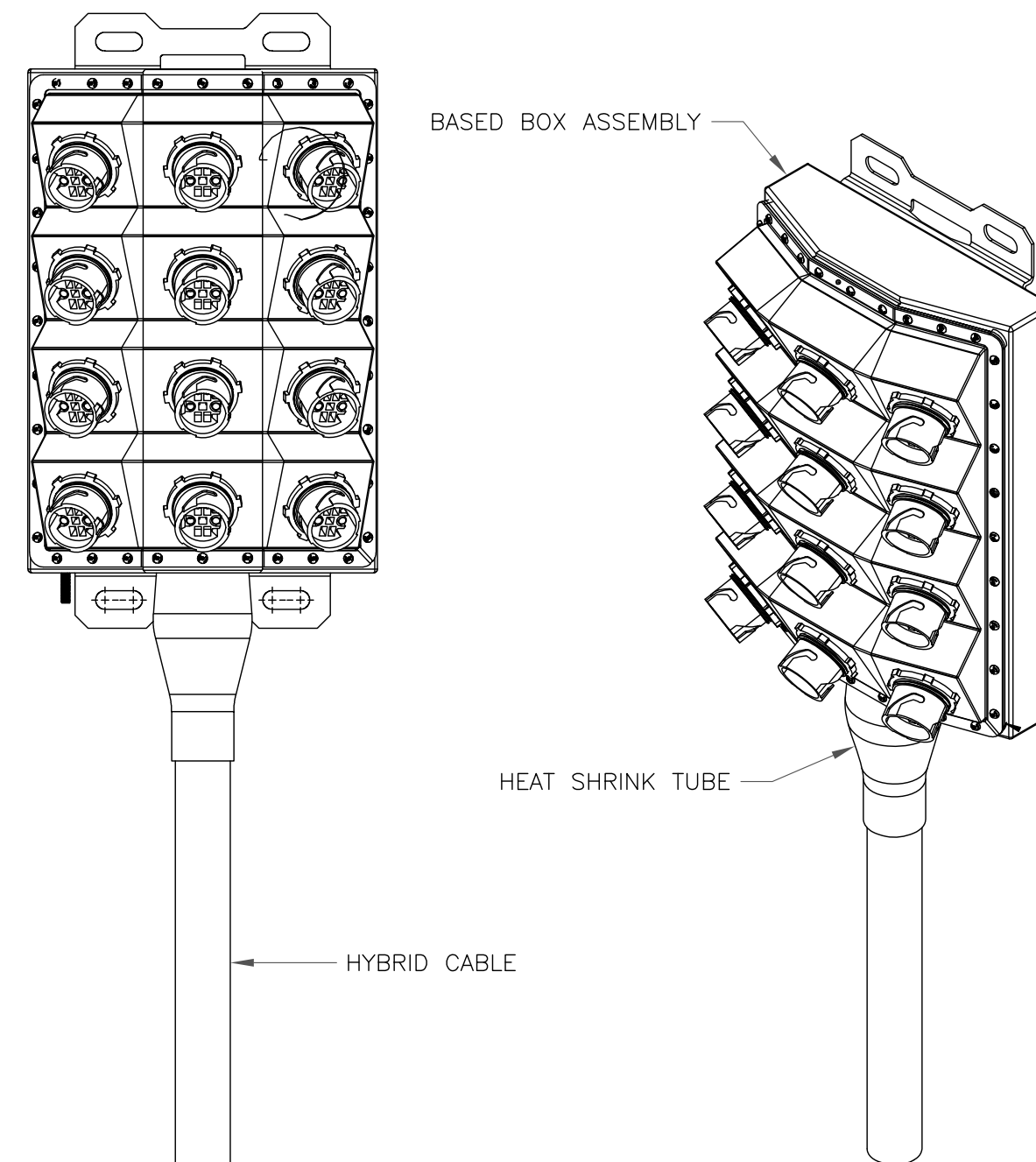
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4 BSAMNT-SBS-1-2
SCALE: NOT TO SCALE



5 PENDANT DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

VERIZON SITE NUMBER:
468759

BU #: **876347**
BUCKLAND MALL

53 SLATER STREET
 MANCHESTER, CT 06040

EXISTING 155'-0" MONOPOLE

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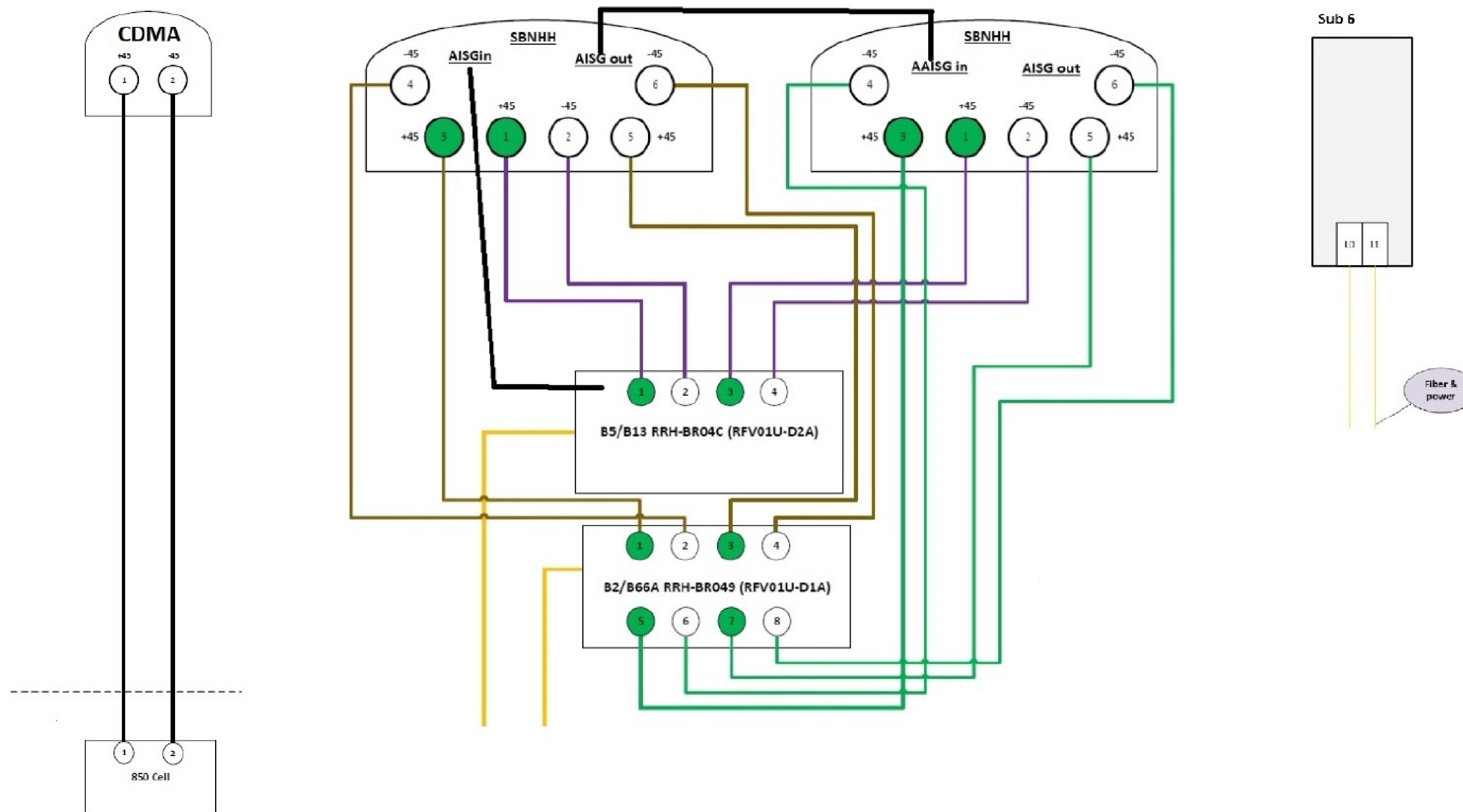
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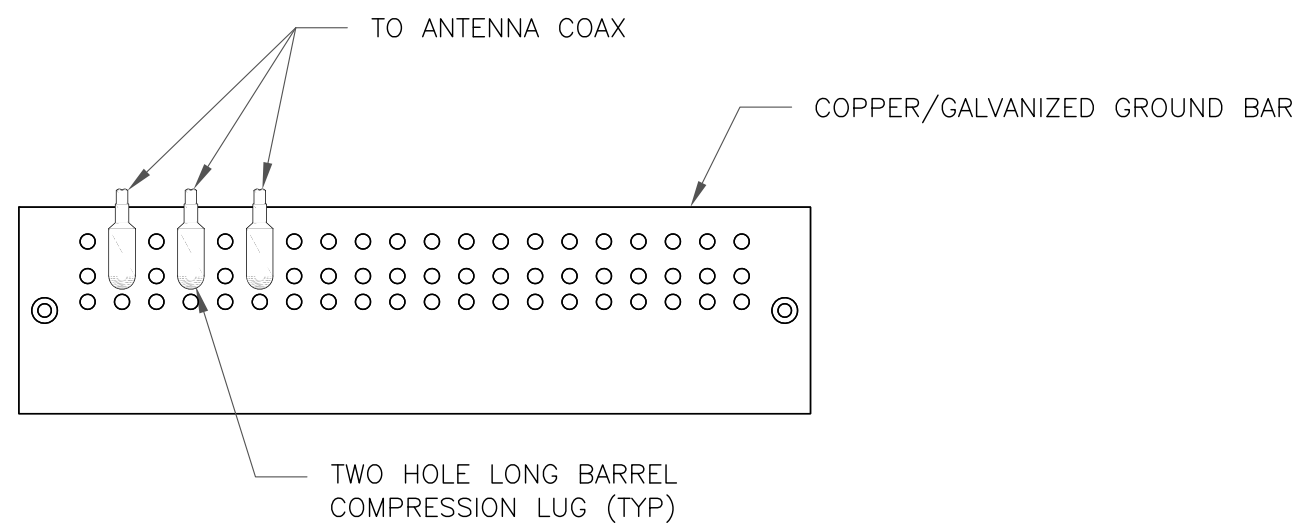
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REVISION:

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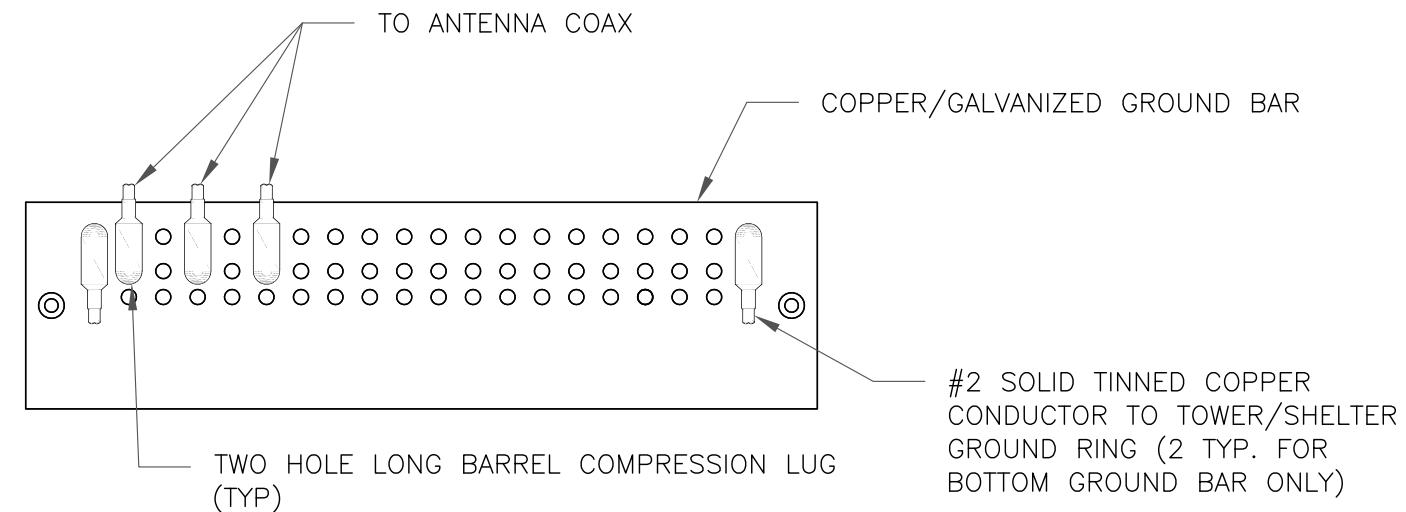
1 PLUMBING DIAGRAM
 SCALE: NOT TO SCALE



NOTES:

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

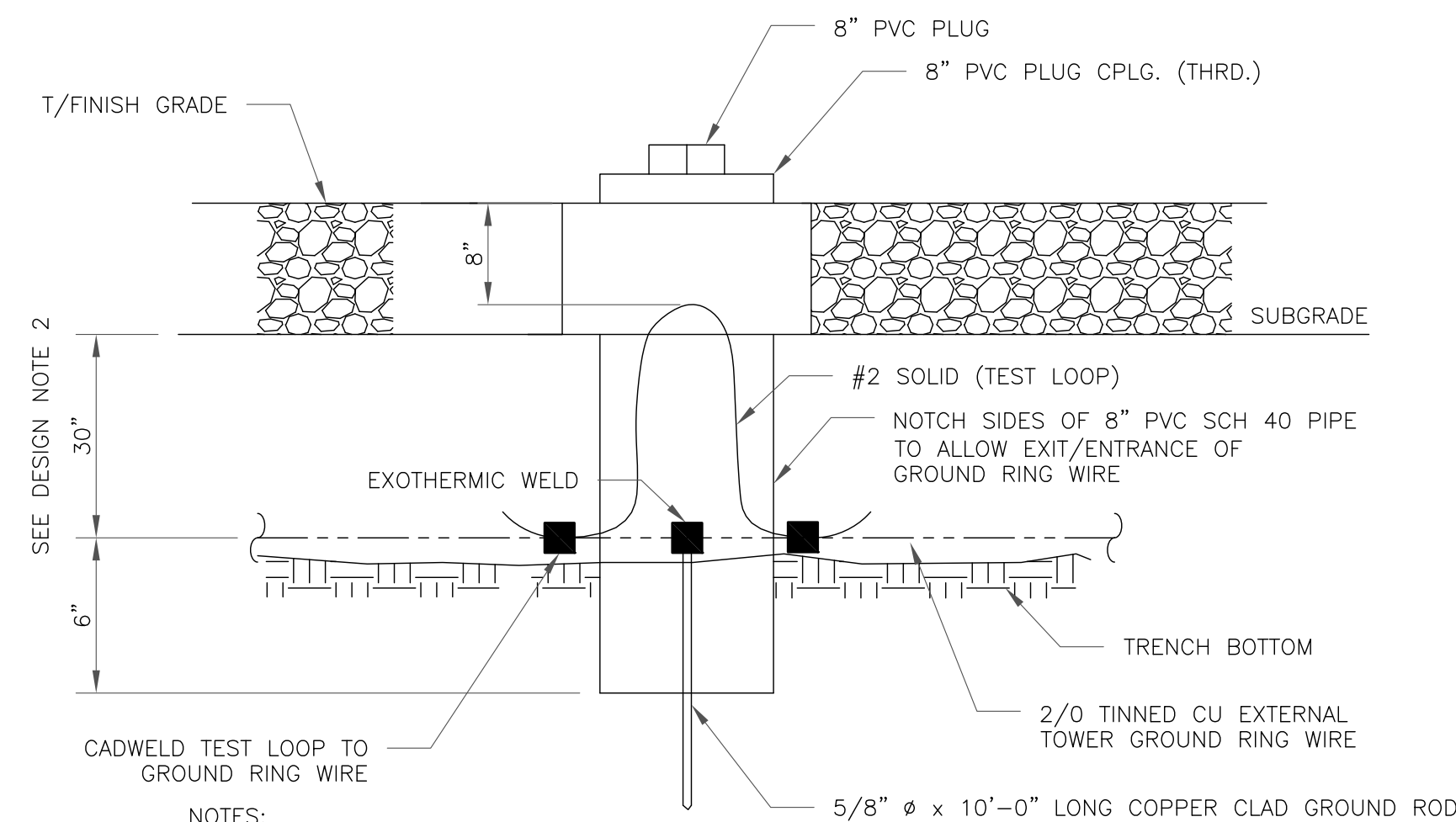
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

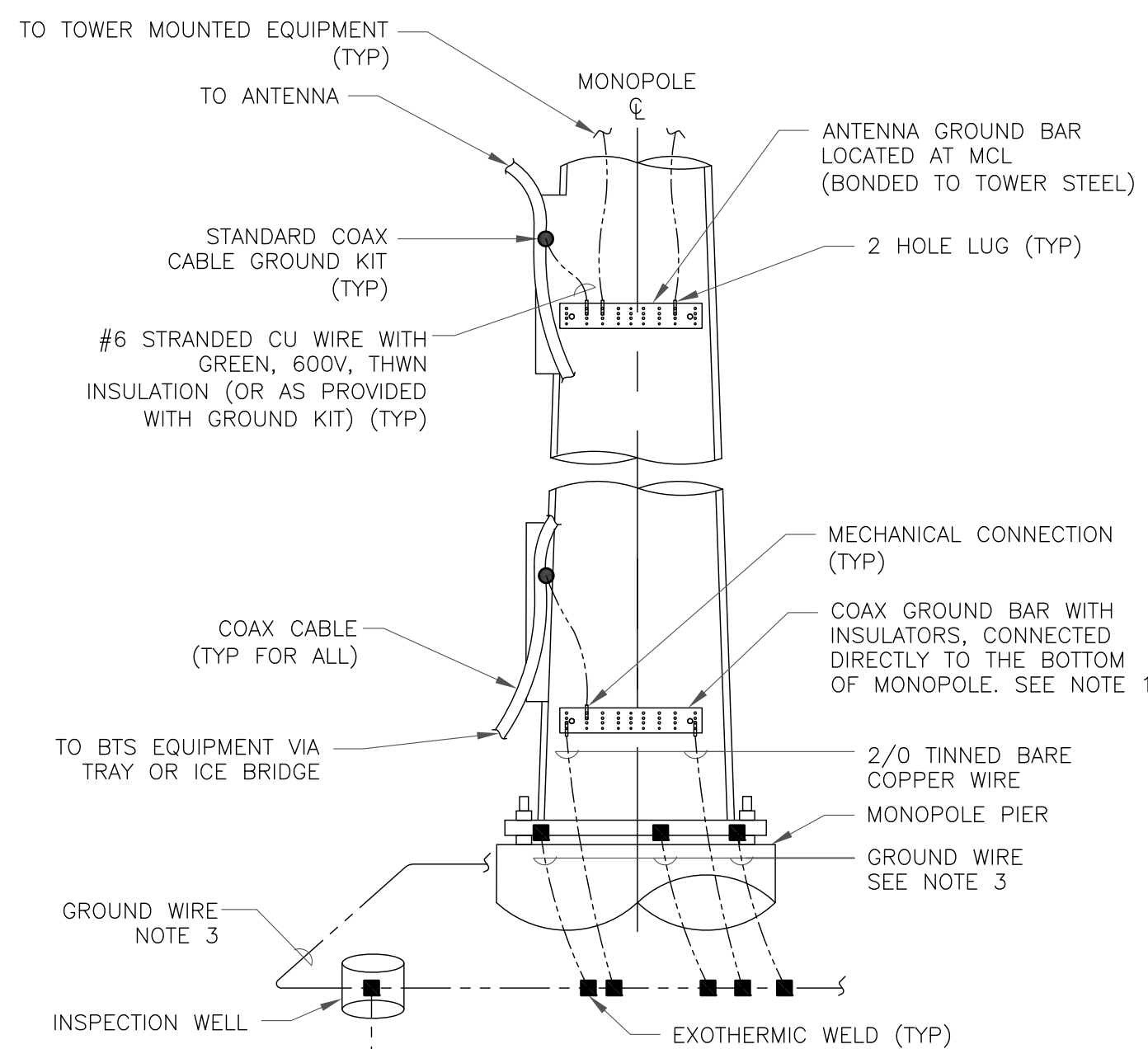
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

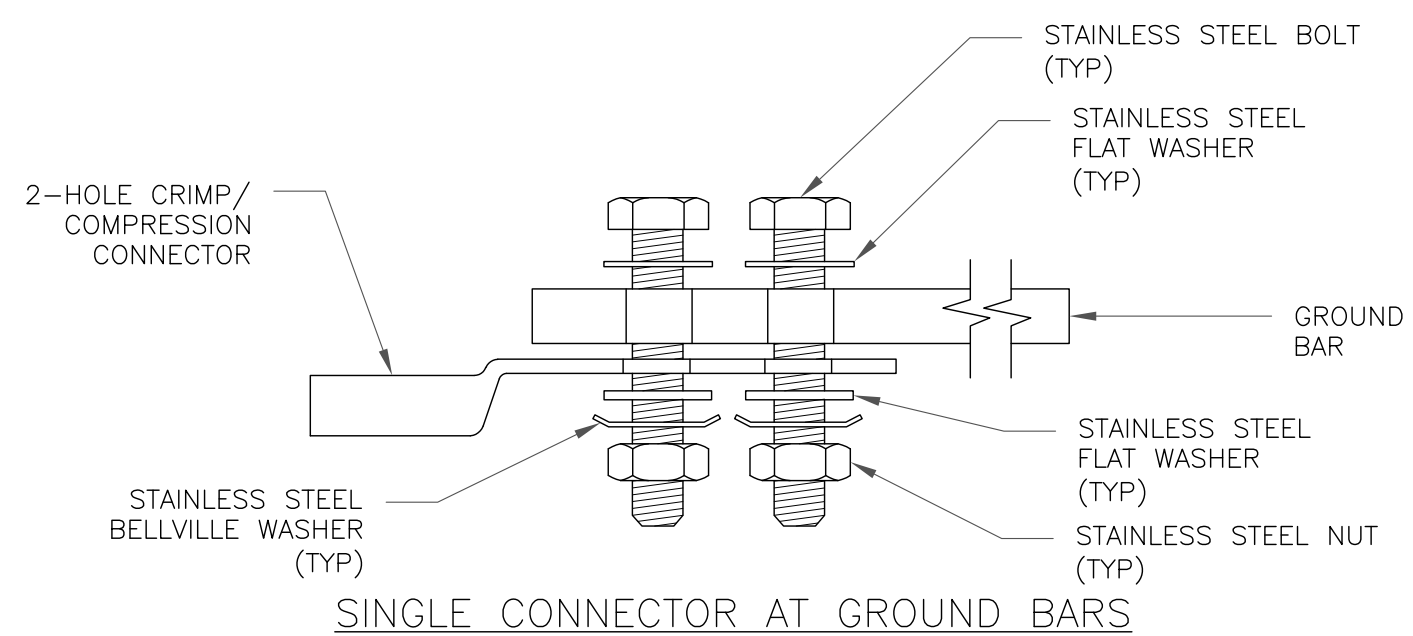
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



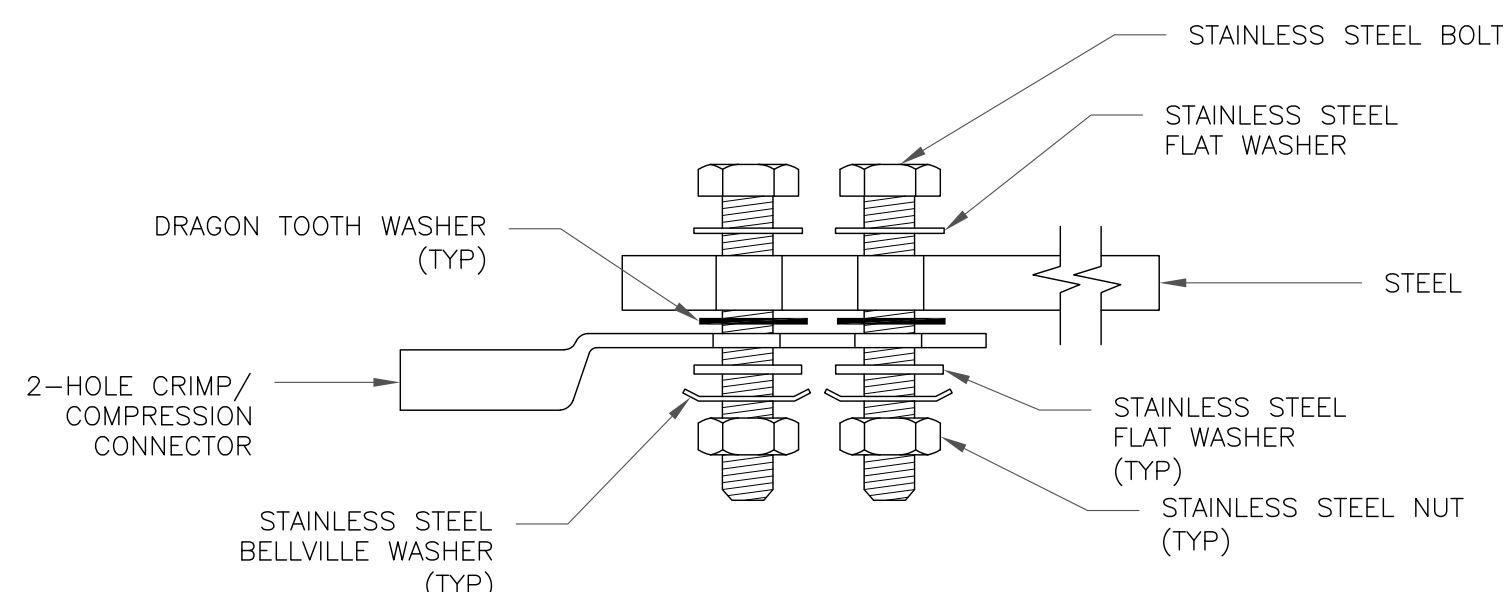
NOTES:

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

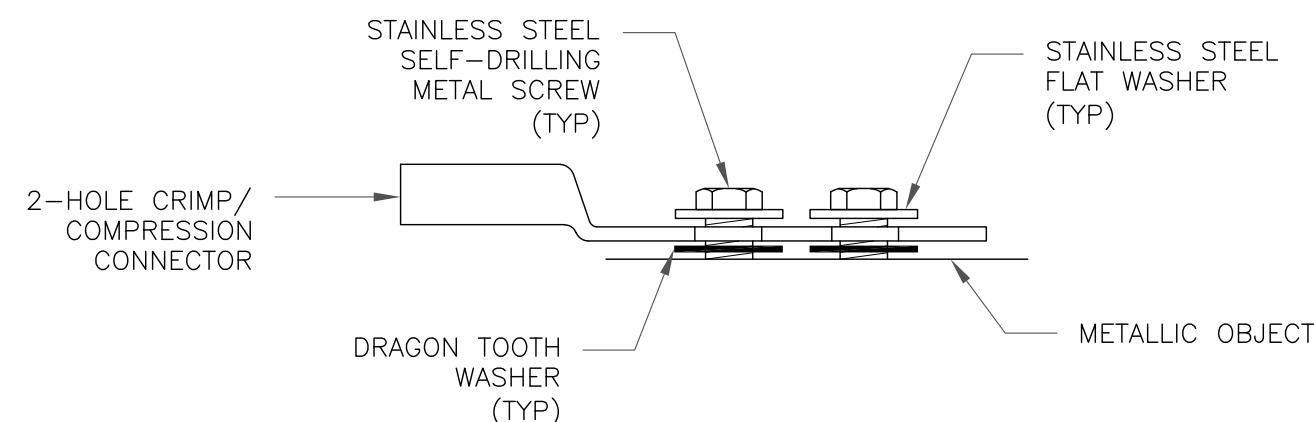
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

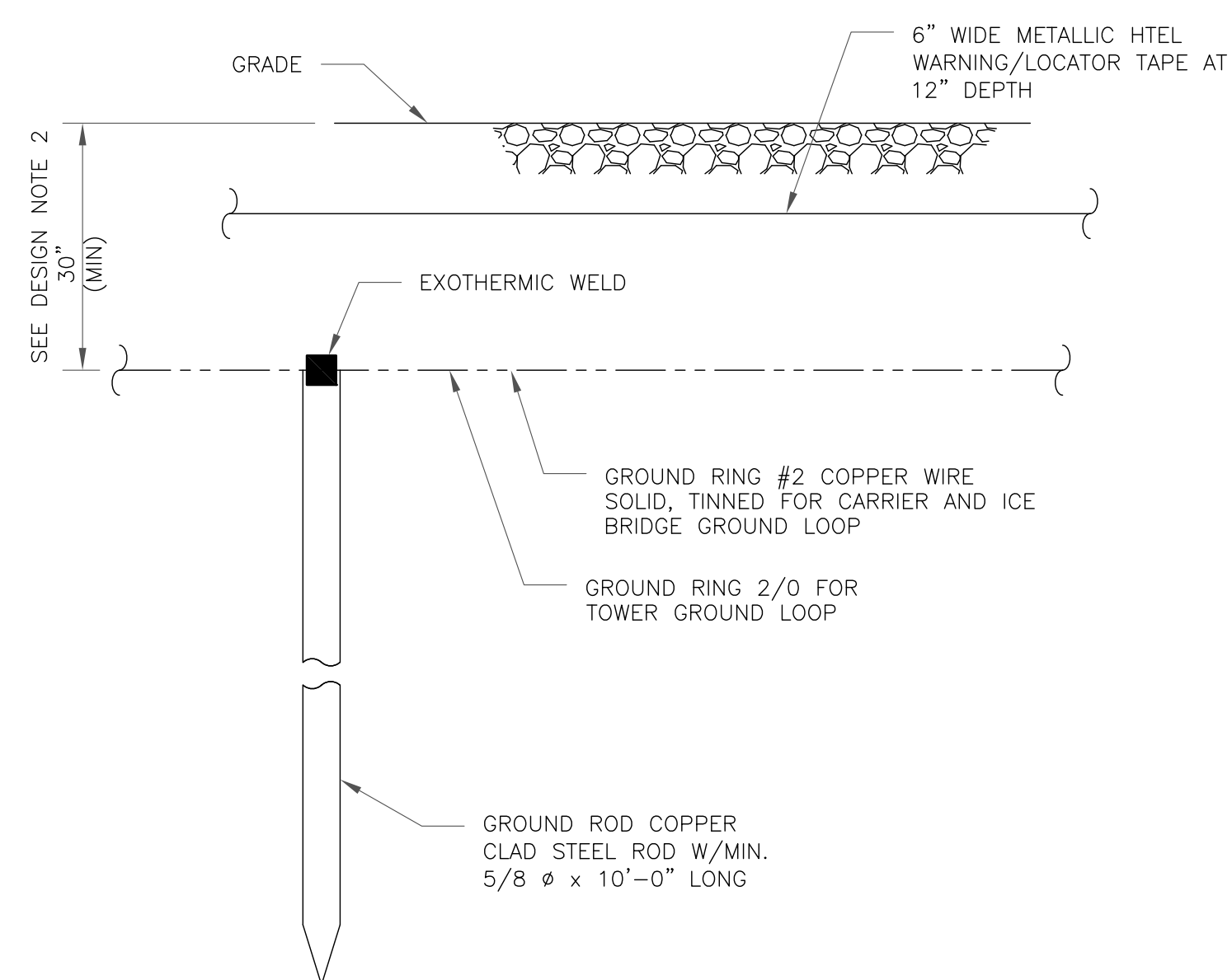


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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EXISTING 155'-0" MONOPOLE

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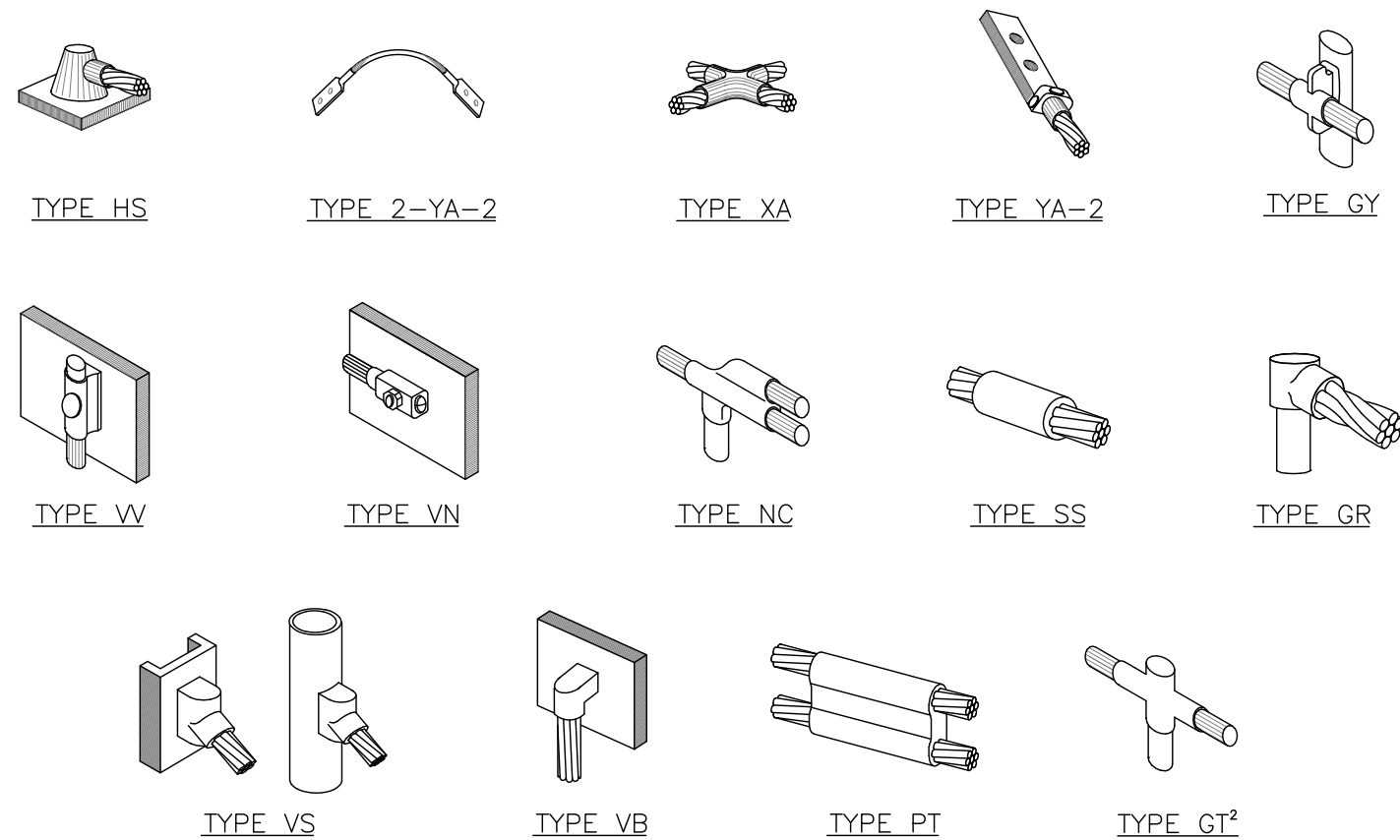


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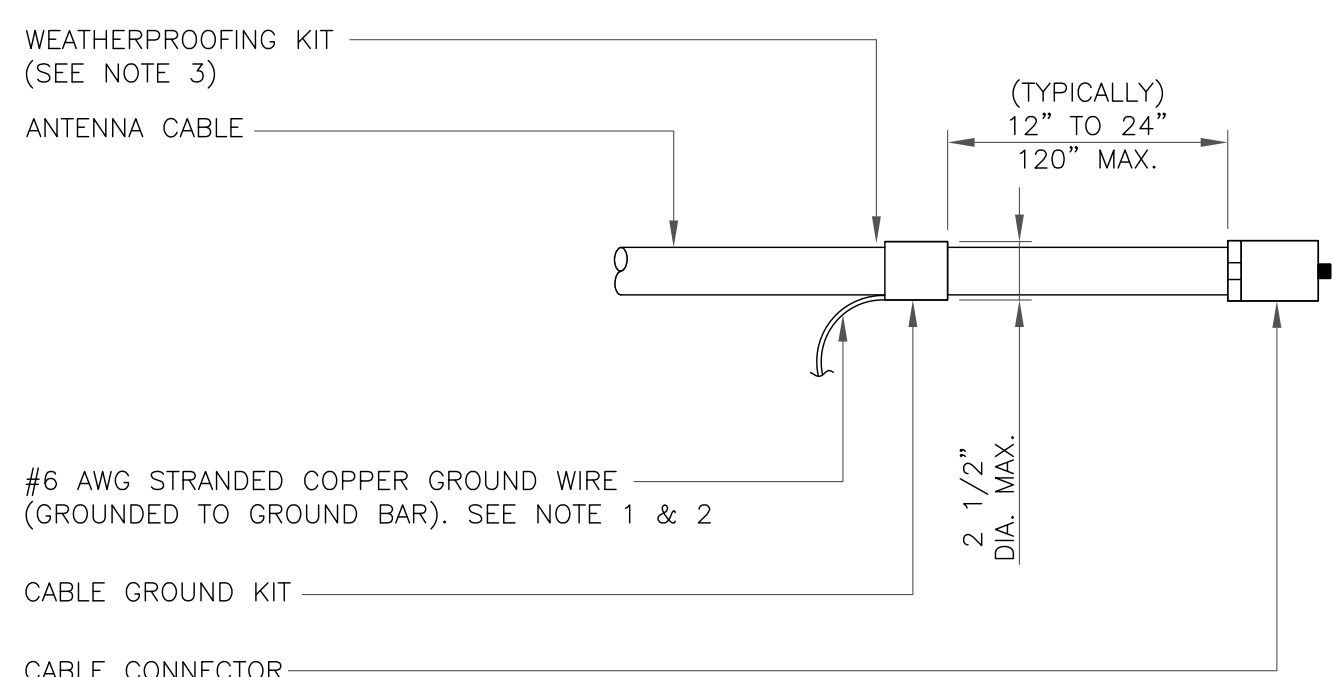
G-1 **0**



NOTE:

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

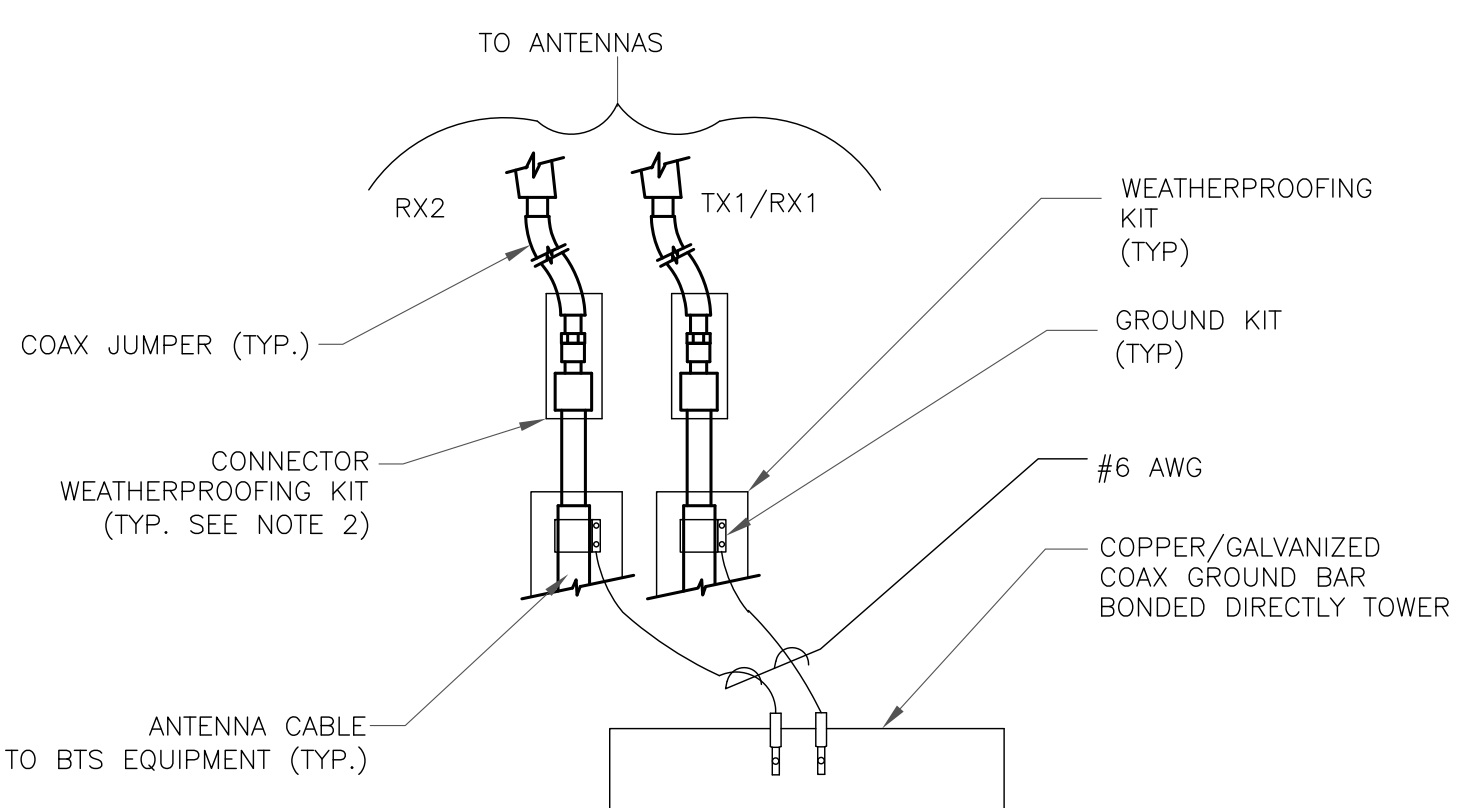
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

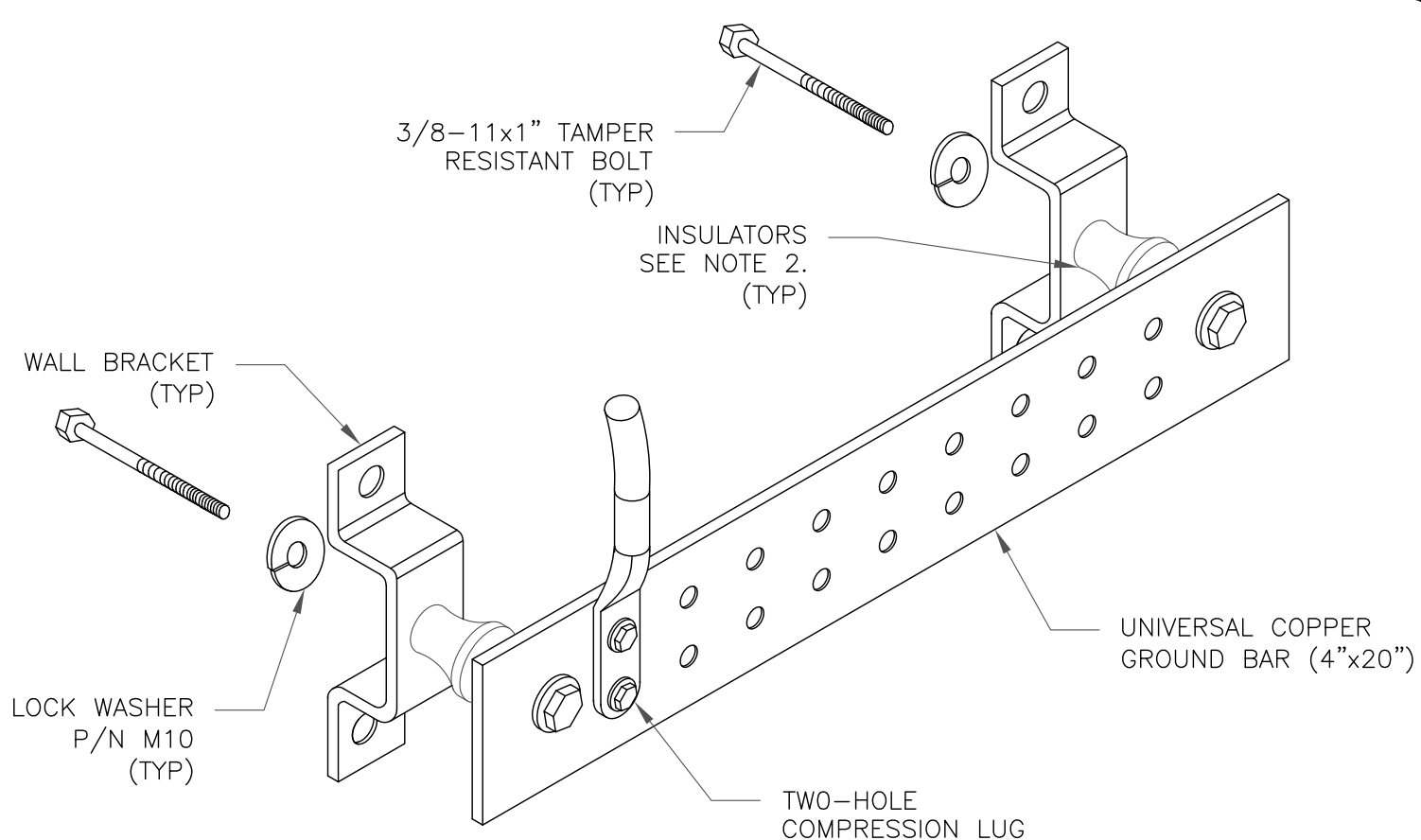
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

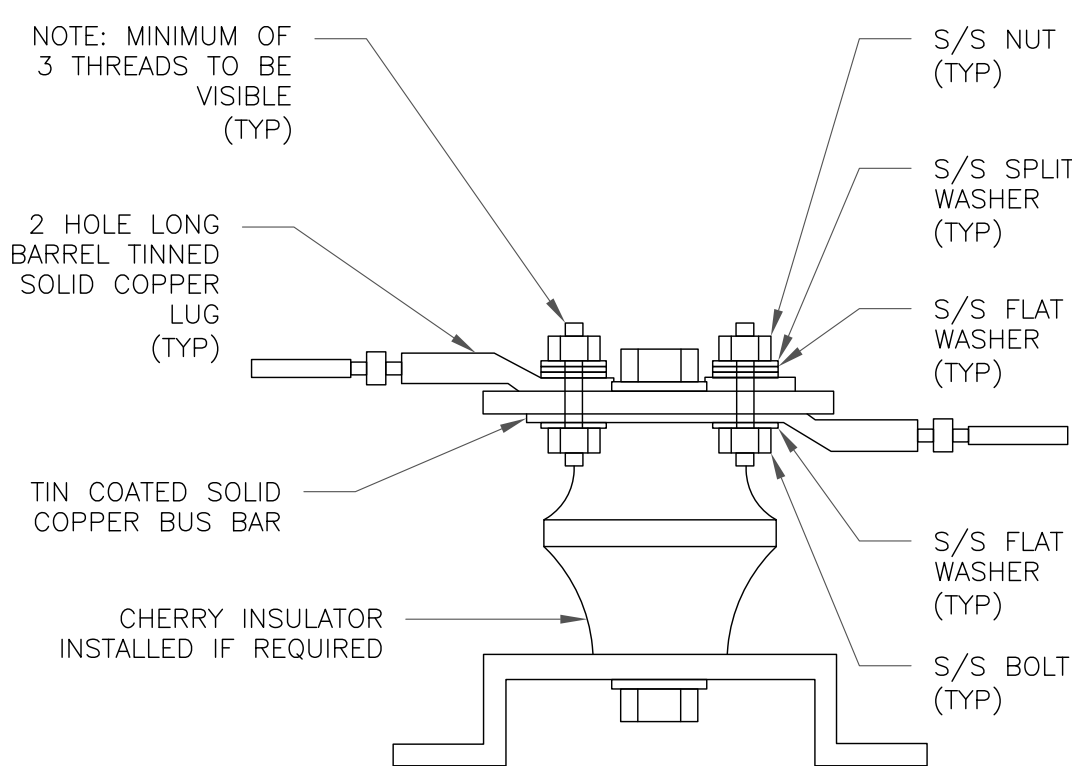
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

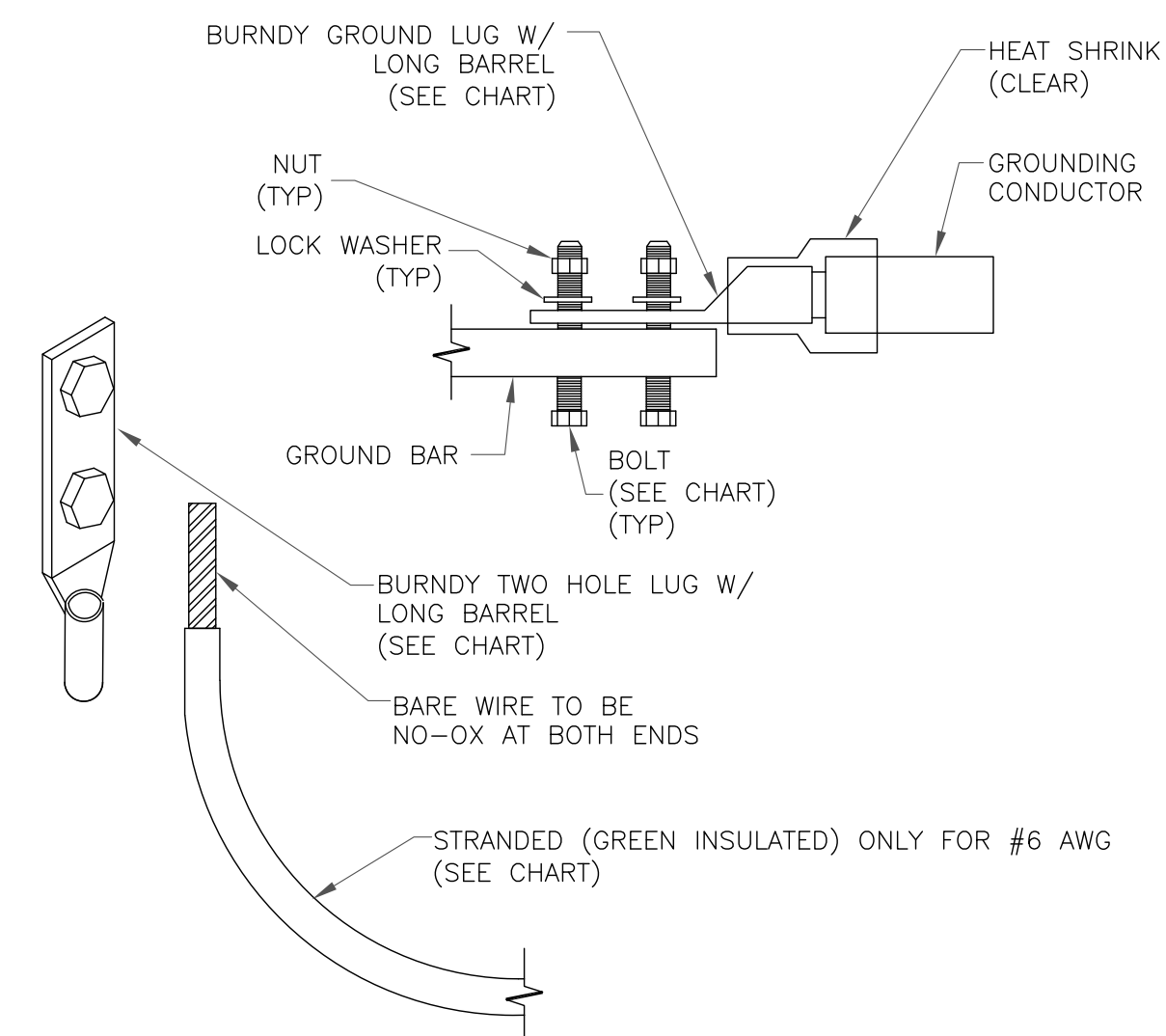
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

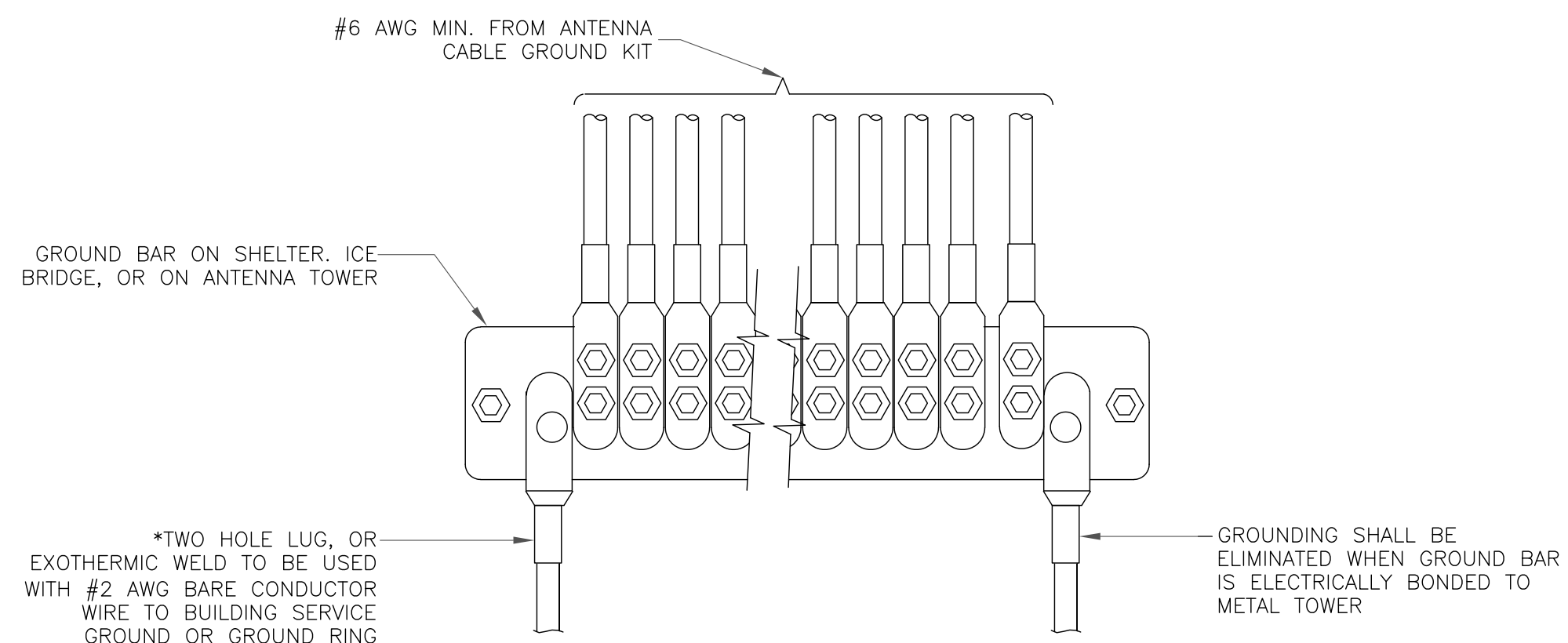
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



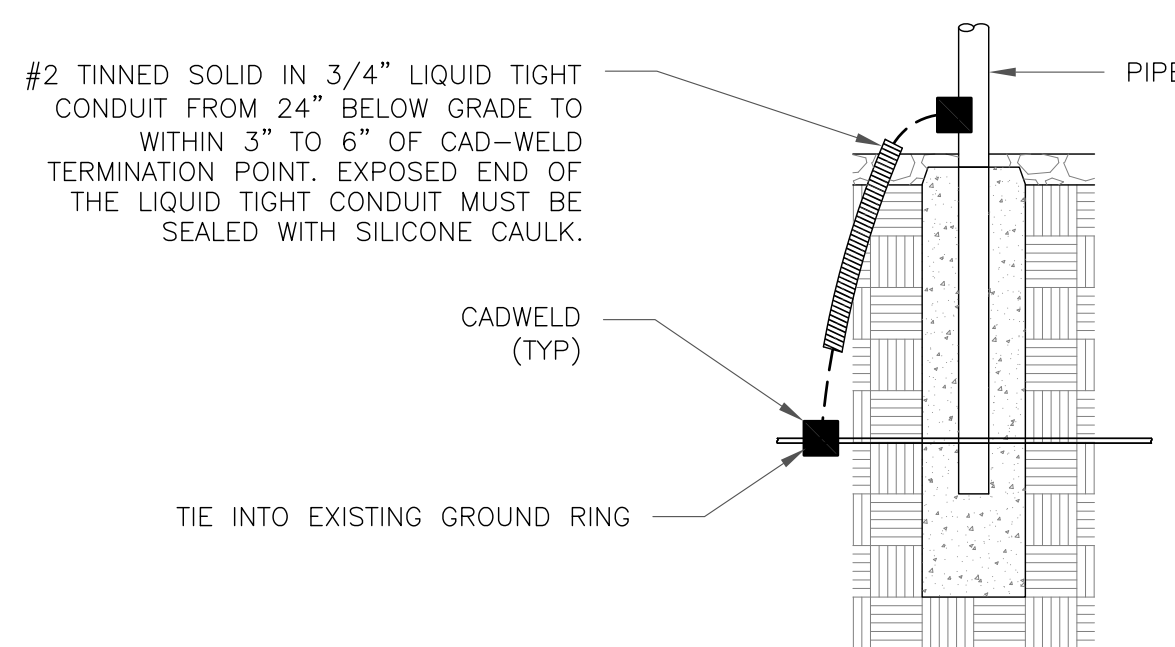
NOTES:

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

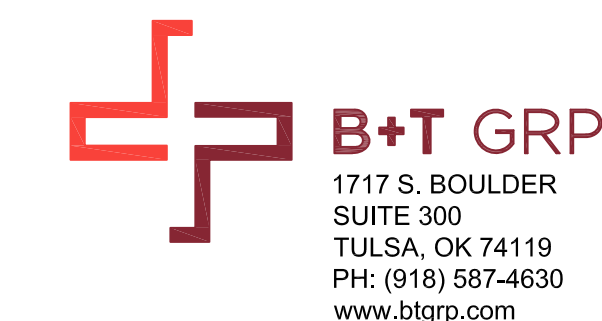
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
468759

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BUCKLAND MALL

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SHEET NUMBER:

G-2

REVISION:

0

Exhibit D

Structural Analysis Report

Date: **April 10, 2021**



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

Subject: Structural Analysis Report

Carrier Designation: **Verizon Wireless Co-Locate**
Site Number: 468759
Site Name: Buckland CT

Crown Castle Designation: **BU Number:** 876347
Site Name: Buckland Mall
JDE Job Number: 644642
Work Order Number: 1946813
Order Number: 552625 Rev. 0

Engineering Firm Designation: **TEP Project Number:** 25697.529738

Site Data: **53 Slater Street, Manchester, Hartford County, CT 06040**
Latitude 41° 48' 18.00", Longitude -72° 32' 1.00"
155 Foot - Monopole Tower

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

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

LC5: Proposed Equipment Configuration

Sufficient Capacity - 75.6%

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

Structural analysis prepared by: Andrew Samson, E.I. / AAS

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

04/11/2021

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

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tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 155-ft monopole tower designed by Summit.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
113.0	113.0	3	Andrew	LNx-6512DS-T0M w/ Mount Pipe	8	1-5/8
		6	Commscope	SBNHH-1D65B w/ Mount Pipe		
		3	VZW	Sub6 Antenna - VZS01 w/ Mount Pipe		
		1	Raycap	RVZDC-6627-PF-48		
		1	RFS Celwave	DB-T1-6Z-8AB-0Z		
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
		1	Tower Mounts	Platform Mount [LP 1201-1]		

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)
155.0	155.0	3	RFS Celwave	APXVTM14-C-120 w/ Mount Pipe	3 2 5 3	1-1/4 5/8 1/2 5/16
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	Argus Technologies	LPX310R w/ Mount Pipe		
		3	Alcatel Lucent	TD-RRH8X20-25		
		3	Samsung Telecom.	WIMAX DAP HEAD		
		1	Tower Mounts	Miscellaneous [NA 510-1]		
		1	Tower Mounts	Platform Mount [LP 1201-1]		
	151.0	1	Andrew	VHLP1-23		
		1	Andrew	VHLP2.5-18		
		1	Andrew	VHLP2-11		
		3	Dragonwave	Horizon Compact		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
153.0	153.0	3	Alcatel Lucent	800MHz 2X50W RRH W/Filter	-	-
		3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		1	Tower Mounts	Pipe Mount [PM 601-3]		
		1	Tower Mounts	Side Arm Mount [SO 104-3]		
143.0	145.0	3	CCI Antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	6 4 1	1-1/4 3/4 3/8
		3	Kathrein	80010965 w/ Mount Pipe		
		6	CCI Antennas	TPX-070821		
		3	Kathrein	782 10253		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Raycap	DC6-48-60-18-8F		
	143.0	3	Quintel Technology	QS66512-2 w/ Mount Pipe		
		1	Tower Mounts	T-Arm Mount [TA 601-3]		
133.0	133.0	3	Ericsson	AIR -32 B2A/B66AA	7 1	1-5/8 1-3/8
		3	RFS Celwave	APXVAARR24_43-U-NA20		
		3	Ericsson	Air 21 B4A B12P-B8P 6FT		
		3	Ericsson	Radio 4449 B12/B71		
		1	Tower Mounts	Platform Mount [LP 302-1]		
60.0	60.0	1	Tower Mounts	Side Arm Mount [SO 701-1]	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	1533476	CCISites
Tower Foundation Drawings	1615406	CCISites
Tower Manufacturer Drawings	2068033	CCISites

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ϕP_{allow} (k)	% Capacity	Pass / Fail
L1	155 - 115.5	Pole	TP29.308x22x0.25	1	-14.10	1276.15	50.2	Pass
L2	115.5 - 79.25	Pole	TP35.514x28.114x0.313	2	-24.93	2093.96	71.5	Pass
L3	79.25 - 43.75	Pole	TP41.456x34.057x0.375	3	-34.51	2932.47	75.6	Pass
L4	43.75 - 0	Pole	TP48.8x39.735x0.438	4	-51.66	4125.15	75.4	Pass
							Summary	
						Pole (L3)	75.6	Pass
						Rating =	75.6	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	71.6	Pass
1,2	Base Plate	-	58.2	Pass
1,2	Base Foundation Soil Interaction	-	47.8	Pass
1,2	Base Foundation Structural	-	49.6	Pass

Structure Rating (max from all components) =	75.6%
---	--------------

Notes:

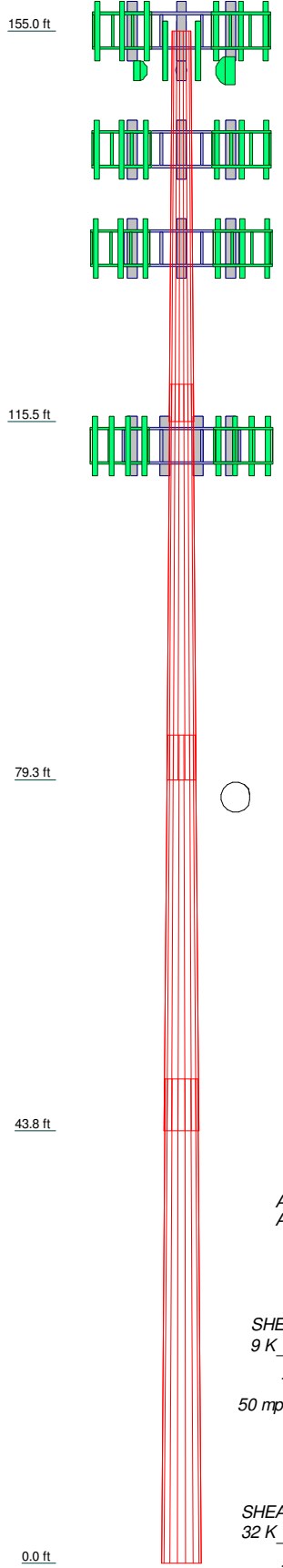
- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	
Length (ft)	39.50	40.00	40.00	49.00	
Number of Sides	18	18	18	18	
Thickness (in)	0.250	0.313	0.375	0.438	
Socket Length (ft)	3.75	4.50	5.25	39.735	
Top Dia (in)	22.000	28.114	34.057	48.800	
Bot Dia (in)	29.308	35.514	41.456	48.800	
Grade	A607-60	A607-60	A607-65	A607-65	
Weight (K)	2.7	4.3	6.1	10.1	23.2

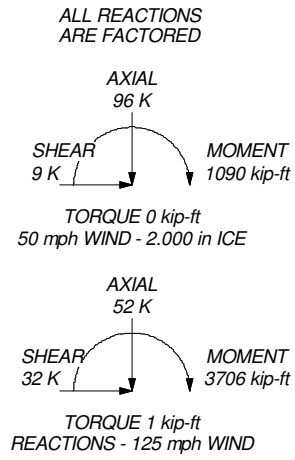



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 75.6%



 Tower Engineering Professionals	Tower Engineering Professionals		Job: Buckland Mall (BU 876347)		
	326 Tryon Road		Project: TEP No. 25697.529738		
	Raleigh, NC 27603		Client: Crown Castle	Drawn by: AAS	App'd:
	Phone: (919) 661-6351		Code: TIA-222-H	Date: 04/10/21	Scale: NTS
	FAX: (919) 661-6350		Path:		Dwg No. E-1

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Buckland Mall (BU 876347)	Page 1 of 20
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	Client Crown Castle	Designed by AAS

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Tower base elevation above sea level: 196.00 ft.

Basic wind speed of 125 mph.

Risk Category II.

Exposure Category C.

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

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 2.000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.05.

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

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

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

Options

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

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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
ATCB-B01-005(5/16)	C	No	No	Inside Pole	155.00 - 0.00	3	No Ice	0.00	0.075
							1/2" Ice	0.00	0.075
							1" Ice	0.00	0.075
							2" Ice	0.00	0.075
9776(5/8)	C	No	No	Inside Pole	155.00 - 0.00	1	No Ice	0.00	0.275
							1/2" Ice	0.00	0.275
							1" Ice	0.00	0.275
							2" Ice	0.00	0.275
HB058-M12-XXXF(5/8)	C	No	No	Inside Pole	155.00 - 0.00	1	No Ice	0.00	0.242
							1/2" Ice	0.00	0.242
							1" Ice	0.00	0.242
							2" Ice	0.00	0.242
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	155.00 - 0.00	3	No Ice	0.00	1.080
							1/2" Ice	0.00	1.080
							1" Ice	0.00	1.080
							2" Ice	0.00	1.080
143 LDF6-50A(1-1/4)	A	No	No	Inside Pole	143.00 - 0.00	6	No Ice	0.00	0.600
							1/2" Ice	0.00	0.600
							1" Ice	0.00	0.600
							2" Ice	0.00	0.600
FB-L98B-002-75000(3/8)	A	No	No	Inside Pole	143.00 - 0.00	1	No Ice	0.00	0.059
							1/2" Ice	0.00	0.059
							1" Ice	0.00	0.059
							2" Ice	0.00	0.059
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	143.00 - 0.00	4	No Ice	0.00	0.584
							1/2" Ice	0.00	0.584
							1" Ice	0.00	0.584
							2" Ice	0.00	0.584
2" Rigid Conduit	A	No	No	Inside Pole	143.00 - 0.00	2	No Ice	0.00	2.800
							1/2" Ice	0.00	2.800
							1" Ice	0.00	2.800
							2" Ice	0.00	2.800
133 HCS 6X12 6AWG(1-3/8)	A	No	No	Inside Pole	133.00 - 0.00	1	No Ice	0.00	1.700
							1/2" Ice	0.00	1.700
							1" Ice	0.00	1.700
							2" Ice	0.00	1.700
HCS 6X12 4AWG(1-5/8)	A	No	No	Inside Pole	133.00 - 0.00	1	No Ice	0.00	2.400
							1/2" Ice	0.00	2.400
							1" Ice	0.00	2.400
							2" Ice	0.00	2.400
LCF158-50JA-A0(1-5/8)	A	No	No	Inside Pole	133.00 - 0.00	6	No Ice	0.00	0.800
							1/2" Ice	0.00	0.800
							1" Ice	0.00	0.800
							2" Ice	0.00	0.800
113 561(1-5/8)	B	No	No	Inside Pole	113.00 - 0.00	6	No Ice	0.00	1.350
							1/2" Ice	0.00	1.350
							1" Ice	0.00	1.350
							2" Ice	0.00	1.350
HB158-U12S24-XX X-LI(1-5/8)	B	No	No	Inside Pole	113.00 - 0.00	2	No Ice	0.00	3.200
							1/2" Ice	0.00	3.200
							1" Ice	0.00	3.200

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight plf
***						2" Ice	0.00	3.200

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	155.00-115.50	A	0.000	0.000	1.481	0.000	0.48
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	19.987	0.000	0.41
L2	115.50-79.25	A	0.000	0.000	1.359	0.000	0.75
		B	0.000	0.000	0.000	0.000	0.49
		C	0.000	0.000	18.343	0.000	0.37
L3	79.25-43.75	A	0.000	0.000	1.331	0.000	0.74
		B	0.000	0.000	0.000	0.000	0.51
		C	0.000	0.000	17.963	0.000	0.37
L4	43.75-0.00	A	0.000	0.000	1.641	0.000	0.91
		B	0.000	0.000	0.000	0.000	0.63
		C	0.000	0.000	22.137	0.000	0.45

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	155.00-115.50	A	1.956	0.000	0.000	16.937	0.000	0.70
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	63.623	0.000	1.24
L2	115.50-79.25	A	1.893	0.000	0.000	15.543	0.000	0.95
		B		0.000	0.000	0.000	0.000	0.49
		C		0.000	0.000	58.388	0.000	1.14
L3	79.25-43.75	A	1.808	0.000	0.000	14.774	0.000	0.92
		B		0.000	0.000	0.000	0.000	0.51
		C		0.000	0.000	56.061	0.000	1.08
L4	43.75-0.00	A	1.633	0.000	0.000	17.465	0.000	1.12
		B		0.000	0.000	0.000	0.000	0.63
		C		0.000	0.000	67.233	0.000	1.27

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	155.00-115.50	-1.500	2.818	-1.845	2.770
L2	115.50-79.25	-1.561	2.928	-2.078	3.102

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Section	Elevation	CP _X	CP _Z	CP _X Ice	CP _Z Ice
	ft	in	in	in	in
L3	79.25-43.75	-1.602	3.004	-2.232	3.333
L4	43.75-0.00	-1.637	3.066	-2.360	3.531

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	2	Safety Line 3/8	115.50 - 155.00	1.0000	1.0000
L1	4	2" Rigid Conduit	115.50 - 155.00	1.0000	1.0000
L1	6	FSJ4-50B(1/2)	115.50 - 155.00	1.0000	1.0000
L2	2	Safety Line 3/8	79.25 - 115.50	1.0000	1.0000
L2	4	2" Rigid Conduit	79.25 - 115.50	1.0000	1.0000
L2	6	FSJ4-50B(1/2)	79.25 - 115.50	1.0000	1.0000
L3	2	Safety Line 3/8	43.75 - 79.25	1.0000	1.0000
L3	4	2" Rigid Conduit	43.75 - 79.25	1.0000	1.0000
L3	6	FSJ4-50B(1/2)	43.75 - 79.25	1.0000	1.0000
L4	2	Safety Line 3/8	0.00 - 43.75	1.0000	1.0000
L4	4	2" Rigid Conduit	0.00 - 43.75	1.0000	1.0000
L4	6	FSJ4-50B(1/2)	0.00 - 43.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
155									
APXVTM14-C-120 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.000	155.00	No Ice	4.09	2.86	0.08
			0.000			1/2" Ice	4.48	3.23	0.13
			0.000			1" Ice	4.88	3.61	0.19
			0.000			2" Ice	5.71	4.40	0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.000	155.00	No Ice	4.09	2.86	0.08
			0.000			1/2" Ice	4.48	3.23	0.13
			0.000			1" Ice	4.88	3.61	0.19
			0.000			2" Ice	5.71	4.40	0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.000	155.00	No Ice	4.09	2.86	0.08
			0.000			1/2" Ice	4.48	3.23	0.13
			0.000			1" Ice	4.88	3.61	0.19
			0.000			2" Ice	5.71	4.40	0.33

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Description	Face or Leg	Offset Type	Offsets:	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral						Vert
			ft	°	ft	ft ²	ft ²	K	
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.000	155.00	No Ice	4.60	4.01	0.10
			0.000			1/2" Ice	5.05	4.45	0.16
			0.000			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.000	155.00	No Ice	4.60	4.01	0.10
			0.000			1/2" Ice	5.05	4.45	0.16
			0.000			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.000	155.00	No Ice	4.60	4.01	0.10
			0.000			1/2" Ice	5.05	4.45	0.16
			0.000			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
LPX310R w/ Mount Pipe	A	From Centroid-Le g	4.00	0.000	155.00	No Ice	2.31	2.34	0.03
			0.000			1/2" Ice	2.64	2.87	0.05
			0.000			1" Ice	2.97	3.41	0.08
						2" Ice	3.65	4.56	0.16
LPX310R w/ Mount Pipe	B	From Centroid-Le g	4.00	0.000	155.00	No Ice	2.31	2.34	0.03
			0.000			1/2" Ice	2.64	2.87	0.05
			0.000			1" Ice	2.97	3.41	0.08
						2" Ice	3.65	4.56	0.16
LPX310R w/ Mount Pipe	C	From Centroid-Le g	4.00	0.000	155.00	No Ice	2.31	2.34	0.03
			0.000			1/2" Ice	2.64	2.87	0.05
			0.000			1" Ice	2.97	3.41	0.08
						2" Ice	3.65	4.56	0.16
TD-RRH8X20-25	A	From Centroid-Le g	4.00	0.000	155.00	No Ice	3.70	1.29	0.07
			0.000			1/2" Ice	3.95	1.46	0.09
			0.000			1" Ice	4.20	1.64	0.12
						2" Ice	4.72	2.02	0.18
TD-RRH8X20-25	B	From Centroid-Le g	4.00	0.000	155.00	No Ice	3.70	1.29	0.07
			0.000			1/2" Ice	3.95	1.46	0.09
			0.000			1" Ice	4.20	1.64	0.12
						2" Ice	4.72	2.02	0.18
TD-RRH8X20-25	C	From Centroid-Le g	4.00	0.000	155.00	No Ice	3.70	1.29	0.07
			0.000			1/2" Ice	3.95	1.46	0.09
			0.000			1" Ice	4.20	1.64	0.12
						2" Ice	4.72	2.02	0.18
WIMAX DAP HEAD	A	From Centroid-Le g	4.00	0.000	155.00	No Ice	1.55	0.68	0.03
			0.000			1/2" Ice	1.70	0.80	0.04
			0.000			1" Ice	1.87	0.92	0.06
						2" Ice	2.22	1.19	0.09
WIMAX DAP HEAD	B	From Centroid-Le g	4.00	0.000	155.00	No Ice	1.55	0.68	0.03
			0.000			1/2" Ice	1.70	0.80	0.04
			0.000			1" Ice	1.87	0.92	0.06
						2" Ice	2.22	1.19	0.09
WIMAX DAP HEAD	C	From Centroid-Le g	4.00	0.000	155.00	No Ice	1.55	0.68	0.03
			0.000			1/2" Ice	1.70	0.80	0.04
			0.000			1" Ice	1.87	0.92	0.06
						2" Ice	2.22	1.19	0.09
HORIZON COMPACT	A	From Centroid-Le g	4.00	0.000	155.00	No Ice	0.72	0.37	0.01
			0.000			1/2" Ice	0.83	0.45	0.02
			-4.000			1" Ice	0.94	0.54	0.03
						2" Ice	1.19	0.74	0.05
HORIZON COMPACT	B	From Centroid-Le g	4.00	0.000	155.00	No Ice	0.72	0.37	0.01
			0.000			1/2" Ice	0.83	0.45	0.02
			-4.000			1" Ice	0.94	0.54	0.03
						2" Ice	1.19	0.74	0.05
HORIZON COMPACT	C	From	4.00	0.000	155.00	No Ice	0.72	0.37	0.01

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	Client Crown Castle	Designed by AAS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			Lateral		°	ft	ft ²	ft ²	K
			ft	ft					
2.4" Dia x 4-ft Mount Pipe	A	Centroid-Le	0.000			1/2" Ice	0.83	0.45	0.02
		g	-4.000			1" Ice	0.94	0.54	0.03
		From	4.00	0.000	155.00	2" Ice	1.19	0.74	0.05
		Centroid-Le	0.000			No Ice	0.87	0.87	0.01
2.4" Dia x 4-ft Mount Pipe	B	g	0.000			1/2" Ice	1.12	1.12	0.02
		From	4.00	0.000	155.00	1" Ice	1.37	1.37	0.03
		Centroid-Le	0.000			2" Ice	1.91	1.91	0.06
		g	0.000			No Ice	0.87	0.87	0.01
2.4" Dia x 4-ft Mount Pipe	C	From	4.00	0.000	155.00	1/2" Ice	1.12	1.12	0.02
		Centroid-Le	0.000			1" Ice	1.37	1.37	0.03
		g	0.000			2" Ice	1.91	1.91	0.06
		From	4.00	0.000	155.00	No Ice	0.87	0.87	0.01
Miscellaneous [NA 510-1]	C	Centroid-Le	0.000			1/2" Ice	1.12	1.12	0.02
		g	0.000			1" Ice	1.37	1.37	0.03
		None		0.000	155.00	2" Ice	1.91	1.91	0.06
		None				No Ice	6.36	6.36	0.26
Platform Mount [LP 1201-1]	C	None				1/2" Ice	8.52	8.52	0.34
		None				1" Ice	10.62	10.62	0.46
		None				2" Ice	14.64	14.64	0.77
		None				No Ice	18.38	18.38	2.10
153 800MHz 2X50W RRH W/FILTER	A	None				1/2" Ice	22.11	22.11	2.65
		From Leg	1.00	0.000	153.00	1" Ice	25.87	25.87	3.26
		W/FILTER	0.000			2" Ice	33.47	33.47	4.66
		W/FILTER	0.000			No Ice	2.06	1.93	0.06
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00	0.000	153.00	1/2" Ice	2.24	2.11	0.09
		W/FILTER	0.000			1" Ice	2.43	2.29	0.11
		W/FILTER	0.000			2" Ice	2.83	2.68	0.17
		W/FILTER	0.000			No Ice	2.06	1.93	0.06
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00	0.000	153.00	1/2" Ice	2.24	2.11	0.09
		W/FILTER	0.000			1" Ice	2.43	2.29	0.11
		W/FILTER	0.000			2" Ice	2.83	2.68	0.17
		W/FILTER	0.000			No Ice	2.06	1.93	0.06
PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00	0.000	153.00	1/2" Ice	2.24	2.11	0.09
		4x45W-65MHz	0.000			1" Ice	2.43	2.29	0.11
		4x45W-65MHz	0.000			2" Ice	2.83	2.68	0.17
		4x45W-65MHz	0.000			No Ice	2.31	2.23	0.06
PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00	0.000	153.00	1/2" Ice	2.52	2.43	0.08
		4x45W-65MHz	0.000			1" Ice	2.73	2.64	0.11
		4x45W-65MHz	0.000			2" Ice	3.17	3.08	0.17
		4x45W-65MHz	0.000			No Ice	2.31	2.23	0.06
PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00	0.000	153.00	1/2" Ice	2.52	2.43	0.08
		4x45W-65MHz	0.000			1" Ice	2.73	2.64	0.11
		4x45W-65MHz	0.000			2" Ice	3.17	3.08	0.17
		4x45W-65MHz	0.000			No Ice	2.31	2.23	0.06
Pipe Mount [PM 601-3]	C	None				1/2" Ice	3.79	3.79	0.23
		None				1" Ice	4.42	4.42	0.28
		None				2" Ice	5.76	5.76	0.40
		None				No Ice	2.62	2.62	0.29
Side Arm Mount [SO 104-3]	C	None				1/2" Ice	3.30	3.30	0.41
		None				1" Ice	3.98	3.98	0.53
		None				2" Ice	5.35	5.35	0.77
		None				No Ice	2.62	2.62	0.29

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	Project		TEP No. 25697.529738		Date		15:28:35 04/10/21	
	Client		Crown Castle		Designed by		AAS	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
				0.000					0.00
				2.000					0.01
									0.01
RRUS 32	A	From Leg	4.00	0.000	143.00	No Ice	2.86	1.78	0.06
			0.000			1/2" Ice	3.08	1.97	0.08
			2.000			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	B	From Leg	4.00	0.000	143.00	No Ice	2.86	1.78	0.06
			0.000			1/2" Ice	3.08	1.97	0.08
			2.000			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	C	From Leg	4.00	0.000	143.00	No Ice	2.86	1.78	0.06
			0.000			1/2" Ice	3.08	1.97	0.08
			2.000			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 8843 B2/B66A	A	From Leg	4.00	0.000	143.00	No Ice	1.64	1.35	0.07
			0.000			1/2" Ice	1.80	1.50	0.09
			2.000			1" Ice	1.97	1.65	0.11
						2" Ice	2.32	1.99	0.16
RRUS 8843 B2/B66A	B	From Leg	4.00	0.000	143.00	No Ice	1.64	1.35	0.07
			0.000			1/2" Ice	1.80	1.50	0.09
			2.000			1" Ice	1.97	1.65	0.11
						2" Ice	2.32	1.99	0.16
RRUS 8843 B2/B66A	C	From Leg	4.00	0.000	143.00	No Ice	1.64	1.35	0.07
			0.000			1/2" Ice	1.80	1.50	0.09
			2.000			1" Ice	1.97	1.65	0.11
						2" Ice	2.32	1.99	0.16
DC6-48-60-18-8F	A	From Leg	4.00	0.000	143.00	No Ice	1.21	1.21	0.03
			0.000			1/2" Ice	1.89	1.89	0.05
			2.000			1" Ice	2.11	2.11	0.08
						2" Ice	2.57	2.57	0.14
DC6-48-60-18-8F	B	From Leg	4.00	0.000	143.00	No Ice	1.21	1.21	0.03
			0.000			1/2" Ice	1.89	1.89	0.05
			2.000			1" Ice	2.11	2.11	0.08
						2" Ice	2.57	2.57	0.14
DC6-48-60-18-8F	C	From Leg	4.00	0.000	143.00	No Ice	1.21	1.21	0.03
			0.000			1/2" Ice	1.89	1.89	0.05
			2.000			1" Ice	2.11	2.11	0.08
						2" Ice	2.57	2.57	0.14
RRUS 4449 B5/B12	A	From Leg	4.00	0.000	143.00	No Ice	1.97	1.41	0.07
			0.000			1/2" Ice	2.14	1.56	0.09
			2.000			1" Ice	2.33	1.73	0.11
						2" Ice	2.72	2.07	0.16
RRUS 4449 B5/B12	B	From Leg	4.00	0.000	143.00	No Ice	1.97	1.41	0.07
			0.000			1/2" Ice	2.14	1.56	0.09
			2.000			1" Ice	2.33	1.73	0.11
						2" Ice	2.72	2.07	0.16
RRUS 4449 B5/B12	C	From Leg	4.00	0.000	143.00	No Ice	1.97	1.41	0.07
			0.000			1/2" Ice	2.14	1.56	0.09
			2.000			1" Ice	2.33	1.73	0.11
						2" Ice	2.72	2.07	0.16
2.4" Dia x 8-ft Mount Pipe	A	From Face	4.00	0.000	143.00	No Ice	1.90	1.90	0.03
			0.000			1/2" Ice	2.73	2.73	0.04
			4.000			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
2.4" Dia x 8-ft Mount Pipe	B	From Face	4.00	0.000	143.00	No Ice	1.90	1.90	0.03
			0.000			1/2" Ice	2.73	2.73	0.04

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	Client Crown Castle	Designed by AAS

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
			4.000							
2.4" Dia x 8-ft Mount Pipe	C	From Face				1" Ice	3.40	3.40	0.06	
						2" Ice	4.40	4.40	0.12	
						No Ice	1.90	1.90	0.03	
						1/2" Ice	2.73	2.73	0.04	
T-Arm Mount [TA 601-3]	C	None				1" Ice	3.40	3.40	0.06	
						2" Ice	4.40	4.40	0.12	
						No Ice	12.56	12.56	0.73	
						1/2" Ice	15.36	15.36	0.94	
						1" Ice	18.04	18.04	1.21	
						2" Ice	23.69	23.69	1.92	
133										
AIR -32 B2A/B66AA	A	From Centroid-Le g	4.00		0.000	133.00	No Ice	3.86	2.51	0.17
			0.000				1/2" Ice	4.23	2.86	0.22
			0.000				1" Ice	4.61	3.22	0.27
							2" Ice	5.41	3.97	0.40
AIR -32 B2A/B66AA	B	From Centroid-Le g	4.00		0.000	133.00	No Ice	3.86	2.51	0.17
			0.000				1/2" Ice	4.23	2.86	0.22
			0.000				1" Ice	4.61	3.22	0.27
							2" Ice	5.41	3.97	0.40
AIR -32 B2A/B66AA	C	From Centroid-Le g	4.00		0.000	133.00	No Ice	3.86	2.51	0.17
			0.000				1/2" Ice	4.23	2.86	0.22
			0.000				1" Ice	4.61	3.22	0.27
							2" Ice	5.41	3.97	0.40
APXVAARR24_43-U-NA20	A	From Centroid-Le g	4.00		0.000	133.00	No Ice	14.67	5.32	0.15
			0.000				1/2" Ice	15.43	5.99	0.27
			0.000				1" Ice	16.21	6.68	0.39
							2" Ice	17.81	8.08	0.66
APXVAARR24_43-U-NA20	B	From Centroid-Le g	4.00		0.000	133.00	No Ice	14.67	5.32	0.15
			0.000				1/2" Ice	15.43	5.99	0.27
			0.000				1" Ice	16.21	6.68	0.39
							2" Ice	17.81	8.08	0.66
APXVAARR24_43-U-NA20	C	From Centroid-Le g	4.00		0.000	133.00	No Ice	14.67	5.32	0.15
			0.000				1/2" Ice	15.43	5.99	0.27
			0.000				1" Ice	16.21	6.68	0.39
							2" Ice	17.81	8.08	0.66
Ericsson Air 21 B4A B12P-B8P 6FT	A	From Centroid-Le g	4.00		0.000	133.00	No Ice	6.61	3.67	0.13
			0.000				1/2" Ice	7.14	4.16	0.20
			0.000				1" Ice	7.69	4.67	0.28
							2" Ice	8.81	5.72	0.46
Ericsson Air 21 B4A B12P-B8P 6FT	B	From Centroid-Le g	4.00		0.000	133.00	No Ice	6.61	3.67	0.13
			0.000				1/2" Ice	7.14	4.16	0.20
			0.000				1" Ice	7.69	4.67	0.28
							2" Ice	8.81	5.72	0.46
Ericsson Air 21 B4A B12P-B8P 6FT	C	From Centroid-Le g	4.00		0.000	133.00	No Ice	6.61	3.67	0.13
			0.000				1/2" Ice	7.14	4.16	0.20
			0.000				1" Ice	7.69	4.67	0.28
							2" Ice	8.81	5.72	0.46
RADIO 4449 B12/B71	A	From Centroid-Le g	4.00		0.000	133.00	No Ice	1.64	1.15	0.08
			0.000				1/2" Ice	1.80	1.29	0.09
			0.000				1" Ice	1.97	1.44	0.11
							2" Ice	2.33	1.75	0.16
RADIO 4449 B12/B71	B	From Centroid-Le g	4.00		0.000	133.00	No Ice	1.64	1.15	0.08
			0.000				1/2" Ice	1.80	1.29	0.09
			0.000				1" Ice	1.97	1.44	0.11
							2" Ice	2.33	1.75	0.16
RADIO 4449 B12/B71	C	From Centroid-Le	4.00		0.000	133.00	No Ice	1.64	1.15	0.08
			0.000				1/2" Ice	1.80	1.29	0.09

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K
		g	0.000			1" Ice 1.97	1.44	0.11
Platform Mount [LP 302-1]	C	None		0.000	133.00	2" Ice 2.33	1.75	0.16
						No Ice 26.56	26.56	1.71
						1/2" Ice 33.67	33.67	2.26
						1" Ice 40.39	40.39	2.95
						2" Ice 53.23	53.23	4.70
113								
LNx-6512DS-T0M w/ Mount Pipe	A	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 2.67	2.15	0.05
						1/2" Ice 2.94	2.42	0.09
						1" Ice 3.22	2.69	0.14
						2" Ice 3.81	3.25	0.27
LNx-6512DS-T0M w/ Mount Pipe	B	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 2.67	2.15	0.05
						1/2" Ice 2.94	2.42	0.09
						1" Ice 3.22	2.69	0.14
						2" Ice 3.81	3.25	0.27
LNx-6512DS-T0M w/ Mount Pipe	C	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 2.67	2.15	0.05
						1/2" Ice 2.94	2.42	0.09
						1" Ice 3.22	2.69	0.14
						2" Ice 3.81	3.25	0.27
(2) SBNHH-1D65B w/ Mount Pipe	A	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.09	3.30	0.07
						1/2" Ice 4.49	3.68	0.13
						1" Ice 4.89	4.07	0.20
						2" Ice 5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	B	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.09	3.30	0.07
						1/2" Ice 4.49	3.68	0.13
						1" Ice 4.89	4.07	0.20
						2" Ice 5.72	4.87	0.39
(2) SBNHH-1D65B w/ Mount Pipe	C	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.09	3.30	0.07
						1/2" Ice 4.49	3.68	0.13
						1" Ice 4.89	4.07	0.20
						2" Ice 5.72	4.87	0.39
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.92	2.69	0.10
						1/2" Ice 5.26	3.15	0.14
						1" Ice 5.62	3.63	0.19
						2" Ice 6.37	4.64	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.92	2.69	0.10
						1/2" Ice 5.26	3.15	0.14
						1" Ice 5.62	3.63	0.19
						2" Ice 6.37	4.64	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.92	2.69	0.10
						1/2" Ice 5.26	3.15	0.14
						1" Ice 5.62	3.63	0.19
						2" Ice 6.37	4.64	0.29
RVZDC-6627-PF-48	B	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 3.79	2.51	0.03
						1/2" Ice 4.04	2.73	0.06
						1" Ice 4.30	2.95	0.10
						2" Ice 4.84	3.42	0.18
DB-T1-6Z-8AB-0Z	A	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 4.80	2.00	0.04
						1/2" Ice 5.07	2.19	0.08
						1" Ice 5.35	2.39	0.12
						2" Ice 5.93	2.81	0.21
RFV01U-D1A	A	From Centroid-Le g	4.00 0.000 0.000	0.000	113.00	No Ice 1.88	1.25	0.08
						1/2" Ice 2.05	1.39	0.10
						1" Ice 2.22	1.54	0.12
						2" Ice 2.60	1.86	0.18
(2) RFV01U-D1A	B	From Centroid-Le	4.00 0.000	0.000	113.00	No Ice 1.88	1.25	0.08
						1/2" Ice 2.05	1.39	0.10

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	Client	Crown Castle	Designed by	AAS

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	K
(3) RFV01U-D2A	A	From Centroid-Le g	0.000 4.00 0.000 0.000	0.000	113.00	1" Ice 2.22 2" Ice 2.60 No Ice 1.88 1/2" Ice 2.05 1" Ice 2.22 2" Ice 2.60	1.54 1.86 1.01 1.14 1.28 1.59	0.12 0.18 0.07 0.09 0.11 0.15
Platform Mount [LP 1201-1]	C	None		0.000	113.00	No Ice 18.38 1/2" Ice 22.11 1" Ice 25.87 2" Ice 33.47	18.38 22.11 25.87 33.47	2.10 2.65 3.26 4.66
60 Side Arm Mount [SO 701-1]	A	From Leg	1.50 0.000 0.000	0.000	60.00	No Ice 0.85 1/2" Ice 1.14 1" Ice 1.43 2" Ice 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
								*** ***

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft ft ft	°	°	ft	ft	ft ²	K
VHLP1-23	A	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 0.000 -4.000	-64.000		155.00	1.27	No Ice 1.28 1/2" Ice 1.45 1" Ice 1.62 2" Ice 1.96	0.01 0.02 0.02 0.04
VHLP2.5-18	B	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 0.000 -4.000	21.000		155.00	2.92	No Ice 6.68 1/2" Ice 7.07 1" Ice 7.45 2" Ice 8.23	0.05 0.08 0.12 0.19
VHLP2-11	C	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 0.000 -4.000	13.000		155.00	2.00	No Ice 3.72 1/2" Ice 4.01 1" Ice 4.30 2" Ice 4.88	0.03 0.05 0.07 0.11

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

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Comb. No.	Description
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
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	155 - 115.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.35	-0.24	-1.64
			Max. Mx	8	-14.12	-442.82	-5.40
			Max. My	2	-14.12	4.67	440.84
			Max. Vy	8	18.34	-442.82	-5.40
			Max. Vx	2	-18.30	4.67	440.84
			Max. Torque	4			
L2	115.5 - 79.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.45	-2.12	-0.57

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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
L3	79.25 - 43.75	Pole	Max. Mx	8	-24.96	-1260.57	-11.79
			Max. My	2	-24.94	10.69	1262.72
			Max. Vy	8	25.28	-1260.57	-11.79
			Max. Vx	2	-25.44	10.69	1262.72
			Max. Torque	3			-1.38
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.68	-1.86	-1.60
			Max. Mx	8	-34.52	-2196.00	-19.11
			Max. My	2	-34.51	17.51	2202.86
			Max. Vy	8	28.48	-2196.00	-19.11
L4	43.75 - 0	Pole	Max. Vx	2	-28.59	17.51	2202.86
			Max. Torque	13			1.38
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.79	-1.45	-3.85
			Max. Mx	8	-51.66	-3682.19	-29.44
			Max. My	2	-51.66	26.77	3693.90
			Max. Vy	8	31.87	-3682.19	-29.44
			Max. Vx	2	-31.98	26.77	3693.90
			Max. Torque	13			1.37

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	32	95.79	-4.32	-7.44
	Max. H _x	20	51.69	31.79	0.26
	Max. H _z	2	51.69	0.18	31.92
	Max. M _x	2	3693.90	0.18	31.92
	Max. M _z	8	3682.19	-31.81	-0.19
	Max. Torsion	13	1.37	-16.01	-27.61
	Min. Vert	23	38.77	27.62	16.06
	Min. H _x	8	51.69	-31.81	-0.19
	Min. H _z	14	51.69	-0.17	-31.85
	Min. M _x	14	-3683.80	-0.17	-31.85
	Min. M _z	20	-3676.48	31.79	0.26
	Min. Torsion	3	-1.36	0.18	31.92

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	43.08	0.00	0.00	0.47	-0.68	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	51.69	-0.18	-31.92	-3693.90	26.77	1.35
0.9 Dead+1.0 Wind 0 deg - No Ice	38.77	-0.18	-31.92	-3628.07	26.47	1.36
1.2 Dead+1.0 Wind 30 deg - No Ice	51.69	15.75	-27.59	-3191.23	-1818.25	1.09
0.9 Dead+1.0 Wind 30 deg - No Ice	38.77	15.75	-27.59	-3134.38	-1785.57	1.09
1.2 Dead+1.0 Wind 60 deg - No Ice	51.69	27.54	-15.77	-1817.67	-3189.08	0.28

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	<p style="text-align: center;">Client</p> <p style="text-align: center;">Crown Castle</p>	<p style="text-align: center;">Designed by</p> <p style="text-align: center;">AAS</p>

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Ice						
0.9 Dead+1.0 Wind 60 deg - No Ice	38.77	27.54	-15.77	-1785.40	-3131.84	0.27
1.2 Dead+1.0 Wind 90 deg - No Ice	51.69	31.81	0.19	29.44	-3682.19	-0.66
0.9 Dead+1.0 Wind 90 deg - No Ice	38.77	31.81	0.19	28.72	-3616.17	-0.68
1.2 Dead+1.0 Wind 120 deg - No Ice	51.69	27.61	15.99	1850.35	-3197.79	-1.14
0.9 Dead+1.0 Wind 120 deg - No Ice	38.77	27.61	15.99	1817.18	-3140.40	-1.16
1.2 Dead+1.0 Wind 150 deg - No Ice	51.69	16.01	27.61	3193.37	-1857.43	-1.35
0.9 Dead+1.0 Wind 150 deg - No Ice	38.77	16.01	27.61	3136.24	-1823.98	-1.37
1.2 Dead+1.0 Wind 180 deg - No Ice	51.69	0.17	31.85	3683.80	-27.50	-1.29
0.9 Dead+1.0 Wind 180 deg - No Ice	38.77	0.17	31.85	3617.92	-26.73	-1.30
1.2 Dead+1.0 Wind 210 deg - No Ice	51.69	-15.77	27.54	3183.98	1819.32	-1.08
0.9 Dead+1.0 Wind 210 deg - No Ice	38.77	-15.77	27.54	3127.01	1787.08	-1.08
1.2 Dead+1.0 Wind 240 deg - No Ice	51.69	-27.45	15.78	1820.88	3172.78	-0.23
0.9 Dead+1.0 Wind 240 deg - No Ice	38.77	-27.45	15.78	1788.28	3116.34	-0.22
1.2 Dead+1.0 Wind 270 deg - No Ice	51.69	-31.79	-0.26	-40.47	3676.48	0.90
0.9 Dead+1.0 Wind 270 deg - No Ice	38.77	-31.79	-0.26	-39.79	3611.03	0.92
1.2 Dead+1.0 Wind 300 deg - No Ice	51.69	-27.62	-16.06	-1861.29	3197.80	1.26
0.9 Dead+1.0 Wind 300 deg - No Ice	38.77	-27.62	-16.06	-1828.17	3140.87	1.28
1.2 Dead+1.0 Wind 330 deg - No Ice	51.69	-16.06	-27.68	-3203.37	1863.83	1.32
0.9 Dead+1.0 Wind 330 deg - No Ice	38.77	-16.06	-27.68	-3146.30	1830.71	1.34
1.2 Dead+1.0 Ice+1.0 Temp	95.79	0.00	0.00	3.85	-1.45	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	95.79	-0.04	-8.60	-1081.16	4.42	0.27
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	95.79	4.27	-7.44	-934.05	-538.55	0.20
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	95.79	7.45	-4.26	-531.95	-940.50	0.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	95.79	8.60	0.04	10.52	-1085.60	-0.18
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	95.79	7.46	4.31	547.20	-942.36	-0.27
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	95.79	4.32	7.44	942.47	-547.23	-0.30
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	95.79	0.03	8.59	1086.93	-7.64	-0.26
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	95.79	-4.27	7.43	940.35	535.87	-0.19
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	95.79	-7.43	4.27	540.70	933.73	-0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	95.79	-8.59	-0.05	-4.96	1081.15	0.23
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	95.79	-7.46	-4.32	-541.60	939.23	0.29

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	95.79	-4.33	-7.46	-936.63	545.65	0.29
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	43.08	-0.04	-6.93	-793.73	5.18	0.30
Dead+Wind 30 deg - Service	43.08	3.42	-5.99	-685.66	-391.43	0.24
Dead+Wind 60 deg - Service	43.08	5.98	-3.42	-390.39	-686.11	0.06
Dead+Wind 90 deg - Service	43.08	6.90	0.04	6.67	-792.11	-0.15
Dead+Wind 120 deg - Service	43.08	5.99	3.47	398.13	-688.00	-0.25
Dead+Wind 150 deg - Service	43.08	3.47	5.99	686.84	-399.86	-0.30
Dead+Wind 180 deg - Service	43.08	0.04	6.91	792.24	-6.47	-0.29
Dead+Wind 210 deg - Service	43.08	-3.42	5.98	684.80	390.53	-0.24
Dead+Wind 240 deg - Service	43.08	-5.96	3.43	391.78	681.47	-0.05
Dead+Wind 270 deg - Service	43.08	-6.90	-0.06	-8.34	789.75	0.20
Dead+Wind 300 deg - Service	43.08	-5.99	-3.49	-399.79	686.89	0.28
Dead+Wind 330 deg - Service	43.08	-3.49	-6.01	-688.31	400.11	0.30

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-43.08	0.00	0.00	43.08	0.00	0.000%
2	-0.18	-51.69	-31.92	0.18	51.69	31.92	0.000%
3	-0.18	-38.77	-31.92	0.18	38.77	31.92	0.000%
4	15.75	-51.69	-27.59	-15.75	51.69	27.59	0.000%
5	15.75	-38.77	-27.59	-15.75	38.77	27.59	0.000%
6	27.54	-51.69	-15.77	-27.54	51.69	15.77	0.000%
7	27.54	-38.77	-15.77	-27.54	38.77	15.77	0.000%
8	31.81	-51.69	0.19	-31.81	51.69	-0.19	0.000%
9	31.81	-38.77	0.19	-31.81	38.77	-0.19	0.000%
10	27.61	-51.69	15.99	-27.61	51.69	-15.99	0.000%
11	27.61	-38.77	15.99	-27.61	38.77	-15.99	0.000%
12	16.01	-51.69	27.61	-16.01	51.69	-27.61	0.000%
13	16.01	-38.77	27.61	-16.01	38.77	-27.61	0.000%
14	0.17	-51.69	31.85	-0.17	51.69	-31.85	0.000%
15	0.17	-38.77	31.85	-0.17	38.77	-31.85	0.000%
16	-15.77	-51.69	27.54	15.77	51.69	-27.54	0.000%
17	-15.77	-38.77	27.54	15.77	38.77	-27.54	0.000%
18	-27.45	-51.69	15.78	27.45	51.69	-15.78	0.000%
19	-27.45	-38.77	15.78	27.45	38.77	-15.78	0.000%
20	-31.79	-51.69	-0.26	31.79	51.69	0.26	0.000%
21	-31.79	-38.77	-0.26	31.79	38.77	0.26	0.000%
22	-27.62	-51.69	-16.06	27.62	51.69	16.06	0.000%
23	-27.62	-38.77	-16.06	27.62	38.77	16.06	0.000%
24	-16.06	-51.69	-27.68	16.06	51.69	27.68	0.000%
25	-16.06	-38.77	-27.68	16.06	38.77	27.68	0.000%
26	0.00	-95.79	0.00	-0.00	95.79	-0.00	0.000%
27	-0.04	-95.79	-8.60	0.04	95.79	8.60	0.000%
28	4.27	-95.79	-7.44	-4.27	95.79	7.44	0.000%
29	7.44	-95.79	-4.26	-7.45	95.79	4.26	0.000%
30	8.60	-95.79	0.04	-8.60	95.79	-0.04	0.000%
31	7.46	-95.79	4.31	-7.46	95.79	-4.31	0.000%
32	4.32	-95.79	7.44	-4.32	95.79	-7.44	0.000%
33	0.03	-95.79	8.59	-0.03	95.79	-8.59	0.000%
34	-4.27	-95.79	7.43	4.27	95.79	-7.43	0.000%
35	-7.43	-95.79	4.27	7.43	95.79	-4.27	0.000%
36	-8.59	-95.79	-0.05	8.59	95.79	0.05	0.000%
37	-7.46	-95.79	-4.32	7.46	95.79	4.32	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
38	-4.33	-95.79	-7.46	4.33	95.79	7.46	0.000%
39	-0.04	-43.08	-6.93	0.04	43.08	6.93	0.000%
40	3.42	-43.08	-5.99	-3.42	43.08	5.99	0.000%
41	5.98	-43.08	-3.42	-5.98	43.08	3.42	0.000%
42	6.90	-43.08	0.04	-6.90	43.08	-0.04	0.000%
43	5.99	-43.08	3.47	-5.99	43.08	-3.47	0.000%
44	3.47	-43.08	5.99	-3.47	43.08	-5.99	0.000%
45	0.04	-43.08	6.91	-0.04	43.08	-6.91	0.000%
46	-3.42	-43.08	5.98	3.42	43.08	-5.98	0.000%
47	-5.96	-43.08	3.43	5.96	43.08	-3.43	0.000%
48	-6.90	-43.08	-0.06	6.90	43.08	0.06	0.000%
49	-5.99	-43.08	-3.49	5.99	43.08	3.49	0.000%
50	-3.49	-43.08	-6.01	3.49	43.08	6.01	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00008843
3	Yes	5	0.00000001	0.00004150
4	Yes	6	0.00000001	0.00083685
5	Yes	6	0.00000001	0.00026312
6	Yes	6	0.00000001	0.00082051
7	Yes	6	0.00000001	0.00025722
8	Yes	5	0.00000001	0.00015418
9	Yes	5	0.00000001	0.00006426
10	Yes	6	0.00000001	0.00082985
11	Yes	6	0.00000001	0.00025871
12	Yes	6	0.00000001	0.00085111
13	Yes	6	0.00000001	0.00026651
14	Yes	5	0.00000001	0.00048818
15	Yes	5	0.00000001	0.00022560
16	Yes	6	0.00000001	0.00081084
17	Yes	6	0.00000001	0.00025401
18	Yes	6	0.00000001	0.00082483
19	Yes	6	0.00000001	0.00025943
20	Yes	5	0.00000001	0.00048402
21	Yes	5	0.00000001	0.00022312
22	Yes	6	0.00000001	0.00085360
23	Yes	6	0.00000001	0.00026702
24	Yes	6	0.00000001	0.00083310
25	Yes	6	0.00000001	0.00025907
26	Yes	4	0.00000001	0.00004504
27	Yes	6	0.00006458	0.00052509
28	Yes	6	0.00006416	0.00094331
29	Yes	6	0.00006417	0.00093357
30	Yes	6	0.00006460	0.00052779
31	Yes	6	0.00006414	0.00095291
32	Yes	6	0.00006412	0.00096494
33	Yes	6	0.00006457	0.00052761
34	Yes	6	0.00006414	0.00092687
35	Yes	6	0.00006414	0.00093322
36	Yes	6	0.00006457	0.00052380
37	Yes	6	0.00006413	0.00095008
38	Yes	6	0.00006413	0.00094092

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Buckland Mall (BU 876347)	Page	18 of 20
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	Client	Crown Castle	Designed by	AAS

39	Yes	4	0.00000001	0.00028336
40	Yes	5	0.00000001	0.00013722
41	Yes	5	0.00000001	0.00012839
42	Yes	4	0.00000001	0.00023397
43	Yes	5	0.00000001	0.00012969
44	Yes	5	0.00000001	0.00014080
45	Yes	4	0.00000001	0.00031460
46	Yes	5	0.00000001	0.00012360
47	Yes	5	0.00000001	0.00013069
48	Yes	4	0.00000001	0.00027338
49	Yes	5	0.00000001	0.00014030
50	Yes	5	0.00000001	0.00012959

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	155 - 115.5	30.170	50	1.666	0.003
L2	119.25 - 79.25	18.183	50	1.462	0.002
L3	83.75 - 43.75	8.806	50	1.014	0.001
L4	49 - 0	2.974	50	0.562	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
155.00	APXVTM14-C-120 w/ Mount Pipe	50	30.170	1.666	0.003	36865
153.00	800MHz 2X50W RRH W/FILTER	50	29.471	1.658	0.003	36865
151.00	VHLP1-23	50	28.774	1.650	0.003	36865
143.00	OPA-65R-LCUU-H6 w/ Mount Pipe	50	25.999	1.617	0.002	15360
133.00	AIR -32 B2A/B66AA	50	22.605	1.565	0.002	8377
113.00	LNx-6512DS-T0M w/ Mount Pipe	50	16.306	1.398	0.002	5010
60.00	Side Arm Mount [SO 701-1]	50	4.424	0.699	0.000	3874

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	155 - 115.5	140.313	24	7.778	0.014
L2	119.25 - 79.25	84.635	24	6.820	0.008
L3	83.75 - 43.75	41.018	24	4.729	0.004
L4	49 - 0	13.853	24	2.618	0.002

Critical Deflections and Radius of Curvature - Design Wind

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	Buckland Mall (BU 876347)	Page	19 of 20
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	Client	Crown Castle	Designed by	AAS

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
155.00	APXVTM14-C-120 w/ Mount Pipe	24	140.313	7.778	0.014	8199
153.00	800MHz 2X50W RRH W/FILTER	24	137.071	7.741	0.013	8199
151.00	VHLP1-23	24	133.832	7.704	0.013	8199
143.00	OPA-65R-LCUU-H6 w/ Mount Pipe	24	120.945	7.546	0.012	3414
133.00	AIR -32 B2A/B66AA	24	105.178	7.303	0.010	1859
113.00	LNx-6512DS-T0M w/ Mount Pipe	24	75.909	6.522	0.007	1105
60.00	Side Arm Mount [SO 701-1]	24	20.611	3.258	0.002	836

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	155 - 115.5 (1)	TP29.308x22x0.25	39.50	0.00	0.0	22.507	-14.10	1215.38	0.012
L2	115.5 - 79.25 (2)	TP35.514x28.114x0.313	40.00	0.00	0.0	34.090	-24.93	1994.25	0.012
L3	79.25 - 43.75 (3)	TP41.456x34.057x0.375	40.00	0.00	0.0	47.741	-34.51	2792.83	0.012
L4	43.75 - 0 (4)	TP48.8x39.735x0.438	49.00	0.00	0.0	67.157	-51.66	3928.71	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	155 - 115.5 (1)	TP29.308x22x0.25	444.57	867.63	0.512	0.00	867.63	0.000
L2	115.5 - 79.25 (2)	TP35.514x28.114x0.313	1267.88	1720.89	0.737	0.00	1720.89	0.000
L3	79.25 - 43.75 (3)	TP41.456x34.057x0.375	2210.87	2833.97	0.780	0.00	2833.97	0.000
L4	43.75 - 0 (4)	TP48.8x39.735x0.438	3706.13	4763.74	0.778	0.00	4763.74	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T _u kip-ft	φT _n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	155 - 115.5 (1)	TP29.308x22x0.25	18.41	364.61	0.051	0.27	905.70	0.000
L2	115.5 - 79.25 (2)	TP35.514x28.114x0.313	25.52	598.28	0.043	1.22	1800.73	0.001
L3	79.25 - 43.75 (3)	TP41.456x34.057x0.375	28.68	837.85	0.034	1.33	2943.04	0.000
L4	43.75 - 0 (4)	TP48.8x39.735x0.438	32.06	1178.61	0.027	1.32	4991.82	0.000

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job Buckland Mall (BU 876347)	Page 20 of 20
	Project TEP No. 25697.529738	Date 15:28:35 04/10/21
	Client Crown Castle	Designed by AAS

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
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Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{ux}	Ratio M_{uy} ϕM_{uy}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	155 - 115.5 (1)	0.012	0.512	0.000	0.051	0.000	0.527	1.050	4.8.2
L2	115.5 - 79.25 (2)	0.012	0.737	0.000	0.043	0.001	0.751	1.050	4.8.2
L3	79.25 - 43.75 (3)	0.012	0.780	0.000	0.034	0.000	0.794	1.050	4.8.2
L4	43.75 - 0 (4)	0.013	0.778	0.000	0.027	0.000	0.792	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	155 - 115.5	Pole	TP29.308x22x0.25	1	-14.10	1276.15	50.2	Pass
L2	115.5 - 79.25	Pole	TP35.514x28.114x0.313	2	-24.93	2093.96	71.5	Pass
L3	79.25 - 43.75	Pole	TP41.456x34.057x0.375	3	-34.51	2932.47	75.6	Pass
L4	43.75 - 0	Pole	TP48.8x39.735x0.438	4	-51.66	4125.15	75.4	Pass
Summary								
Pole (L3)							75.6	Pass
Rating =							75.6	Pass

APPENDIX B
BASE LEVEL DRAWING

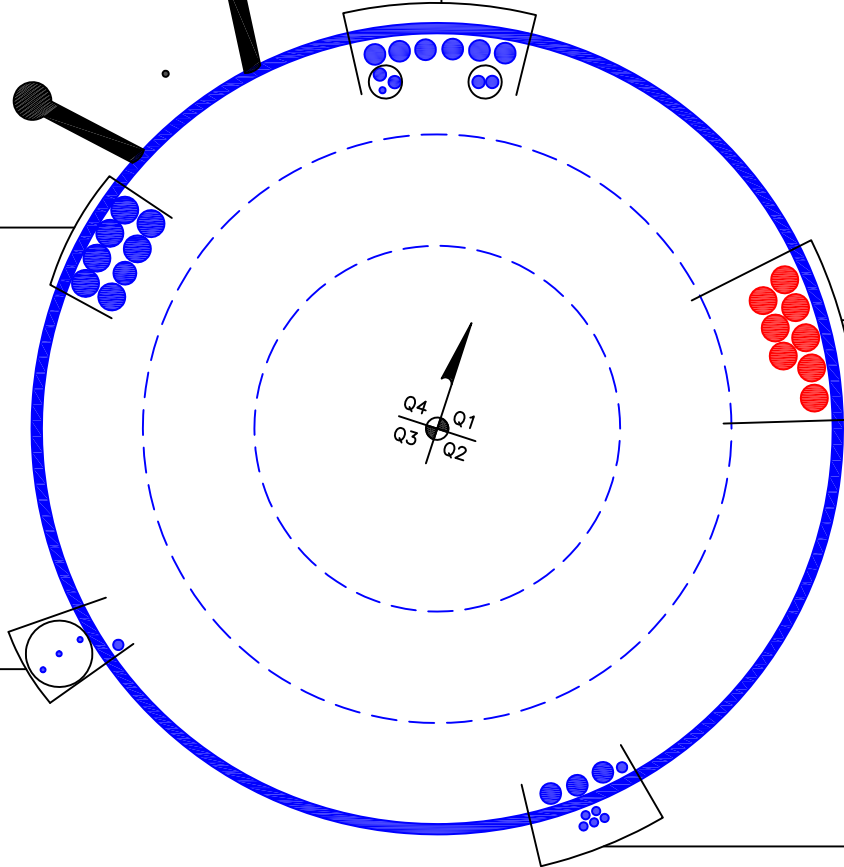
- (OTHER CONSIDERED EQUIPMENT—IN CONDUITS)
- (1) 3/8" TO 143 FT LEVEL
- (4) 3/4" TO 143 FT LEVEL
- (OTHER CONSIDERED EQUIPMENT)
- (6) 1-1/4" TO 143 FT LEVEL



CLIMBING PEGS
W/ SAFETY CLIMB

- (OTHER CONSIDERED EQUIPMENT)
- (1) 1-3/8" TO 133 FT LEVEL
- (7) 1-5/8" TO 133 FT LEVEL

- (PROPOSED EQUIPMENT CONFIGURATION)
- (8) 1-5/8" TO 113 FT LEVEL



- (OTHER CONSIDERED EQUIPMENT)
- (1) 5/8" TO 155 FT LEVEL
- (OTHER CONSIDERED EQUIPMENT—IN CONDUIT)
- (3) 5/16" TO 155 FT LEVEL

- (OTHER CONSIDERED EQUIPMENT)
- (5) 1/2" TO 155 FT LEVEL
- (1) 5/8" TO 155 FT LEVEL
- (3) 1-1/4" TO 155 FT LEVEL

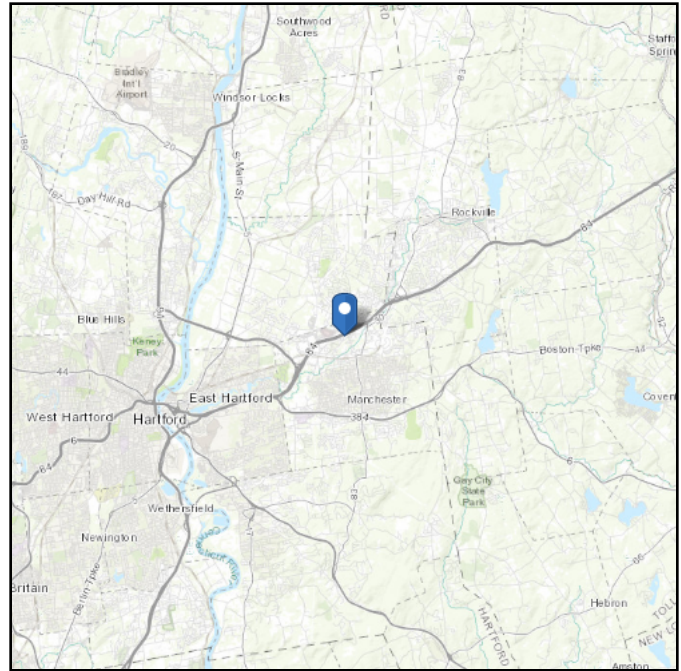
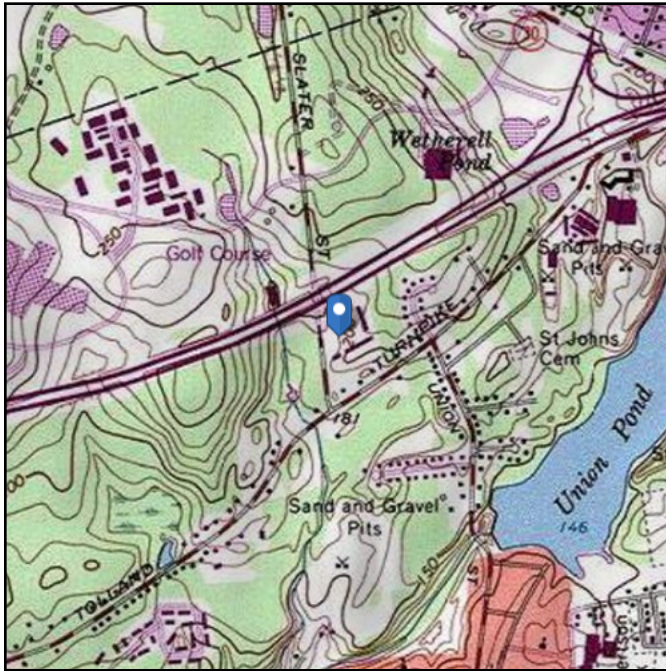
APPENDIX C
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 195.5 ft (NAVD 88)
Latitude: 41.805
Longitude: -72.533611



Wind

Results:

Wind Speed:	123 Vmph	125 Vmph per Jurisdiction
10-year MRI	77 Vmph	
25-year MRI	87 Vmph	
50-year MRI	93 Vmph	
100-year MRI	101 Vmph	

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

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

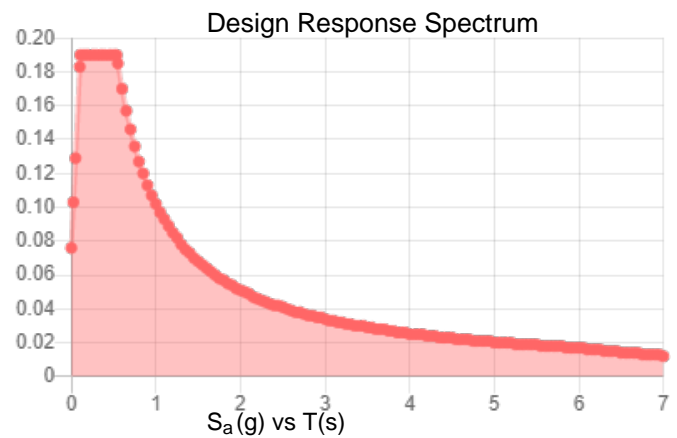
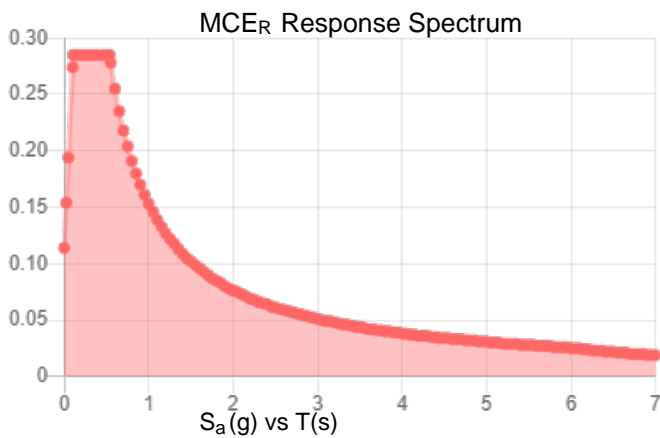
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.178	S_{DS} :	0.19
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.285	PGA _M :	0.143
S_{M1} :	0.153	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Apr 09 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Fri Apr 09 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.

Monopole Base Plate Connection

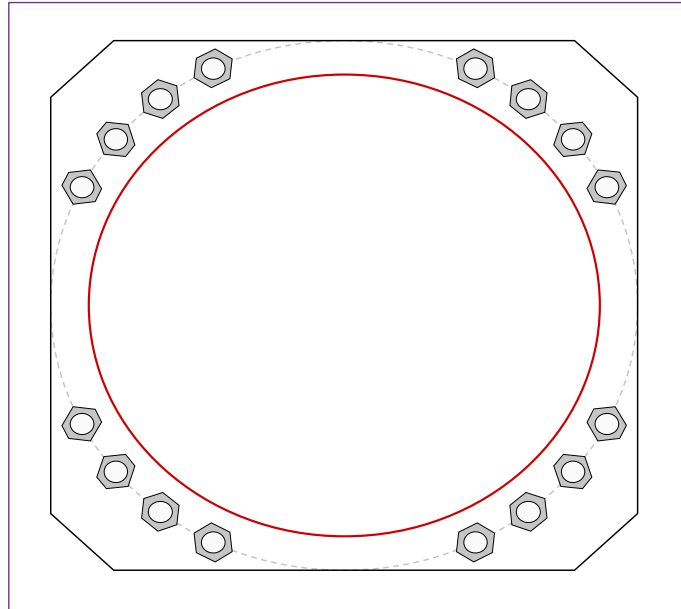


Site Info	
BU #	876347
Site Name	Buckland Mall
Order #	552625 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	3706.13
Axial Force (kips)	51.66
Shear Force (kips)	32.06

*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 56" BC <i>Anchor Spacing: 6 in</i>
Base Plate Data
56" W x 3.25" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi); Clip: 6 in
Stiffener Data
N/A
Pole Data
48.8" x 0.4375" 18-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary		<i>(units of kips, kip-in)</i>
$Pu_c = 201.64$	$\phi Pn_c = 268.39$	Stress Rating
$Vu = 2$	$\phi Vn = 120.77$	71.6%
$Mu = n/a$	$\phi Mn = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	27.49	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	58.2%	Pass

Pier and Pad Foundation



BU # : 876347
 Site Name: Buckland Mall
 App. Number: 552625 Rev. 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	51.69	klps
Base Shear, V_{u_comp} :	32	klps
Moment, M_u :	3706.14	ft-klps
Tower Height, H :	155	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (klps)</i>	404.54	32.00	7.5%	Pass
<i>Bearing Pressure (ksf)</i>	23.36	3.11	13.3%	Pass
<i>Overtuning (kip*ft)</i>	8479.06	4050.14	47.8%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	7577.10	3946.14	49.6%	Pass
<i>Pier Compression (kip)</i>	23390.64	117.84	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	4568.38	1356.52	28.3%	Pass
<i>Pad Shear - 1-way (klps)</i>	709.93	227.72	30.5%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.041	23.5%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	6333.75	2367.68	35.6%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	11	
Pier Rebar Quantity, mc :	32	
Pier Tie/Spiral Size, St :	5	
Pier Tie/Spiral Quantity, mt :	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Soil Rating*:	47.8%
Structural Rating*:	49.6%

Pad Properties		
Depth, D :	10	ft
Pad Width, W_1 :	23	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	34	
Pad Clear Cover, cc_{pad} :	3	in

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

Soil Properties		
Total Soil Unit Weight, γ :	115	pcf
Ultimate Net Bearing, Q_{net} :	30.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	15	
Base Friction, μ :	0.45	
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

<--Toggle between Gross and Net

Exhibit E

Mount Analysis



Maser Consulting Connecticut
2000 Midlantic Drive, Suite 100
Mt. Laurel, NJ 08054
(856) 797-0412
peter.albano@colliersengineering.com

Post-Mod Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10061735
Maser Consulting Connecticut Project #: 21777063A

May 5, 2021

Site Information

Site ID: 468759-VZW / BUCKLAND CT
Site Name: BUCKLAND CT
Carrier Name: Verizon Wireless
Address: 53 Slater Rd
Manchester, Connecticut 06040
Hartford County
Latitude: 41.805056°
Longitude: -72.533500°

Structure Information

Tower Type: Monopole
Mount Type: 14.08-Ft Platform

FUZE ID # 16232031

Analysis Results

Platform: 77.9% 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

Digitally signed by Taqi Khawaja-Ghulam
Date: 2021.05.07 10:12:35-04'00'

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:

Document Type	Remarks
<i>Radio Frequency Data Sheet (RFDS)</i>	<i>Verizon RFDS, Site ID: 674855. dated March 16, 2021</i>
<i>Mount Mapping Report</i>	<i>Level-Up Towers, Site ID: 468759, dated February 18, 2021</i>
<i>Mount Analysis Report</i>	<i>Maser Consulting Connecticut, Project #: 21777063A, dated April 2, 2021</i>
<i>Mount Modification Drawings</i>	<i>Maser Consulting Connecticut, Project #: 21777063A, dated May 5, 2021</i>

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT} : 118 mph Ice Wind Speed (3-sec. Gust): 50 mph Design Ice Thickness: 1.50 in Risk Category: II Exposure Category: C Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, K_e : 0.993
Seismic Parameters:	S_s : 0.187 S_1 : 0.055
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 mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
111.50	113.00	3	Samsung	MT6407-77A	Added
		3	Samsung	B2/B66A RRH-BR049	
		3	Samsung	B5/B13 RRH-BR04C	
		1	Raycap	RVZDC-6627-PF-48	
		3	Andrew	LNx-6512DS	Retained
		6	Andrew	SBNHH-1D65B	
		1	Raycap	RRFDC-3315-PF-48	

Standard Conditions:

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

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

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

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped by Maser Consulting Connecticut, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer’s specifications.
4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.
6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting Connecticut is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
- Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
 - HSS (Rectangular) ASTM 500 (Gr. B-46)
 - Pipe ASTM A53 (Gr. B-35)
 - Threaded Rod F1554 (Gr. 36)
 - Bolts ASTM A325
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
Connection	71.2%	Pass
Back Standoff HSS	57.5%	Pass
Front Standoff HSS	27.6%	Pass
Standoff Bracing Angle	54.2%	Pass
Platform End Angles	14.6%	Pass
Face Horizontal	77.9%	Pass
Mount Pipe	32.5%	Pass
Support Rail	46.6%	Pass
Support Rail Corner	44.4%	Pass
Support Rail Bracing	11.6%	Pass

Structure Rating – (Controlling Utilization of all Components)	77.9%
---	--------------

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



Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector				Sector B											
Sector A:	30.00	Deg	Leg A:		Deg	Ant _{1a}	Worn Label	12.00	7.25	48.50	2 - 1-5/8	112.167	28.00	7.00	145.00	167			
Sector B:	150.00	Deg	Leg B:		Deg	Ant _{1b}													
Sector C:	270.00	Deg	Leg C:		Deg	Ant _{1c}													
Sector D:		Deg	Leg D:		Deg	Ant _{2a}	Andrew SBNHH-1D65	12.00	7.50	73.00		112.667	49.00	8.00	145.00	170			
Climbing Facility Information						Ant _{2b}	ALU B4 RRH2x60-4R	11.00	6.00	37.00		113.75	36.00	6.00	145.00	173			
Location:	270.00	Deg	Sector C			Ant _{2c}													
Climbing Facility	Corrosion Type:	Good condition.				Ant _{3a}	Antel BXA-70063/6CF	11.00	5.00	71.00	0	111.333	38.00	14.00	145.00	175			
	Access:	Climbing path was unobstructed.				Ant _{3b}	ALU B13 RRH4x30	12.00	7.50	20.50		113.167	16.00	7.00	145.00	175			
	Condition:	Missing safety cable.				Ant _{3c}													
EXISTING PLATFORM						Ant _{4a}	Andrew SBNHH-1D65	12.00	7.50	73.00		112.667	49.00	8.00	145.00	182			
DISTANCE FROM TOP OF MAIN PLATFORM MEMBER TO LOWEST TIP OF ANT./EQPT. OF CARRIER ABOVE. (N/A IF > 10 FT.)						Ant _{4b}	ALU B25 RRH 4x30	12.00	7.00	21.00		113.583	38.00	8.00	145.00	182			
DISTANCE FROM TOP OF MAIN PLATFORM MEMBER TO HIGHEST TIP OF ANT./EQPT. OF CARRIER BELOW. (N/A IF > 10 FT.)						Ant _{4c}													
EXISTING SECTOR FRAME MOUNT						Ant _{5a}													
DISTANCE FROM TOP OF BOTTOM SUPPORT RAIL TO LOWEST TIP OF ANT./EQPT. OF CARRIER ABOVE. (N/A IF > 10 FT.)						Ant _{5b}													
DISTANCE FROM TOP OF BOTTOM SUPPORT RAIL TO HIGHEST TIP OF ANT./EQPT. OF CARRIER BELOW. (N/A IF > 10 FT.)						Ant _{5c}													
Sector C						Ant on Standoff													
Sector C						Ant on Standoff													
Sector C						Ant on Tower													
Sector C						Ant on Tower													
Sector C						Ant _{1a}	Worn Label	12.00	7.25	48.50	2 - 1-5/8	112.167	28.00	7.00	250.00	123			
Sector C						Ant _{1b}													
Sector C						Ant _{1c}													
Sector C						Ant _{2a}	Andrew SBNHH-1D65	12.00	7.50	73.00		112.667	49.00	8.00	250.00	126			
Sector C						Ant _{2b}	ALU B4 RRH2x60-4R	11.00	6.00	37.00		113.75	36.00	6.00	250.00	130			
Sector C						Ant _{2c}													
Sector C						Ant _{3a}	Antel BXA-70063/6CF	11.00	5.00	71.00	0	111.333	38.00	14.00	250.00	133			
Sector C						Ant _{3b}	ALU B13 RRH4x30	12.00	7.50	20.50		113.167	16.00	7.00	250.00	136			
Sector C						Ant _{3c}													
Sector C						Ant _{4a}	Andrew SBNHH-1D65	12.00	7.50	73.00		112.667	49.00	8.00	250.00	139			
Sector C						Ant _{4b}	ALU B25 RRH 4x30	12.00	7.00	21.00		113.583	38.00	8.00	250.00	143			
Sector C						Ant _{4c}													
Sector C						Ant _{5a}													
Sector C						Ant _{5b}													
Sector C						Ant _{5c}													
Sector C						Ant on Standoff													
Sector C						Ant on Standoff													
Sector C						Ant on Tower													
Sector C						Ant on Tower													
Sector D						Ant _{1a}													
Sector D						Ant _{1b}													
Sector D						Ant _{1c}													
Sector D						Ant _{2a}													
Sector D						Ant _{2b}													
Sector D						Ant _{2c}													
Sector D						Ant _{3a}													
Sector D						Ant _{3b}													
Sector D						Ant _{3c}													
Sector D						Ant _{4a}													
Sector D						Ant _{4b}													
Sector D						Ant _{4c}													
Sector D						Ant _{5a}													
Sector D						Ant _{5b}													
Sector D						Ant _{5c}													
Sector D						Ant on Standoff													
Sector D						Ant on Standoff													
Sector D						Ant on Tower													
Sector D						Ant on Tower													

Observed Safety and Structural Issues During the Mount Mapping

Issue #	Description of Issue	Photo #
---------	----------------------	---------

1	P3 antenna bracket not properly secured to pipe	63
2		
3		
4		
5		
6		
7		
8		

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.



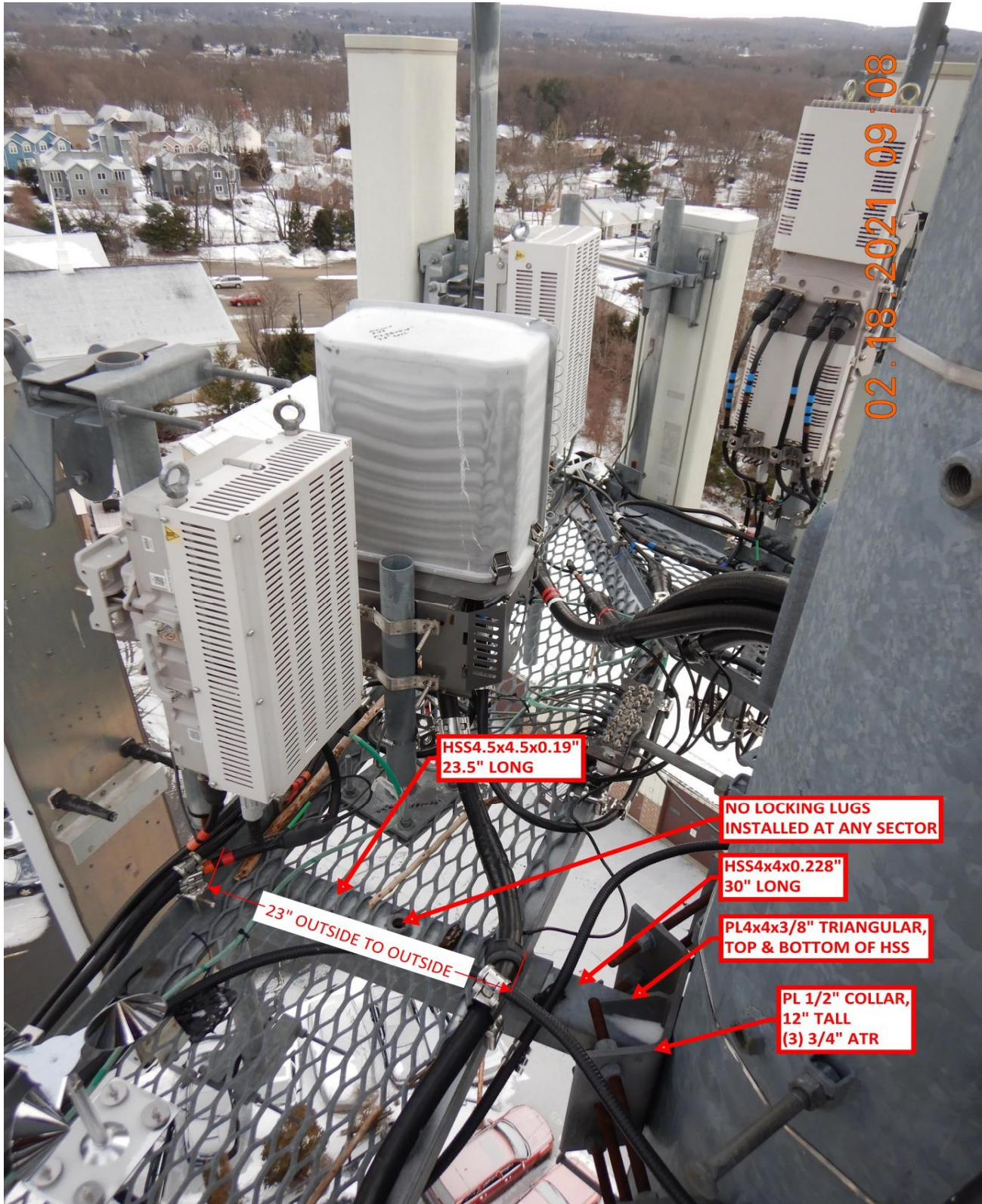
Antenna Mount Mapping Form (PATENT PENDING)

FCC #

Tower Owner:	Crown Castle	Mapping Date:	2/18/2021
Site Name:	BUCKLAND CT	Tower Type:	Monopole
Site Number or ID:	468759	Tower Height (Ft.):	
Mapping Contractor:	Level-Up Towers	Mount Elevation (Ft.):	111

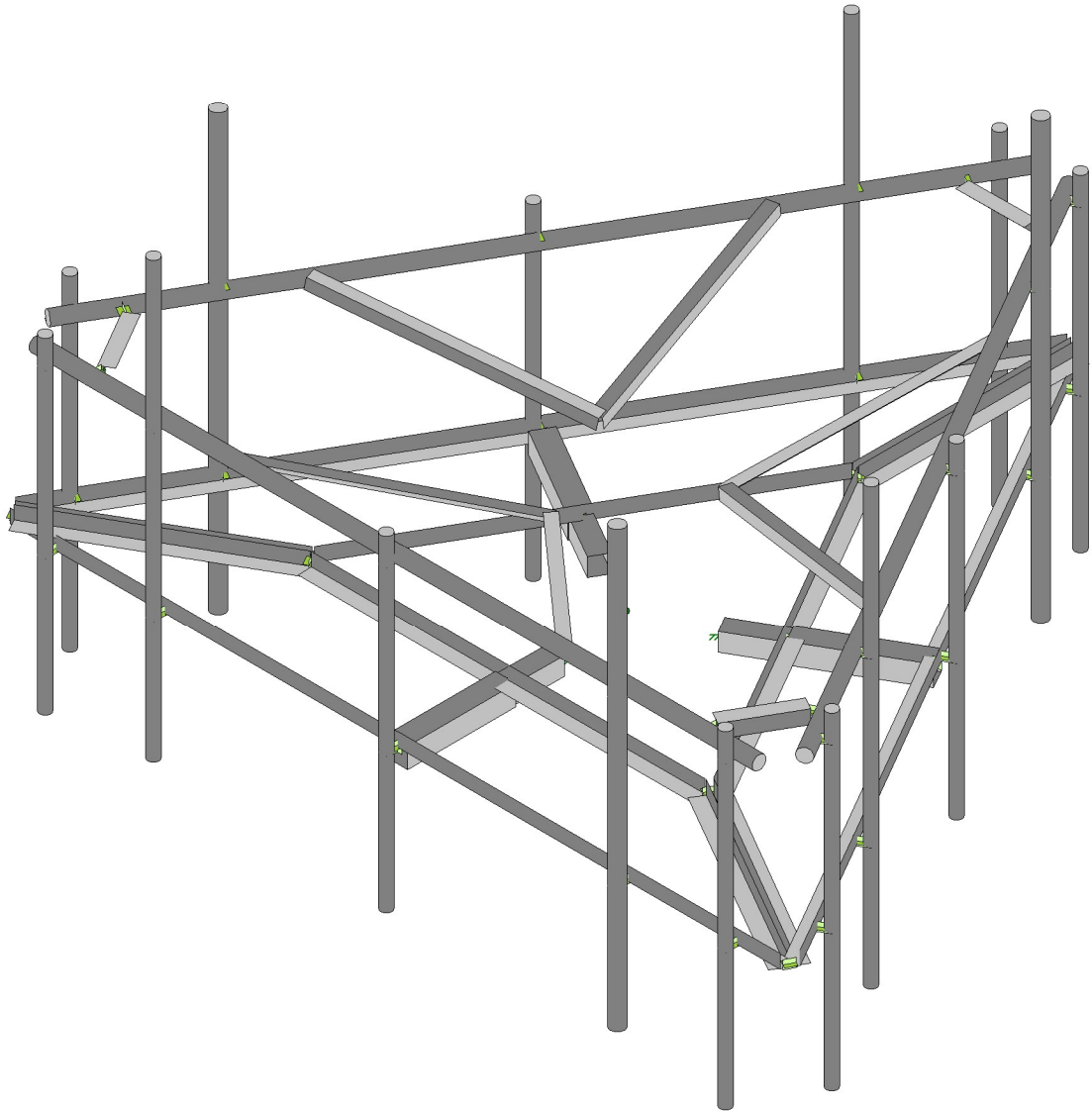
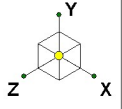
This antenna mapping form is the property of TES and under **PATENT PENDING**. The formation contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warranting the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.

Please Insert Sketches of the Antenna Mount



02.18.2021 09:08





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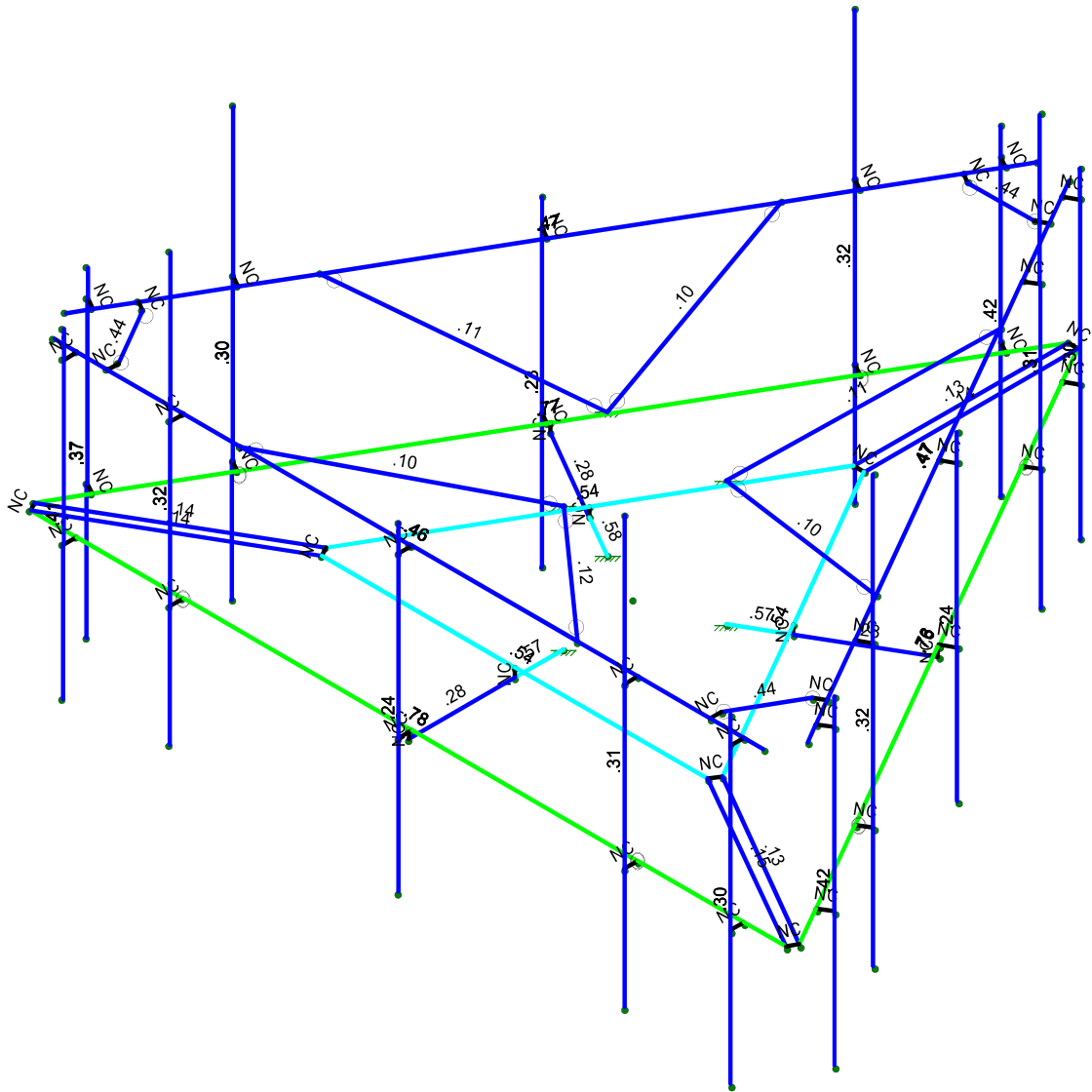
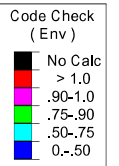
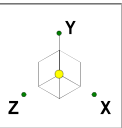
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SK - 1

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Member Code Checks Displayed (Enveloped)
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Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
5	Mounp Pipe	PIPE 2.0	Column	Pipe	A53 Gr. B	Typical	1.02	.627	.627	1.25
6	Standoff HSS Front	HSS4.5X4...	Beam	Tube	A500 Gr. B...	Typical	2.93	9.02	9.02	14.4
7	Dual Antenna MP	PIPE 2.5	Column	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89
8	Mod Support Rail	PIPE 2.5	Column	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89
9	HR7	PIPE 2.5	Column	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
5	A500 Gr. B 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
6	A500 Gr. B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N2		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N2	N5		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N5	N6		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N6	N3		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N7	N26			Standoff HSS ...	Beam	Tube	A500 Gr. ...	Typical
6	M6	N11	N10		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N10	N13		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N13	N14		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N14	N11		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N15	N27			Standoff HSS ...	Beam	Tube	A500 Gr. ...	Typical
11	M11	N19	N18		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N18	N21		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N21	N22		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N22	N19		270	Platform Angle	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N23	N28			Standoff HSS ...	Beam	Tube	A500 Gr. ...	Typical
16	M16	N10	N19			RIG ID	None	None	RIG ID	Typical
17	M17	N13	N22			RIG ID	None	None	RIG ID	Typical
18	M18	N14	N5			RIG ID	None	None	RIG ID	Typical
19	M19	N11	N2			RIG ID	None	None	RIG ID	Typical
20	M20	N6	N21			RIG ID	None	None	RIG ID	Typical
21	M21	N3	N18			RIG ID	None	None	RIG ID	Typical
22	M22	N23A	N1			RIG ID	None	None	RIG ID	Typical
23	M23	N4	N26			RIG ID	None	None	RIG ID	Typical
24	M24	N20	N28			RIG ID	None	None	RIG ID	Typical
25	M25	N25	N17			RIG ID	None	None	RIG ID	Typical
26	M26	N12	N27			RIG ID	None	None	RIG ID	Typical
27	M27	N24	N9			RIG ID	None	None	RIG ID	Typical
28	M28	N29	N30			RIG ID	None	None	RIG ID	Typical
29	MP1A	N31	N32			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
30	M30	N33	N34			RIG ID	None	None	RIG ID	Typical
31	MP2A	N35	N36			Dual Antenna ...	Column	Pipe	A53 Gr. B	Typical
32	M32	N37	N38			RIG ID	None	None	RIG ID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
33	MP3A	N39	N40			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
34	M34	N41	N42			RIGID	None	None	RIGID	Typical
35	MP4A	N43	N44			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
36	M36	N45	N46			RIGID	None	None	RIGID	Typical
37	MP5A	N47	N48			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
38	M62	N26	N1			Standoff HSS ...	Beam	Tube	A500 Gr. ...	Typical
39	M63	N27	N9			Standoff HSS ...	Beam	Tube	A500 Gr. ...	Typical
40	M64	N28	N17			Standoff HSS ...	Beam	Tube	A500 Gr. ...	Typical
41	M45	N56	N57			RIGID	None	None	RIGID	Typical
42	MP1C	N58	N59			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
43	M47	N60	N61			RIGID	None	None	RIGID	Typical
44	MP2C	N62	N63			Dual Antenna ...	Column	Pipe	A53 Gr. B	Typical
45	M49	N64	N65			RIGID	None	None	RIGID	Typical
46	MP3C	N66	N67			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
47	M51	N68	N69			RIGID	None	None	RIGID	Typical
48	MP4C	N70	N71			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
49	M53	N72	N73			RIGID	None	None	RIGID	Typical
50	MP5C	N74	N75			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
51	M55	N77	N78			RIGID	None	None	RIGID	Typical
52	MP1B	N79	N80			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
53	M57	N81	N82			RIGID	None	None	RIGID	Typical
54	MP2B	N83	N84			Dual Antenna ...	Column	Pipe	A53 Gr. B	Typical
55	M59A	N85	N86			RIGID	None	None	RIGID	Typical
56	MP3B	N87	N88			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
57	M61A	N89	N90			RIGID	None	None	RIGID	Typical
58	MP4B	N91A	N92			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
59	M63A	N93A	N94A			RIGID	None	None	RIGID	Typical
60	MP5B	N95A	N96			Mounp Pipe	Column	Pipe	A53 Gr. B	Typical
61	M65	N96A	N95B		270	Mod Support ...	Column	Pipe	A53 Gr. B	Typical
62	M66	N97	N98			RIGID	None	None	RIGID	Typical
63	M67	N99	N100			RIGID	None	None	RIGID	Typical
64	M68	N101	N102			RIGID	None	None	RIGID	Typical
65	M69	N103	N104			RIGID	None	None	RIGID	Typical
66	M70	N105	N106			RIGID	None	None	RIGID	Typical
67	M72	N110	N111			RIGID	None	None	RIGID	Typical
68	M73	N112	N113			RIGID	None	None	RIGID	Typical
69	M74	N114	N115			RIGID	None	None	RIGID	Typical
70	M75	N116	N117			RIGID	None	None	RIGID	Typical
71	M76	N118	N119			RIGID	None	None	RIGID	Typical
72	M78	N123	N124			RIGID	None	None	RIGID	Typical
73	M79	N125	N126			RIGID	None	None	RIGID	Typical
74	M80	N127	N128			RIGID	None	None	RIGID	Typical
75	M81	N129	N130			RIGID	None	None	RIGID	Typical
76	M82	N131	N132			RIGID	None	None	RIGID	Typical
77	M81A	N129A	N128A		270	Mod Support ...	Column	Pipe	A53 Gr. B	Typical
78	M82A	N132A	N131A		270	Mod Support ...	Column	Pipe	A53 Gr. B	Typical
79	M83	N131B	N133			RIGID	None	None	RIGID	Typical
80	M84	N132B	N134			RIGID	None	None	RIGID	Typical
81	M85	N136	N138			RIGID	None	None	RIGID	Typical
82	M86	N137	N139			RIGID	None	None	RIGID	Typical
83	M87	N141	N143			RIGID	None	None	RIGID	Typical
84	M88	N142	N144			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
85	M89	N133	N144		90	Mod Support ...	Beam	Single Angle	A36 Gr.36	Typical
86	M90	N138	N134		90	Mod Support ...	Beam	Single Angle	A36 Gr.36	Typical
87	M91	N143	N139		90	Mod Support ...	Beam	Single Angle	A36 Gr.36	Typical
88	M92	N143A	N146		180	Mod Support A...	Beam	Single Angle	A36 Gr.36	Typical
89	M93	N143A	N145		90	Mod Support A...	Beam	Single Angle	A36 Gr.36	Typical
90	M94	N148	N150		180	Mod Support A...	Beam	Single Angle	A36 Gr.36	Typical
91	M95	N148	N149		90	Mod Support A...	Beam	Single Angle	A36 Gr.36	Typical
92	M96	N152	N154		180	Mod Support A...	Beam	Single Angle	A36 Gr.36	Typical
93	M97	N152	N153		90	Mod Support A...	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic ...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6						Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	MP1A						Yes	** NA **			None
30	M30		OOOXOO				Yes	** NA **			None
31	MP2A						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	MP3A						Yes	** NA **			None
34	M34		OOOXOO				Yes	** NA **			None
35	MP4A						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	MP5A						Yes	** NA **			None
38	M62						Yes	** NA **			None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
39	M63						Yes				None
40	M64						Yes				None
41	M45						Yes	** NA **			None
42	MP1C						Yes	** NA **			None
43	M47		OOOXOO				Yes	** NA **			None
44	MP2C						Yes	** NA **			None
45	M49						Yes	** NA **			None
46	MP3C						Yes	** NA **			None
47	M51		OOOXOO				Yes	** NA **			None
48	MP4C						Yes	** NA **			None
49	M53						Yes	** NA **			None
50	MP5C						Yes	** NA **			None
51	M55						Yes	** NA **			None
52	MP1B						Yes	** NA **			None
53	M57		OOOXOO				Yes	** NA **			None
54	MP2B						Yes	** NA **			None
55	M59A						Yes	** NA **			None
56	MP3B						Yes	** NA **			None
57	M61A		OOOXOO				Yes	** NA **			None
58	MP4B						Yes	** NA **			None
59	M63A						Yes	** NA **			None
60	MP5B						Yes	** NA **			None
61	M65						Yes	** NA **			None
62	M66						Yes	** NA **			None
63	M67						Yes	** NA **			None
64	M68						Yes	** NA **			None
65	M69						Yes	** NA **			None
66	M70						Yes	** NA **			None
67	M72						Yes	** NA **			None
68	M73						Yes	** NA **			None
69	M74						Yes	** NA **			None
70	M75						Yes	** NA **			None
71	M76						Yes	** NA **			None
72	M78						Yes	** NA **			None
73	M79						Yes	** NA **			None
74	M80						Yes	** NA **			None
75	M81						Yes	** NA **			None
76	M82						Yes	** NA **			None
77	M81A						Yes	** NA **			None
78	M82A						Yes	** NA **			None
79	M83	OOOOOX					Yes	** NA **			None
80	M84	OOOOOX					Yes	** NA **			None
81	M85	OOOOOX					Yes	** NA **			None
82	M86	OOOOOX					Yes	** NA **			None
83	M87	OOOOOX					Yes	** NA **			None
84	M88	OOOOOX					Yes	** NA **			None
85	M89						Yes				None
86	M90						Yes				None
87	M91						Yes				None
88	M92	BenPIN	BenPIN				Yes				None
89	M93	BenPIN	BenPIN				Yes				None
90	M94	BenPIN	BenPIN				Yes				None



Company : Maser Consulting
 Designer :
 Job Number :
 Model Name : 468759-VZW_MT_LO_H

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 11:39 AM
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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
91	M95	BenPIN	BenPIN				Yes				None
92	M96	BenPIN	BenPIN				Yes				None
93	M97	BenPIN	BenPIN				Yes				None

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude [lb,k-ft]	Location[in,%]
1	MP5A	Y	-43.55	18
2	MP5A	My	-.019	18
3	MP5A	Mz	.011	18
4	MP5A	Y	-43.55	42
5	MP5A	My	-.019	42
6	MP5A	Mz	.011	42
7	MP5B	Y	-43.55	18
8	MP5B	My	.009	18
9	MP5B	Mz	-.02	18
10	MP5B	Y	-43.55	42
11	MP5B	My	.009	42
12	MP5B	Mz	-.02	42
13	MP5C	Y	-43.55	18
14	MP5C	My	.017	18
15	MP5C	Mz	.014	18
16	MP5C	Y	-43.55	42
17	MP5C	My	.017	42
18	MP5C	Mz	.014	42
19	MP2A	Y	-84.4	18
20	MP2A	My	.037	18
21	MP2A	Mz	-.021	18
22	MP2B	Y	-84.4	18
23	MP2B	My	-.018	18
24	MP2B	Mz	.038	18
25	MP2C	Y	-84.4	18
26	MP2C	My	-.032	18
27	MP2C	Mz	-.027	18
28	MP3A	Y	-70.3	18
29	MP3A	My	.03	18
30	MP3A	Mz	-.018	18
31	MP3B	Y	-70.3	18
32	MP3B	My	-.015	18
33	MP3B	Mz	.032	18
34	MP3C	Y	-70.3	18
35	MP3C	My	-.027	18
36	MP3C	Mz	-.023	18
37	MP1A	Y	-13.9	12
38	MP1A	My	-.006	12
39	MP1A	Mz	.003	12
40	MP1A	Y	-13.9	48
41	MP1A	My	-.006	48
42	MP1A	Mz	.003	48
43	MP1B	Y	-13.9	12
44	MP1B	My	.003	12

Member Point Loads (BLC 3 : Antenna Wo (0 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
65	MP2B	Z	-115.394	54
66	MP2B	Mx	.077	54
67	MP2C	X	0	6
68	MP2C	Z	-137.498	6
69	MP2C	Mx	.008	6
70	MP2C	X	0	54
71	MP2C	Z	-137.498	54
72	MP2C	Mx	.008	54
73	MP2A	X	0	6
74	MP2A	Z	-146.334	6
75	MP2A	Mx	.027	6
76	MP2A	X	0	54
77	MP2A	Z	-146.334	54
78	MP2A	Mx	.027	54
79	MP2B	X	0	6
80	MP2B	Z	-115.394	6
81	MP2B	Mx	.028	6
82	MP2B	X	0	54
83	MP2B	Z	-115.394	54
84	MP2B	Mx	.028	54
85	MP2C	X	0	6
86	MP2C	Z	-137.498	6
87	MP2C	Mx	-.097	6
88	MP2C	X	0	54
89	MP2C	Z	-137.498	54
90	MP2C	Mx	-.097	54

Member Point Loads (BLC 4 : Antenna Wo (30 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
1	MP5A	X	25.029	18
2	MP5A	Z	-43.352	18
3	MP5A	Mx	-.022	18
4	MP5A	X	25.029	42
5	MP5A	Z	-43.352	42
6	MP5A	Mx	-.022	42
7	MP5B	X	18.238	18
8	MP5B	Z	-31.589	18
9	MP5B	Mx	.018	18
10	MP5B	X	18.238	42
11	MP5B	Z	-31.589	42
12	MP5B	Mx	.018	42
13	MP5C	X	45.196	18
14	MP5C	Z	-78.282	18
15	MP5C	Mx	-.008	18
16	MP5C	X	45.196	42
17	MP5C	Z	-78.282	42
18	MP5C	Mx	-.008	42
19	MP2A	X	27.527	18
20	MP2A	Z	-47.678	18
21	MP2A	Mx	.024	18
22	MP2B	X	24.582	18

Member Point Loads (BLC 4 : Antenna Wo (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
75	MP2A	Mx	-.022	6
76	MP2A	X	59.63	54
77	MP2A	Z	-103.282	54
78	MP2A	Mx	-.022	54
79	MP2B	X	53.067	6
80	MP2B	Z	-91.915	6
81	MP2B	Mx	.057	6
82	MP2B	X	53.067	54
83	MP2B	Z	-91.915	54
84	MP2B	Mx	.057	54
85	MP2C	X	79.119	6
86	MP2C	Z	-137.038	6
87	MP2C	Mx	-.092	6
88	MP2C	X	79.119	54
89	MP2C	Z	-137.038	54
90	MP2C	Mx	-.092	54

Member Point Loads (BLC 5 : Antenna Wo (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP5A	X	31.22	18
2	MP5A	Z	-18.025	18
3	MP5A	Mx	-.018	18
4	MP5A	X	31.22	42
5	MP5A	Z	-18.025	42
6	MP5A	Mx	-.018	42
7	MP5B	X	47.185	18
8	MP5B	Z	-27.242	18
9	MP5B	Mx	.022	18
10	MP5B	X	47.185	42
11	MP5B	Z	-27.242	42
12	MP5B	Mx	.022	42
13	MP5C	X	74.069	18
14	MP5C	Z	-42.764	18
15	MP5C	Mx	.015	18
16	MP5C	X	74.069	42
17	MP5C	Z	-42.764	42
18	MP5C	Mx	.015	42
19	MP2A	X	42.418	18
20	MP2A	Z	-24.49	18
21	MP2A	Mx	.024	18
22	MP2B	X	49.34	18
23	MP2B	Z	-28.486	18
24	MP2B	Mx	-.023	18
25	MP2C	X	60.996	18
26	MP2C	Z	-35.216	18
27	MP2C	Mx	-.012	18
28	MP3A	X	34.358	18
29	MP3A	Z	-19.837	18
30	MP3A	Mx	.02	18
31	MP3B	X	43.932	18
32	MP3B	Z	-25.364	18



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Member Point Loads (BLC 7 : Antenna Wo (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP5A	X	67.614	18
2	MP5A	Z	39.037	18
3	MP5A	Mx	-.02	18
4	MP5A	X	67.614	42
5	MP5A	Z	39.037	42
6	MP5A	Mx	-.02	42
7	MP5B	X	79.377	18
8	MP5B	Z	45.828	18
9	MP5B	Mx	-.004	18
10	MP5B	X	79.377	42
11	MP5B	Z	45.828	42
12	MP5B	Mx	-.004	42
13	MP5C	X	32.683	18
14	MP5C	Z	18.87	18
15	MP5C	Mx	.019	18
16	MP5C	X	32.683	42
17	MP5C	Z	18.87	42
18	MP5C	Mx	.019	42
19	MP2A	X	58.197	18
20	MP2A	Z	33.6	18
21	MP2A	Mx	.017	18
22	MP2B	X	63.297	18
23	MP2B	Z	36.545	18
24	MP2B	Mx	.003	18
25	MP2C	X	43.052	18
26	MP2C	Z	24.856	18
27	MP2C	Mx	-.024	18
28	MP3A	X	56.182	18
29	MP3A	Z	32.437	18
30	MP3A	Mx	.016	18
31	MP3B	X	63.236	18
32	MP3B	Z	36.509	18
33	MP3B	Mx	.003	18
34	MP3C	X	35.236	18
35	MP3C	Z	20.343	18
36	MP3C	Mx	-.02	18
37	MP1A	X	78.897	12
38	MP1A	Z	45.551	12
39	MP1A	Mx	-.023	12
40	MP1A	X	78.897	48
41	MP1A	Z	45.551	48
42	MP1A	Mx	-.023	48
43	MP1B	X	86.136	12
44	MP1B	Z	49.731	12
45	MP1B	Mx	-.004	12
46	MP1B	X	86.136	48
47	MP1B	Z	49.731	48
48	MP1B	Mx	-.004	48
49	MP1C	X	57.399	12
50	MP1C	Z	33.139	12
51	MP1C	Mx	.033	12
52	MP1C	X	57.399	48



Member Point Loads (BLC 9 : Antenna Wo (180 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
73	MP2A	X	0	6
74	MP2A	Z	146.334	6
75	MP2A	Mx	-.027	6
76	MP2A	X	0	54
77	MP2A	Z	146.334	54
78	MP2A	Mx	-.027	54
79	MP2B	X	0	6
80	MP2B	Z	115.394	6
81	MP2B	Mx	-.028	6
82	MP2B	X	0	54
83	MP2B	Z	115.394	54
84	MP2B	Mx	-.028	54
85	MP2C	X	0	6
86	MP2C	Z	137.498	6
87	MP2C	Mx	.097	6
88	MP2C	X	0	54
89	MP2C	Z	137.498	54
90	MP2C	Mx	.097	54

Member Point Loads (BLC 10 : Antenna Wo (210 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
1	MP5A	X	-25.029	18
2	MP5A	Z	43.352	18
3	MP5A	Mx	.022	18
4	MP5A	X	-25.029	42
5	MP5A	Z	43.352	42
6	MP5A	Mx	.022	42
7	MP5B	X	-18.238	18
8	MP5B	Z	31.589	18
9	MP5B	Mx	-.018	18
10	MP5B	X	-18.238	42
11	MP5B	Z	31.589	42
12	MP5B	Mx	-.018	42
13	MP5C	X	-45.196	18
14	MP5C	Z	78.282	18
15	MP5C	Mx	.008	18
16	MP5C	X	-45.196	42
17	MP5C	Z	78.282	42
18	MP5C	Mx	.008	42
19	MP2A	X	-27.527	18
20	MP2A	Z	47.678	18
21	MP2A	Mx	-.024	18
22	MP2B	X	-24.582	18
23	MP2B	Z	42.578	18
24	MP2B	Mx	.024	18
25	MP2C	X	-36.271	18
26	MP2C	Z	62.823	18
27	MP2C	Mx	-.006	18
28	MP3A	X	-24.037	18
29	MP3A	Z	41.633	18
30	MP3A	Mx	-.021	18

Member Point Loads (BLC 15 : Antenna Wi (0 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
83	MP2B	Z	-25.032	54
84	MP2B	Mx	.006	54
85	MP2C	X	0	6
86	MP2C	Z	-29.059	6
87	MP2C	Mx	-.02	6
88	MP2C	X	0	54
89	MP2C	Z	-29.059	54
90	MP2C	Mx	-.02	54

Member Point Loads (BLC 16 : Antenna Wi (30 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
1	MP5A	X	5.743	18
2	MP5A	Z	-9.948	18
3	MP5A	Mx	-.005	18
4	MP5A	X	5.743	42
5	MP5A	Z	-9.948	42
6	MP5A	Mx	-.005	42
7	MP5B	X	4.411	18
8	MP5B	Z	-7.641	18
9	MP5B	Mx	.004	18
10	MP5B	X	4.411	42
11	MP5B	Z	-7.641	42
12	MP5B	Mx	.004	42
13	MP5C	X	9.699	18
14	MP5C	Z	-16.798	18
15	MP5C	Mx	-.002	18
16	MP5C	X	9.699	42
17	MP5C	Z	-16.798	42
18	MP5C	Mx	-.002	42
19	MP2A	X	6.664	18
20	MP2A	Z	-11.542	18
21	MP2A	Mx	.006	18
22	MP2B	X	6.061	18
23	MP2B	Z	-10.498	18
24	MP2B	Mx	-.006	18
25	MP2C	X	8.455	18
26	MP2C	Z	-14.645	18
27	MP2C	Mx	.001	18
28	MP3A	X	5.955	18
29	MP3A	Z	-10.314	18
30	MP3A	Mx	.005	18
31	MP3B	X	5.122	18
32	MP3B	Z	-8.872	18
33	MP3B	Mx	-.005	18
34	MP3C	X	8.427	18
35	MP3C	Z	-14.595	18
36	MP3C	Mx	.001	18
37	MP1A	X	8.17	12
38	MP1A	Z	-14.15	12
39	MP1A	Mx	-.007	12
40	MP1A	X	8.17	48



Member Point Loads (BLC 17 : Antenna Wi (60 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
1	MP5A	X	7.569	18
2	MP5A	Z	-4.37	18
3	MP5A	Mx	-.004	18
4	MP5A	X	7.569	42
5	MP5A	Z	-4.37	42
6	MP5A	Mx	-.004	42
7	MP5B	X	10.7	18
8	MP5B	Z	-6.177	18
9	MP5B	Mx	.005	18
10	MP5B	X	10.7	42
11	MP5B	Z	-6.177	42
12	MP5B	Mx	.005	42
13	MP5C	X	15.972	18
14	MP5C	Z	-9.221	18
15	MP5C	Mx	.003	18
16	MP5C	X	15.972	42
17	MP5C	Z	-9.221	42
18	MP5C	Mx	.003	42
19	MP2A	X	10.465	18
20	MP2A	Z	-6.042	18
21	MP2A	Mx	.006	18
22	MP2B	X	11.883	18
23	MP2B	Z	-6.861	18
24	MP2B	Mx	-.006	18
25	MP2C	X	14.271	18
26	MP2C	Z	-8.239	18
27	MP2C	Mx	-.003	18
28	MP3A	X	8.827	18
29	MP3A	Z	-5.096	18
30	MP3A	Mx	.005	18
31	MP3B	X	10.784	18
32	MP3B	Z	-6.226	18
33	MP3B	Mx	-.005	18
34	MP3C	X	14.079	18
35	MP3C	Z	-8.129	18
36	MP3C	Mx	-.003	18
37	MP1A	X	12.724	12
38	MP1A	Z	-7.346	12
39	MP1A	Mx	-.007	12
40	MP1A	X	12.724	48
41	MP1A	Z	-7.346	48
42	MP1A	Mx	-.007	48
43	MP1B	X	14.601	12
44	MP1B	Z	-8.43	12
45	MP1B	Mx	.007	12
46	MP1B	X	14.601	48
47	MP1B	Z	-8.43	48
48	MP1B	Mx	.007	48
49	MP1C	X	17.761	12
50	MP1C	Z	-10.254	12
51	MP1C	Mx	.004	12
52	MP1C	X	17.761	48

Member Point Loads (BLC 19 : Antenna Wi (120 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in, %]
73	MP2A	X	26.56	6
74	MP2A	Z	15.334	6
75	MP2A	Mx	-.021	6
76	MP2A	X	26.56	54
77	MP2A	Z	15.334	54
78	MP2A	Mx	-.021	54
79	MP2B	X	28.63	6
80	MP2B	Z	16.53	6
81	MP2B	Mx	.015	6
82	MP2B	X	28.63	54
83	MP2B	Z	16.53	54
84	MP2B	Mx	.015	54
85	MP2C	X	20.411	6
86	MP2C	Z	11.784	6
87	MP2C	Mx	.01	6
88	MP2C	X	20.411	54
89	MP2C	Z	11.784	54
90	MP2C	Mx	.01	54

Member Point Loads (BLC 20 : Antenna Wi (150 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in, %]
1	MP5A	X	9.864	18
2	MP5A	Z	17.085	18
3	MP5A	Mx	0	18
4	MP5A	X	9.864	42
5	MP5A	Z	17.085	42
6	MP5A	Mx	0	42
7	MP5B	X	8.057	18
8	MP5B	Z	13.954	18
9	MP5B	Mx	-.005	18
10	MP5B	X	8.057	42
11	MP5B	Z	13.954	42
12	MP5B	Mx	-.005	42
13	MP5C	X	5.012	18
14	MP5C	Z	8.682	18
15	MP5C	Mx	.005	18
16	MP5C	X	5.012	42
17	MP5C	Z	8.682	42
18	MP5C	Mx	.005	42
19	MP2A	X	8.53	18
20	MP2A	Z	14.775	18
21	MP2A	Mx	0	18
22	MP2B	X	7.712	18
23	MP2B	Z	13.357	18
24	MP2B	Mx	.004	18
25	MP2C	X	6.333	18
26	MP2C	Z	10.969	18
27	MP2C	Mx	-.006	18
28	MP3A	X	8.53	18
29	MP3A	Z	14.775	18
30	MP3A	Mx	0	18



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Member Point Loads (BLC 20 : Antenna Wi (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
31	MP3B	X	7.4	18
32	MP3B	Z	12.818	18
33	MP3B	Mx	.004	18
34	MP3C	X	5.498	18
35	MP3C	Z	9.523	18
36	MP3C	Mx	-.005	18
37	MP1A	X	10.64	12
38	MP1A	Z	18.429	12
39	MP1A	Mx	0	12
40	MP1A	X	10.64	48
41	MP1A	Z	18.429	48
42	MP1A	Mx	0	48
43	MP1B	X	9.556	12
44	MP1B	Z	16.552	12
45	MP1B	Mx	-.005	12
46	MP1B	X	9.556	48
47	MP1B	Z	16.552	48
48	MP1B	Mx	-.005	48
49	MP1C	X	7.732	12
50	MP1C	Z	13.391	12
51	MP1C	Mx	.007	12
52	MP1C	X	7.732	48
53	MP1C	Z	13.391	48
54	MP1C	Mx	.007	48
55	MP2A	X	16.567	6
56	MP2A	Z	28.695	6
57	MP2A	Mx	.017	6
58	MP2A	X	16.567	54
59	MP2A	Z	28.695	54
60	MP2A	Mx	.017	54
61	MP2B	X	14.945	6
62	MP2B	Z	25.885	6
63	MP2B	Mx	-.021	6
64	MP2B	X	14.945	54
65	MP2B	Z	25.885	54
66	MP2B	Mx	-.021	54
67	MP2C	X	12.212	6
68	MP2C	Z	21.152	6
69	MP2C	Mx	.007	6
70	MP2C	X	12.212	54
71	MP2C	Z	21.152	54
72	MP2C	Mx	.007	54
73	MP2A	X	16.567	6
74	MP2A	Z	28.695	6
75	MP2A	Mx	-.017	6
76	MP2A	X	16.567	54
77	MP2A	Z	28.695	54
78	MP2A	Mx	-.017	54
79	MP2B	X	14.945	6
80	MP2B	Z	25.885	6
81	MP2B	Mx	.004	6
82	MP2B	X	14.945	54

Member Point Loads (BLC 24 : Antenna Wi (270 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
73	MP2A	X	-25.737	6
74	MP2A	Z	0	6
75	MP2A	Mx	.018	6
76	MP2A	X	-25.737	54
77	MP2A	Z	0	54
78	MP2A	Mx	.018	54
79	MP2B	X	-31.373	6
80	MP2B	Z	0	6
81	MP2B	Mx	-.021	6
82	MP2B	X	-31.373	54
83	MP2B	Z	0	54
84	MP2B	Mx	-.021	54
85	MP2C	X	-27.346	6
86	MP2C	Z	0	6
87	MP2C	Mx	-.002	6
88	MP2C	X	-27.346	54
89	MP2C	Z	0	54
90	MP2C	Mx	-.002	54

Member Point Loads (BLC 25 : Antenna Wi (300 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
1	MP5A	X	-14.706	18
2	MP5A	Z	-8.491	18
3	MP5A	Mx	.004	18
4	MP5A	X	-14.706	42
5	MP5A	Z	-8.491	42
6	MP5A	Mx	.004	42
7	MP5B	X	-17.013	18
8	MP5B	Z	-9.822	18
9	MP5B	Mx	.000856	18
10	MP5B	X	-17.013	42
11	MP5B	Z	-9.822	42
12	MP5B	Mx	.000856	42
13	MP5C	X	-7.856	18
14	MP5C	Z	-4.535	18
15	MP5C	Mx	-.004	18
16	MP5C	X	-7.856	42
17	MP5C	Z	-4.535	42
18	MP5C	Mx	-.004	42
19	MP2A	X	-13.697	18
20	MP2A	Z	-7.908	18
21	MP2A	Mx	-.004	18
22	MP2B	X	-14.742	18
23	MP2B	Z	-8.511	18
24	MP2B	Mx	-.000742	18
25	MP2C	X	-10.595	18
26	MP2C	Z	-6.117	18
27	MP2C	Mx	.006	18
28	MP3A	X	-13.288	18
29	MP3A	Z	-7.672	18
30	MP3A	Mx	-.004	18

Member Point Loads (BLC 25 : Antenna Wi (300 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
83	MP2B	Z	-16.53	54
84	MP2B	Mx	-.015	54
85	MP2C	X	-20.411	6
86	MP2C	Z	-11.784	6
87	MP2C	Mx	-.01	6
88	MP2C	X	-20.411	54
89	MP2C	Z	-11.784	54
90	MP2C	Mx	-.01	54

Member Point Loads (BLC 26 : Antenna Wi (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP5A	X	-9.864	18
2	MP5A	Z	-17.085	18
3	MP5A	Mx	0	18
4	MP5A	X	-9.864	42
5	MP5A	Z	-17.085	42
6	MP5A	Mx	0	42
7	MP5B	X	-8.057	18
8	MP5B	Z	-13.954	18
9	MP5B	Mx	.005	18
10	MP5B	X	-8.057	42
11	MP5B	Z	-13.954	42
12	MP5B	Mx	.005	42
13	MP5C	X	-5.012	18
14	MP5C	Z	-8.682	18
15	MP5C	Mx	-.005	18
16	MP5C	X	-5.012	42
17	MP5C	Z	-8.682	42
18	MP5C	Mx	-.005	42
19	MP2A	X	-8.53	18
20	MP2A	Z	-14.775	18
21	MP2A	Mx	0	18
22	MP2B	X	-7.712	18
23	MP2B	Z	-13.357	18
24	MP2B	Mx	-.004	18
25	MP2C	X	-6.333	18
26	MP2C	Z	-10.969	18
27	MP2C	Mx	.006	18
28	MP3A	X	-8.53	18
29	MP3A	Z	-14.775	18
30	MP3A	Mx	0	18
31	MP3B	X	-7.4	18
32	MP3B	Z	-12.818	18
33	MP3B	Mx	-.004	18
34	MP3C	X	-5.498	18
35	MP3C	Z	-9.523	18
36	MP3C	Mx	.005	18
37	MP1A	X	-10.64	12
38	MP1A	Z	-18.429	12
39	MP1A	Mx	0	12
40	MP1A	X	-10.64	48

Member Point Loads (BLC 34 : Antenna Wm (210 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
73	MP2A	X	-3.854	6
74	MP2A	Z	6.676	6
75	MP2A	Mx	.001	6
76	MP2A	X	-3.854	54
77	MP2A	Z	6.676	54
78	MP2A	Mx	.001	54
79	MP2B	X	-3.43	6
80	MP2B	Z	5.941	6
81	MP2B	Mx	-.004	6
82	MP2B	X	-3.43	54
83	MP2B	Z	5.941	54
84	MP2B	Mx	-.004	54
85	MP2C	X	-5.114	6
86	MP2C	Z	8.858	6
87	MP2C	Mx	.006	6
88	MP2C	X	-5.114	54
89	MP2C	Z	8.858	54
90	MP2C	Mx	.006	54

Member Point Loads (BLC 35 : Antenna Wm (240 Deg))

	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
1	MP5A	X	-2.018	18
2	MP5A	Z	1.165	18
3	MP5A	Mx	.001	18
4	MP5A	X	-2.018	42
5	MP5A	Z	1.165	42
6	MP5A	Mx	.001	42
7	MP5B	X	-3.05	18
8	MP5B	Z	1.761	18
9	MP5B	Mx	-.001	18
10	MP5B	X	-3.05	42
11	MP5B	Z	1.761	42
12	MP5B	Mx	-.001	42
13	MP5C	X	-4.788	18
14	MP5C	Z	2.764	18
15	MP5C	Mx	-.000946	18
16	MP5C	X	-4.788	42
17	MP5C	Z	2.764	42
18	MP5C	Mx	-.000946	42
19	MP2A	X	-2.742	18
20	MP2A	Z	1.583	18
21	MP2A	Mx	-.002	18
22	MP2B	X	-3.189	18
23	MP2B	Z	1.841	18
24	MP2B	Mx	.002	18
25	MP2C	X	-3.943	18
26	MP2C	Z	2.276	18
27	MP2C	Mx	.000779	18
28	MP3A	X	-2.221	18
29	MP3A	Z	1.282	18
30	MP3A	Mx	-.001	18



Member Point Loads (BLC 35 : Antenna Wm (240 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
31	MP3B	X	-2.84	18
32	MP3B	Z	1.639	18
33	MP3B	Mx	.001	18
34	MP3C	X	-3.882	18
35	MP3C	Z	2.241	18
36	MP3C	Mx	.000767	18
37	MP1A	X	-3.652	12
38	MP1A	Z	2.108	12
39	MP1A	Mx	.002	12
40	MP1A	X	-3.652	48
41	MP1A	Z	2.108	48
42	MP1A	Mx	.002	48
43	MP1B	X	-4.287	12
44	MP1B	Z	2.475	12
45	MP1B	Mx	-.002	12
46	MP1B	X	-4.287	48
47	MP1B	Z	2.475	48
48	MP1B	Mx	-.002	48
49	MP1C	X	-5.356	12
50	MP1C	Z	3.093	12
51	MP1C	Mx	-.001	12
52	MP1C	X	-5.356	48
53	MP1C	Z	3.093	48
54	MP1C	Mx	-.001	48
55	MP2A	X	-5.918	6
56	MP2A	Z	3.417	6
57	MP2A	Mx	.003	6
58	MP2A	X	-5.918	54
59	MP2A	Z	3.417	54
60	MP2A	Mx	.003	54
61	MP2B	X	-6.915	6
62	MP2B	Z	3.993	6
63	MP2B	Mx	-.000981	6
64	MP2B	X	-6.915	54
65	MP2B	Z	3.993	54
66	MP2B	Mx	-.000981	54
67	MP2C	X	-8.595	6
68	MP2C	Z	4.962	6
69	MP2C	Mx	-.006	6
70	MP2C	X	-8.595	54
71	MP2C	Z	4.962	54
72	MP2C	Mx	-.006	54
73	MP2A	X	-5.918	6
74	MP2A	Z	3.417	6
75	MP2A	Mx	.003	6
76	MP2A	X	-5.918	54
77	MP2A	Z	3.417	54
78	MP2A	Mx	.003	54
79	MP2B	X	-6.915	6
80	MP2B	Z	3.993	6
81	MP2B	Mx	-.006	6
82	MP2B	X	-6.915	54



Member Point Loads (BLC 37 : Antenna Wm (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
1	MP5A	X	-4.37	18
2	MP5A	Z	-2.523	18
3	MP5A	Mx	.001	18
4	MP5A	X	-4.37	42
5	MP5A	Z	-2.523	42
6	MP5A	Mx	.001	42
7	MP5B	X	-5.131	18
8	MP5B	Z	-2.962	18
9	MP5B	Mx	.000258	18
10	MP5B	X	-5.131	42
11	MP5B	Z	-2.962	42
12	MP5B	Mx	.000258	42
13	MP5C	X	-2.113	18
14	MP5C	Z	-1.22	18
15	MP5C	Mx	-.001	18
16	MP5C	X	-2.113	42
17	MP5C	Z	-1.22	42
18	MP5C	Mx	-.001	42
19	MP2A	X	-3.762	18
20	MP2A	Z	-2.172	18
21	MP2A	Mx	-.001	18
22	MP2B	X	-4.091	18
23	MP2B	Z	-2.362	18
24	MP2B	Mx	-.000206	18
25	MP2C	X	-2.783	18
26	MP2C	Z	-1.607	18
27	MP2C	Mx	.002	18
28	MP3A	X	-3.631	18
29	MP3A	Z	-2.097	18
30	MP3A	Mx	-.001	18
31	MP3B	X	-4.087	18
32	MP3B	Z	-2.36	18
33	MP3B	Mx	-.000206	18
34	MP3C	X	-2.278	18
35	MP3C	Z	-1.315	18
36	MP3C	Mx	.001	18
37	MP1A	X	-5.1	12
38	MP1A	Z	-2.944	12
39	MP1A	Mx	.001	12
40	MP1A	X	-5.1	48
41	MP1A	Z	-2.944	48
42	MP1A	Mx	.001	48
43	MP1B	X	-5.568	12
44	MP1B	Z	-3.214	12
45	MP1B	Mx	.00028	12
46	MP1B	X	-5.568	48
47	MP1B	Z	-3.214	48
48	MP1B	Mx	.00028	48
49	MP1C	X	-3.71	12
50	MP1C	Z	-2.142	12
51	MP1C	Mx	-.002	12
52	MP1C	X	-3.71	48

Member Point Loads (BLC 38 : Antenna Wm (330 Deg)) (Continued)

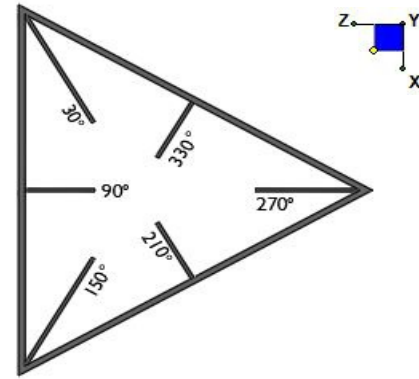
	Member Label	Direction	Magnitude [lb,k-ft]	Location [in,%]
11	MP5B	Z	-4.123	42
12	MP5B	Mx	.001	42
13	MP5C	X	-1.377	18
14	MP5C	Z	-2.385	18
15	MP5C	Mx	-.001	18
16	MP5C	X	-1.377	42
17	MP5C	Z	-2.385	42
18	MP5C	Mx	-.001	42
19	MP2A	X	-2.368	18
20	MP2A	Z	-4.102	18
21	MP2A	Mx	0	18
22	MP2B	X	-2.11	18
23	MP2B	Z	-3.654	18
24	MP2B	Mx	-.001	18
25	MP2C	X	-1.675	18
26	MP2C	Z	-2.901	18
27	MP2C	Mx	.002	18
28	MP3A	X	-2.368	18
29	MP3A	Z	-4.102	18
30	MP3A	Mx	0	18
31	MP3B	X	-2.011	18
32	MP3B	Z	-3.483	18
33	MP3B	Mx	-.001	18
34	MP3C	X	-1.409	18
35	MP3C	Z	-2.441	18
36	MP3C	Mx	.001	18
37	MP1A	X	-3.223	12
38	MP1A	Z	-5.582	12
39	MP1A	Mx	0	12
40	MP1A	X	-3.223	48
41	MP1A	Z	-5.582	48
42	MP1A	Mx	0	48
43	MP1B	X	-2.856	12
44	MP1B	Z	-4.947	12
45	MP1B	Mx	.002	12
46	MP1B	X	-2.856	48
47	MP1B	Z	-4.947	48
48	MP1B	Mx	.002	48
49	MP1C	X	-2.239	12
50	MP1C	Z	-3.878	12
51	MP1C	Mx	-.002	12
52	MP1C	X	-2.239	48
53	MP1C	Z	-3.878	48
54	MP1C	Mx	-.002	48
55	MP2A	X	-5.167	6
56	MP2A	Z	-8.949	6
57	MP2A	Mx	-.005	6
58	MP2A	X	-5.167	54
59	MP2A	Z	-8.949	54
60	MP2A	Mx	-.005	54
61	MP2B	X	-4.591	6
62	MP2B	Z	-7.952	6



I. Mount-to-Tower Connection Check

RISA Model Data

Nodes (labeled per RISA)	Orientation (per graphic of typical platform)
N7	90
N23	330
N15	210



TYPICAL PLATFORM

Tower Connection Plate and Weld Check

Connecting Standoff Member Shape:

W1 (in):

W2 (in):

Weld Size (1/16 in):

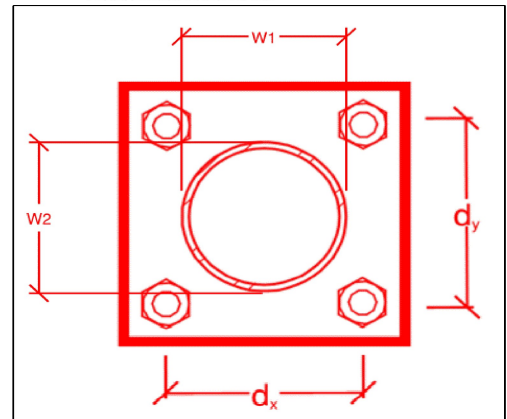
Phi*Rn (kip/in):

Required Weld Strength (kip/in):

Plate Bending Capacity:

Weld Capacity:

Rect
4
4
4
5.57
3.96
#N/A
71.2%



Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Purpose – to provide Maser Consulting Connecticut the proper documentation in order 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:

- 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) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the modification drawings. NOTE If loading is different than what is conveyed in the modification drawing contact Maser Consulting Connecticut immediately.
- Each photo should be time and date stamped
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Contractor shall ensure that the safety climb wire rope is supported and 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.
- The photos in the file structure should be uploaded to <https://pmi.vzwsmart.com> as depicted on the drawings

Photo Requirements:

- Base and “During Installation Photos”
 - Base pictures include
 - Photo of Gate Signs showing the tower owner, site name, and number
 - Photo of carrier shelter showing the carrier site name and number if available
 - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name
 - “During Installation Photos if provided - must be placed only in this folder
- Photos taken at ground level
 - Overall tower structure before and after installation of the modifications
 - Photos of the appropriate mount before and 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 each individual sector before and also after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.
 - These photos should also certify that the placement and geometry of the equipment on the mount is as depicted on the sketch and table in the mount analysis
 - Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
 - Photos showing the measurements of the installed modification member sizes (i.e. lengths, widths, depths, diameters, thicknesses)
 - Photos showing the elevation or distances of the installed modifications from the appropriate reference locations shown in the modification drawings
 - Photos showing the installed modifications onto the tower with tape drop measurements (if applicable) (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, a tape drop measurement shall be provided before the elevation change
 - 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.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by Maser Consulting Connecticut.
 - If the drawings are as specified on the drawings
 - The contractor should provide the packing list or the materials utilized to perform the mount modification
 - If an equivalent is utilized
 - It is required that the Maser Consulting Connecticut certification of such is included in the contractor submission package. There may be an additional charge for this certification if the equivalent submission doesn't meet specifications as prescribed in the drawings.
- The contractor must certify that the materials meet these specifications by one of these methods.


















The Material utilized was as specified on the Maser Consulting Connecticut Mount Modification Drawings and included in the Material certification folder is a packing list or invoice for these materials

The material utilized was an "equivalent" and included as part of the contractor submission is the Maser Consulting Connecticut certification, invoices, or specifications validating accepted status

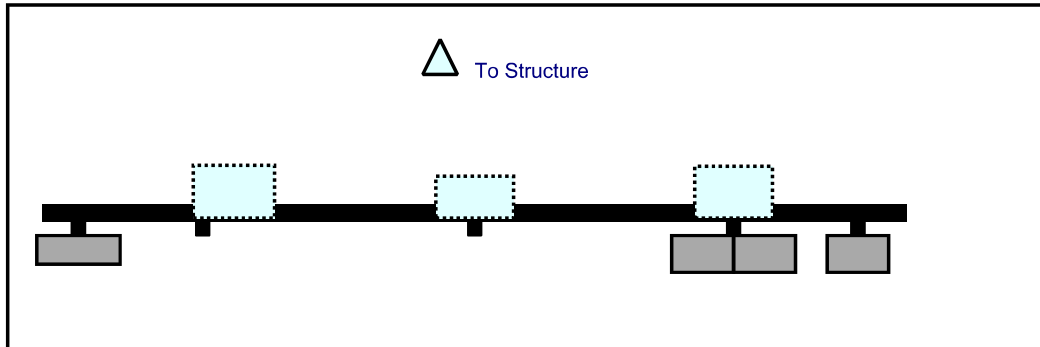
Certifying Individual: Company _____

Name _____

Schedule A – Photo & Document File Structure

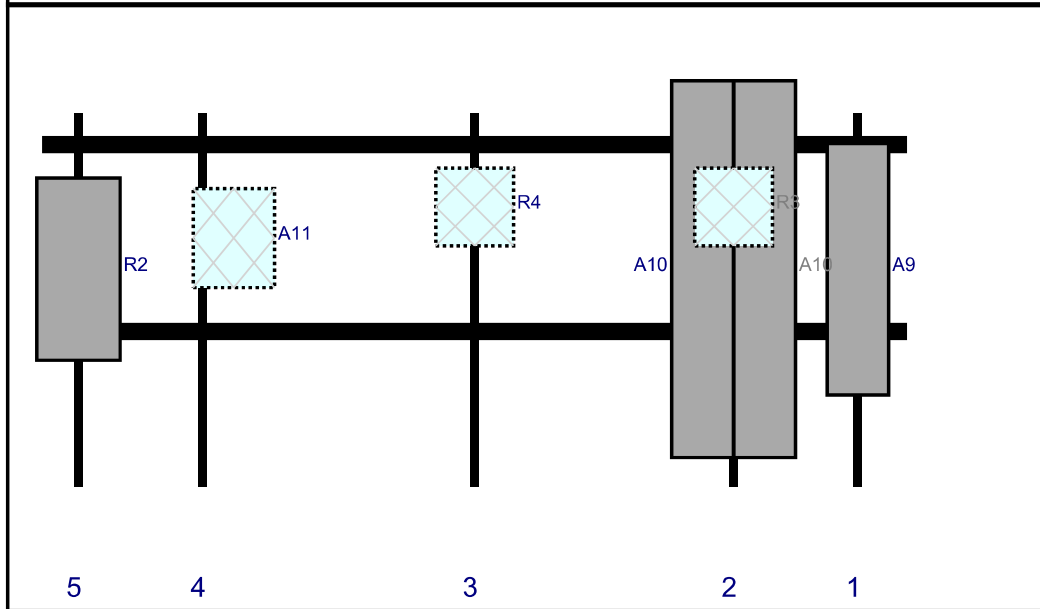
-  VzW Site Number / Name
 -  Base & “During Installation” Photos
 -  Pre-Installation Photos
 -  Alpha
 -  Beta
 -  Gamma
 -  Ground Level
 -  Tape Drop
 -  Post-Installation Photos
 -  Alpha
 -  Beta
 -  Gamma
 -  Ground Level
 -  Tape Drop
 -  Photos of climbing facility and safety climb – If Present
-  Certifications – Submission of this document including certifications
-  Specific Required Additional Photos

Plan View



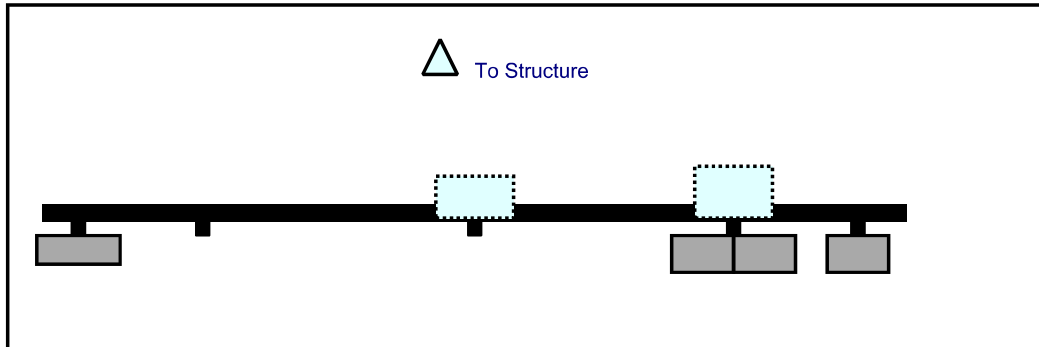
Front View

Looking at Structure



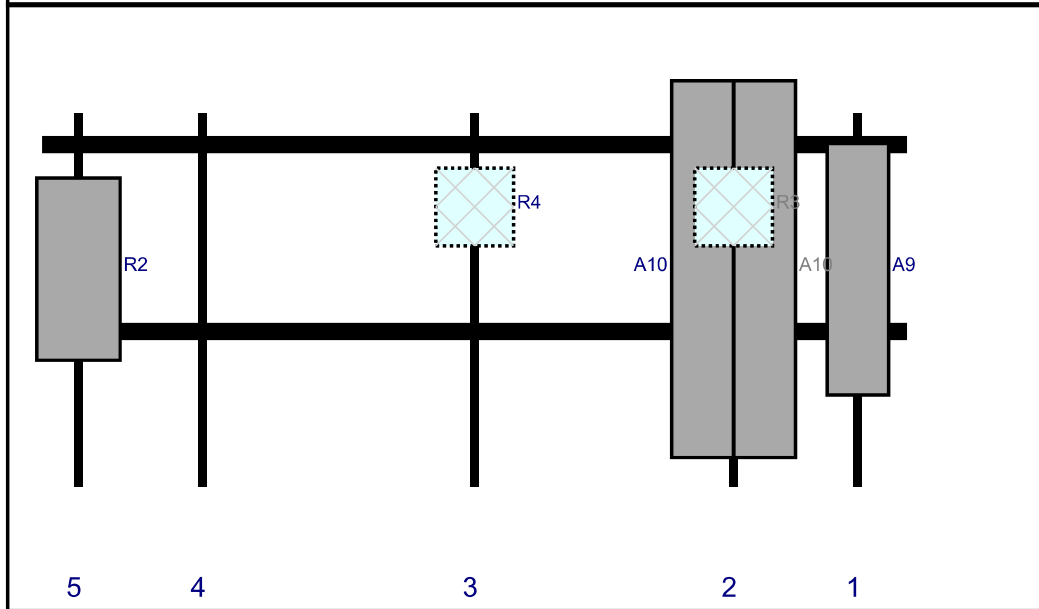
Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A9	LNX-6512DS	48.5	11.9	157.5	1	a	Front	30	0	Retained	02/18/2021
A10	SBNHH-1D65B	72.6	11.9	133.5	2	a	Front	30	6	Retained	02/18/2021
A10	SBNHH-1D65B	72.6	11.9	133.5	2	b	Front	30	-6	Retained	02/18/2021
R3	B2-B66A RRH-BRO49	15	15	133.5	2	a	Behind	18	0	Added	
R4	B5/B13 RRH-BRO4C	15	15	83.5	3	a	Behind	18	0	Added	
A11	RRFDC-3315-PF-48	19.1	15.7	31	4	a	Behind	24	6	Retained	02/18/2021
R2	MT6407-77A	35.1	16.1	7	5	a	Front	30	0	Added	

Plan View



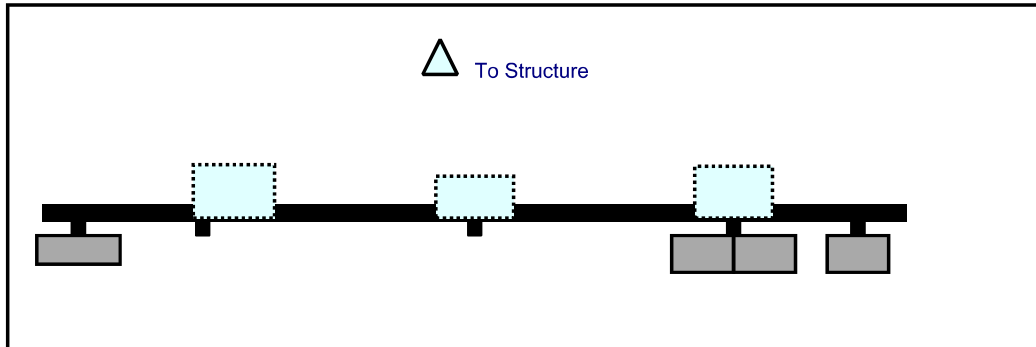
Front View

Looking at Structure



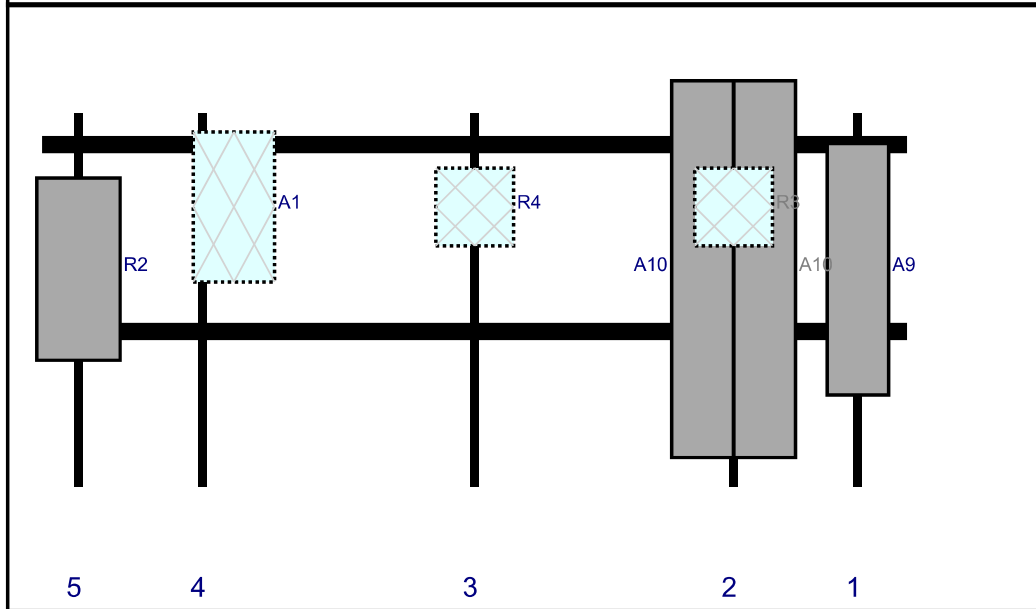
Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A9	LNX-6512DS	48.5	11.9	157.5	1	a	Front	30	0	Retained	02/18/2021
A10	SBNHH-1D65B	72.6	11.9	133.5	2	a	Front	30	6	Retained	02/18/2021
A10	SBNHH-1D65B	72.6	11.9	133.5	2	b	Front	30	-6	Retained	02/18/2021
R3	B2-B66A RRH-BRO49	15	15	133.5	2	a	Behind	18	0	Added	
R4	B5/B13 RRH-BRO4C	15	15	83.5	3	a	Behind	18	0	Added	
R2	MT6407-77A	35.1	16.1	7	5	a	Front	30	0	Added	

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
A9	LNX-6512DS	48.5	11.9	157.5	1	a	Front	30	0	Retained	02/18/2021
A10	SBNHH-1D65B	72.6	11.9	133.5	2	a	Front	30	6	Retained	02/18/2021
A10	SBNHH-1D65B	72.6	11.9	133.5	2	b	Front	30	-6	Retained	02/18/2021
R3	B2-B66A RRH-BRO49	15	15	133.5	2	a	Behind	18	0	Added	
R4	B5/B13 RRH-BRO4C	15	15	83.5	3	a	Behind	18	0	Added	
A1	RVZDC-6627-PF-48	28.9	15.7	31	4	a	Behind	18	6	Added	
R2	MT6407-77A	35.1	16.1	7	5	a	Front	30	0	Added	

Maser Consulting Connecticut

Subject

TIA-222-H Usage

Site Information

Site ID: 468759-VZW /
BUCKLAND CT
Site Name: BUCKLAND CT
Carrier Name: Verizon Wireless
Address:
53 Slater Rd
Manchester, Connecticut 06040
Hartford County
Latitude: 41.805056°
Longitude: -72.533500°

Structure Information

Tower Type: Monopole
Mount Type: 14.08-Ft 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 2018 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,

Taqi Khawaja, PE
Technical Manager

Exhibit F

Power Density/RF Emissions Report

Site Name: **BUCKLAND CT**
 Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm ²)	(mW/cm ²)	(%)
VZW 700	751	4	697	2787	113	0.0078	0.5007	1.57%
VZW CDMA	877.26	2	444	887	113	0.0025	0.5848	0.43%
VZW Cellular	874	4	697	2787	113	0.0078	0.5827	1.35%
VZW PCS	1975	4	1208	4832	113	0.0136	1.0000	1.36%
VZW AWS	2120	2	2365	4731	113	0.0133	1.0000	1.33%
VZW CBAND	3730.005	4	6531	26125	113	0.0736	1.0000	7.36%
Total Percentage of Maximum Permissible Exposure								13.39%

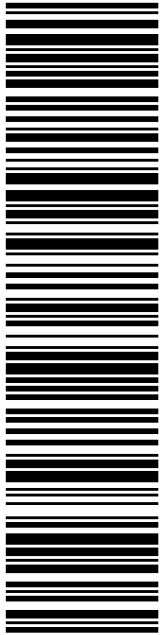
*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992
 **Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz
 mW/cm² = milliwatts per square centimeter
 ERP = Effective Radiated Power

Absolute worst case maximum values used.

Exhibit G

Recipient Mailings



USPS TRACKING #

9405 5036 9930 0050 8767 77

Electronic Rate Approved #038555749

SHIP TO:

SARAH SNELL
1800 W PARK DR
WESTBOROUGH MA 01581-3926

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

Expected Delivery Date: 11/03/21
Ref#: CR-876347
0006

C006

P

11/02/2021

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usps.com 9405 5036 9930 0050 8767 77 0087 0000 0010 1581

US POSTAGE
Flat Rate Envoy

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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.
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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0050 8767 77

Trans. #: 547438229	Priority Mail® Postage: \$8.70
Print Date: 11/02/2021	Total: \$8.70
Ship Date: 11/02/2021	
Expected Delivery Date: 11/03/2021	

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

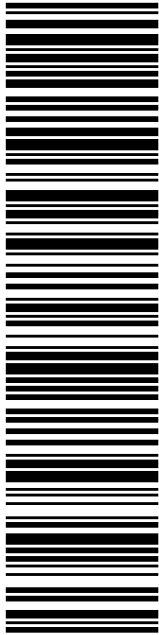
Ref#: CR-876347

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 0050 8767 91

Electronic Rate Approved #038555749

SHIP TO:

STEVE STEPHANOU
41 CENTER ST
MANCHESTER CT 06040-5090

P

USPS.com 9405 5036 9930 0050 8767 91 0162 5000 0010 6040
US POSTAGE \$16.25
 MD Flat Rate Box

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11/02/2021

PRIORITY MAIL 2-DAY™

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

Expected Delivery Date: 11/05/21
 Ref#: CR-876347
0004

C004



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USPS TRACKING # :
9405 5036 9930 0050 8767 91

Trans. #: 547438229	Priority Mail® Postage: \$16.25
Print Date: 11/02/2021	Total: \$16.25
Ship Date: 11/02/2021	
Expected Delivery Date: 11/05/2021	

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

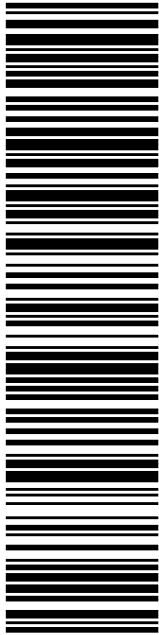
Ref#: CR-876347

To: STEVE STEPHANOU
 41 CENTER ST
 MANCHESTER CT 06040-5090

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USPS TRACKING #

9405 5036 9930 0050 8768 38

Electronic Rate Approved #038555749

SHIP TO:
 ONE HUNDRED TWENTY-ONE CONNECTICUT AVE
 9 LAKE LN
 ELLINGTON CT 06029-3044

P

usps.com 9405 5036 9930 0050 8768 38 0162 5000 0010 6029
US POSTAGE
 MD Flat Rate Box

11/02/2021 Mailed from 01566


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

Expected Delivery Date: 11/05/21
 Ref#: CR-876347
0004

R014



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0050 8768 38

Trans. #: 547438229	Priority Mail® Postage: \$16.25
Print Date: 11/02/2021	Total: \$16.25
Ship Date: 11/02/2021	
Expected Delivery Date: 11/05/2021	

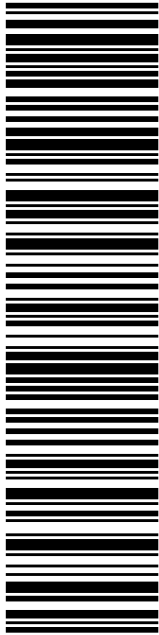
From: DEBORAH CHASE Ref#: CR-876347
 NORTHEAST SITE SOLUTIONS
 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

To: ONE HUNDRED TWENTY-ONE CONNECTICUT AVE
 ASSOC LLC
 9 LAKE LN
 ELLINGTON CT 06029-3044

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USPS TRACKING #

9405 5036 9930 0050 9371 95

Electronic Rate Approved #038555749

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11/02/2021

PRIORITY MAIL 2-DAY™


Expected Delivery Date: 11/05/21
Ret#: CR-876347
0004

C009

SHIP TO: GARY ANDERSON
DIRECTOR OF PLANNING AND ZONING-
494 MAIN ST
LINCOLN CENTER 2ND FLOOR
MANCHESTER CT 06040-4102

USPS.com
9405 5036 9930 0050 9371 95 0162 5000 0010 6040
US POSTAGE \$16.25
MD Flat Rate Box
U.S. POSTAGE PAID
Click-N-Ship®

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USPS TRACKING # :
9405 5036 9930 0050 9371 95

Trans. #: 547443390	Priority Mail® Postage: \$16.25
Print Date: 11/02/2021	Total: \$16.25
Ship Date: 11/02/2021	
Expected Delivery Date: 11/05/2021	

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

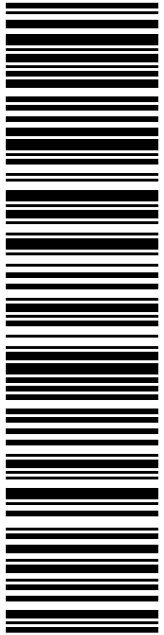
Ref#: CR-876347

To: GARY ANDERSON
DIRECTOR OF PLANNING AND ZONING-MANCHESTER
494 MAIN ST
LINCOLN CENTER 2ND FLOOR
MANCHESTER CT 06040-4102

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USPS TRACKING #

9405 5036 9930 0050 9372 18

Electronic Rate Approved #038555749

SHIP

TO: JAY MORAN
MAYOR- MANCHESTER
41 CENTER ST
MANCHESTER CT 06040-5090

P

11/02/2021

USPS.com 9405 5036 9930 0050 9372 18 0162 5000 0010 6040
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420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Expected Delivery Date: 11/05/21
 Ref#: CR-876347
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C004



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0050 9372 18

Trans. #: 547443390	Priority Mail® Postage: \$16.25
Print Date: 11/02/2021	Total: \$16.25
Ship Date: 11/02/2021	
Expected Delivery Date: 11/05/2021	

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

Ref#: CR-876347

To: JAY MORAN
 MAYOR- MANCHESTER
 41 CENTER ST
 MANCHESTER CT 06040-5090

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GREENDALE
290 W BOYLSTON ST
WORCESTER, MA 01606-2378
(800)275-8777

01/14/2022

03:29 PM

Product	Qty	Unit Price	Price
Prepaid Mail Manchester, CT 06040 Weight: 0 lb 11.10 oz Acceptance Date: Fri 01/14/2022 Tracking #: 9405 5036 9930 0050 8767 91	1		\$0.00
Prepaid Mail Ellington, CT 06029 Weight: 0 lb 11.20 oz Acceptance Date: Fri 01/14/2022 Tracking #: 9405 5036 9930 0050 8768 38	1		\$0.00
Prepaid Mail Manchester, CT 06040 Weight: 0 lb 11.10 oz Acceptance Date: Fri 01/14/2022 Tracking #: 9405 5036 9930 0050 9371 95	1		\$0.00
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 01/14/2022 Tracking #: 9405 5036 9930 0050 8767 77	1		\$0.00
Prepaid Mail Manchester, CT 06040 Weight: 0 lb 11.20 oz Acceptance Date: Fri 01/14/2022 Tracking #: 9405 5036 9930 0050 9372 18	1		\$0.00